THE *Essential* HANDBOOK *of*

Social Anxiety *for* Clinicians

EDITED BY

W. Ray Crozier
and **Lynn E. Alden**

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Preface

The Essential Handbook of Social Anxiety for Clinicians comprises a set of chapters written by distinguished researchers to give an account of what each regards as important in his or her specialist area. It aims to provide an account of the "state of the art" in the field of social anxiety. There is growing recognition among psychologists that problems of extreme shyness and social phobia are prevalent in the population, and recent years have seen a surge of research into these issues. The structure of the volume recognizes that social anxiety is a broad field encompassing the study of child development, the physiology of anxiety, the psychology of shyness and interpersonal relationships, and clinical approaches to the diagnosis and treatment of social phobia. Chapters provide critical, yet accessible reviews of what they take to be the key issues and practices in their fields. They also include novel ideas and original syntheses of research where these promise to be seminal in the field.

The volume is organized into two sections, concentrating respectively on the origins and development of social anxiety, and clinical interventions designed to reduce anxiety and enhance social functioning. The volume comprises a selection of revised chapters from the set of 23 chapters that formed the *International Handbook of Social Anxiety*, published by John Wiley & Sons in 2001. The selection has been made, within the constraints of overall word limits for this paperback edition, with the aim of providing a comprehensive review of research into social anxiety and the clinical condition of social phobia, examining its development, assessment, and treatment. It provides clinicians and others interested in clinical dimensions of social anxiety with an accessible, valuable source of material on theory, research and practice in the assessment and treatment of social phobia.

Excellent chapters had to be omitted from this volume and the *Handbook* is strongly recommended to readers who would wish to consult chapters on the development of shyness in early childhood and in the school years, the social psychology of shyness, embarrassment, and interpersonal relationships, and the Stanford program for helping individuals overcome their shyness.

The diagnostic criteria for Avoidant Personality Disorder that are included in Chapter 10, Table 10.1, are reprinted with permission from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Copyright 1994 American Psychiatric Association.

Figure 9.1 in Chapter 9 is adapted from Clark, D. M. and Wells, A. (1995) "A cognitive model of social phobia", in R. Heimberg, M. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social Phobia: Diagnosis, Assessment and Treatment*, page 72.

Chapter 1

Constructs of Social Anxiety

W. Ray Crozier *and* **Lynn E. Alden**

This introductory chapter has three aims. First, it draws attention to the high prevalence rates of social anxiety in the general population and as a clinical condition. Second, it considers two frameworks in which explanations of prevalence can be located. Finally, it considers definitions of social anxiety. Questions of definition are always central to scientific investigation, and they are particularly important in a volume such as this, which draws together research carried out in different branches of a discipline, including developmental psychology, psychiatry and clinical psychology. Our goal of facilitating communication among these branches requires a shared vocabulary.

THE PREVALENCE OF SOCIAL ANXIETY

As we write the introduction to this volume in the early years of a new millennium it is difficult to resist the temptation to reflect on the dramatic changes that have taken place in the human condition since the beginning of the previous millennium or even, indeed, the previous century. Without glossing over the poverty and hardship that still blight life in many countries, it is a truism that the world has been transformed since the year 1000. Advances in technology, in economic and financial systems, and in communications, education, sanitation, and awareness of the conditions that foster good health have, among other changes, brought about marked improvements in health, life expectancy, and the quality of life. Even in the past one hundred years there have been dramatic developments that impact on people's prosperity and well being. While many people in wealthy regions like North America or Western Europe still live in poverty, few experience the squalor and absolute deprivation that characterized life in the slums of the large cities at the end of the nineteenth century—for example, the London documented by Henry Mayhew, Charles Dickens, and others (Porter, 1996).

Although the general health of modern societies has improved alongside their growing prosperity (and indices of these are highly correlated) the incidence of problems of mental health is high. This is so despite considerable changes over the past century in society's attitudes to mental illness and an enormous amount of speculation, theory, and clinical research dedicated to identifying and classifying psychological problems, understanding their causes, and developing methods of treatment. In particular, there are high levels of anxiety about social interactions and interpersonal relationships. We can draw upon three strands of evidence to support this assertion.

Shyness is the concept in ordinary English language that captures many of the characteristics of social anxiety, as it is linked to notions of wariness, timidity, and psychological discomfort in interaction with other people. It is used to describe transient feelings ("I was suddenly overcome with shyness") and more stable individual characteristics ("I am basically a shy person"; "my life has been crippled by shyness"). Zimbardo and associates at Stanford University (see Pilkonis & Zimbardo, 1979; Henderson & Zimbardo, 2001) initially surveyed a sample of 817 high school and college students and asked them whether they considered themselves as shy and whether they regarded shyness as a problem. Over 40% of respondents characterized themselves as shy, and of those who thought of themselves as currently shy, 63% endorsed an item asking whether their shyness was a problem for them. Subsequent research has replicated these findings and has also shown that self-attributed shyness is common in all of the many countries that have been surveyed (Pines & Zimbardo, 1978). The incidence in these studies ranged from 24% among a sample of Jewish Americans to 60% among respondents in Hawaii and Japan. More recent surveys suggest that there has been a trend over several years for the incidence of self-attributed shyness to increase. The figure has apparently

risen in the USA from 40 to over 50% (Carducci & Zimbardo, 1997). The Stanford Survey also asks respondents whether they have ever been shy (now or in the past). A large majority of respondents endorse this item (a median value across studies of 84%) and there is little cross-cultural variation in these responses: the proportion of endorsements in different countries ranges from 66 to 92% of respondents—most young adults throughout the developed world have experienced shyness at one time or another.

Obviously there are problems in inferring from these data that rates of shyness are increasing. There is no information about the reliability of the single "yes–no" item or of the small set of shyness-related items comprising the Survey. In addition, tendencies to endorse the items will be influenced by growth in public awareness of shyness, a trend that becomes more likely as articles written by shyness researchers appear in popular magazines and it is covered in the media. Nevertheless, it is clear that a substantial number of people report that they are shy and that their shyness is undesirable and causes a problem for them.

A second strand is represented by a series of studies that were carried out within the framework of a behaviourist approach to the management of anxiety symptoms. In order to assess levels of anxiety and fears, self-report questionnaire measures have been constructed, for example, the Fear Survey Schedules devised by Lang and colleagues (Lang & Lazovik, 1963; Wolpe & Lang, 1964) and submitted to factor analysis. Two social fear factors emerge from these studies: one with highest loadings on items referring to fear of being with a member of the opposite sex or of speaking before a large group, and one loading on items referring to fear of criticism or of appearing foolish. Mean ratings on these social fears items are consistently high.

A third strand relates to epidemiological studies of social phobia. A clinical syndrome of social phobia has been recognized as a diagnostic category since its inclusion in the third edition of the *Diagnostic and Statistical Manual* (DSM-III) of the American Psychiatric Association published in 1980. This edition identified three types of phobias: agoraphobia, social phobia, and simple phobia. Social phobia was characterized as a persistent fear of situations where the individual might be subject to scrutiny by others and anticipates that his or her behaviour will lead to embarrassment or humiliation. This causes the individual a significant amount of distress because he or she recognizes that the fear is excessive.

Epidemiological surveys suggest that the incidence of social phobia in the general population is high. For example, Kessler et al. (1994) reported the findings of the National Comorbidity Study (NCS), a survey of a very large (over 8,000 respondents) national sample in the USA. Trained staff carried out structured interviews; the diagnostic interview included social phobia items that reflected the DSM-III-R criteria. The Survey reported a 12-month prevalence of 7.9% and a lifetime prevalence of 13.3%. These data imply that social phobia is the third most common psychiatric disorder in the United States, after major depression (17% lifetime prevalence) and alcohol dependence (14%). There is also evidence that social phobia is a "chronic and unremittent disorder" (DeWit, Ogborne, Offord, & MacDonald, 1999, p. 569). Their survey of retrospective

accounts of social phobia showed that the median length of illness was reported to be 25 years and in some cases lasted up to 45 years.

These investigations have been criticized by some commentators for overestimating the prevalence of these anxieties, for example, by their reliance on survey approaches rather than clinical records, and by effectively extending the definition of phobia to embrace everyday social anxieties (Cottle, 1999). Of course, this objection begs the question why social anxieties are "everyday" or why there are individual differences in self-reported anxiety such that some people claim to be much less confident and more fearful than others do.

Cross-cultural studies of social phobia also show high prevalence rates across different cultures. There seems to be a somewhat lower incidence in East Asian countries although this conclusion must be qualified by the methodological problems of this research (these issues are discussed by Ingram, Ramel, Chavira & Scher, *Chapter 11*).

THE SOCIAL CONTEXT OF SOCIAL ANXIETY

Despite possible limitations of each of these lines of evidence they do converge on a picture of widespread psychological discomfort in routine social situations. When these reactions are commonplace as opposed to idiosyncratic, they raise questions about the social conditions that foster them. That is, analysis of social anxiety might fruitfully begin, not with the reasons why particular individuals are anxious or shy, but with investigation of cultural influences on patterns of social interaction, intragroup behaviour and intergroup behaviour. What is the nature of a society that produces widespread social unease among its members? This is a question that Zimbardo, Pilkonis, and Norwood (1975) raised in the context of the Stanford Survey findings. They argued (p. 27) that "the problem of shyness is not essentially a personal problem. It is really a social problem. Certain kinds of social and cultural values lead people to imprison themselves within the ego-centric predicament of shyness." They went on to speculate that, "Shyness in America . . . is a consequence of cultural norms that overemphasise competition, individual success, and personal responsibility for failure" (p. 27). A similar point is made by Burgess, Rubin, Cheah and Nelson (*Chapter 5*) who point to differences in the meaning of shyness between Western individualistic cultures and Eastern collectivist cultures. They write that "shyness and behavioral inhibition are positively evaluated in Chinese cultures because these behaviors are considered to reflect social maturity and understanding".

An alternative interpretation of social anxiety is that it is a response to threats to social status or reputation (Nesse, 1998). It is related to emotions of pride and shame, and to claims to entitlement to honour, dignity, and respect. These can be powerful motives for behaviour, as exemplified in the political slogan, "Death before dishonour". All societies have means for indicating social status, for example, through forms of appearance and dress or rules governing how one approaches and addresses an individual of high status. Social interactions are

constrained by unwritten but widely acknowledged rules and conventions, such as "etiquette", "manners", and "taste". Failure to recognize or comply with these forms and rules can lead to punishment or to internalized forms of punishment, notably feelings of shame or guilt. These feelings can constitute a potent means for bringing about social conformity by encouraging self-regulation of behaviour (Scheff, 1988). Nevertheless, there is cultural diversity in how status and reputation are marked. Sennett (1976) has argued that there has been a historical shift in Western societies away from rigid demarcation of status and infrequent interactions between individuals of different status to more fluid boundaries and increasing encounters. For example, rules for appropriate forms of dress for people of different status were once rigidly enforced; while such rules undoubtedly still exist they are now less strictly observed and there is greater tolerance for deviations from norms. The onus is now on individuals to assert their own identity rather than rely upon, say, their accent, uniform, or the design of a tie.

The Self-presentation Perspective

These notions were brought to the attention of social scientists through the seminal writings of Erving Goffman (1972). He paid particular attention to the role of embarrassment in the regulation of social encounters: "Goffmanian men and women are driven by the need to avoid embarrassment" (Schudson, 1984, p. 634). According to Goffman, embarrassment is closely linked with individual claims to identity in the eyes of others. As Silver, Sabini, and Parrott (1987, p. 48) summarize this position:

> Participants need a working consensus about each other's qualities (natures, selves, or characters will do just as well). This working consensus specifies which qualities are relevant to the interaction at hand. It includes the qualities that each actor can be expected to display (and be sanctioned for not displaying) and, therefore, the qualities that each interactant is entitled to treat others (and herself) as having.

Embarrassment ensues when at least one interactant perceives that the consensus cannot be sustained and this brings the interaction to a halt, leaving the participants uncertain what to do next. Typically this breakdown is brought about by a specific unforeseen event or when there is a sudden loss of poise. For example, a child discomfits his parents when they are visiting acquaintances by making a frank remark about their hostess's appearance or by spilling his orange juice over her new carpet. This approach can also accommodate individual differences. Social discomfort can ensue when an individual senses, rightly or wrongly, that he or she lacks the qualities necessary to sustain a social encounter. Goffman regards the routine social encounters of everyday life as a series of negotiations where the social identities of interactants are claimed, accepted, or challenged. These negotiations require that interactants should have certain com-

petencies and, perhaps of particular relevance to social anxiety, confidence in their competencies. Finding himself in the company of distinguished social anxiety scholars, a psychologist who lacks confidence in his own grasp of the subject may become tongue-tied and self-conscious. This represents the approach to shyness taken by Goffman (1972, p. 107):

> Various kinds of recurrent encounters in a given society may share the assumption that participants have attained certain moral, mental, and physiognomic standards. The person who falls short may everywhere find himself inadvertently trapped into making implicit identity-claims which he cannot fulfil . . . And, if he only imagines that he possesses a disqualifying attribute, his judgment of himself may be in error, but in the light of it, his withdrawal from contact is reasonable.

An individual's shyness might not be noticed by other interactants or it might be interpreted in other ways. Nor might it make much impact upon the social encounter, which may carry on without his or her active contribution. Nevertheless, there is evidence that an individual's shyness can and does influence other people's interpretations of his or her qualities and, in the longer term, it can be a significant factor in shaping social relationships.

The major legacy of Goffman's writings has been social psychological explorations of the notions of impression management and self-presentation. Theories of self-presentation have been applied to a range of psychological phenomena. Goffman's notion of *preventive practices* has given rise to theoretical analysis and empirical investigations of impression management strategies (Shepperd & Arkin, 1990). There are similarities between these strategies, the self-protective behaviours that characterize many social phobics (Alden, *Chapter 8*), and the "safety behaviours" adopted by the socially anxious (Clark, *Chapter 9*). Schlenker and Leary (1982) produced a highly influential theory of social anxiety, which conceptualizes it as the motivation to create a desired impression in others combined with a lack of confidence in the ability to do so. This theory has been applied to shyness, embarrassment, blushing, and social phobia.

Goffman's account of embarrassment has been criticized on a number of grounds, for example, that it describes social relationships as they are located within a particular, capitalist social order, or that it overemphasizes the significance of embarrassment. After all, many people often seem oblivious to the impression that they are creating in others and most interactions proceed without any breakdown in consensus (Schudson, 1984). Nevertheless, embarrassment, shyness and other forms of social discomfort do seem to be universal. For example, although research based on the Stanford Survey identified a significant degree of cultural variation in the incidence of self-attributed shyness, this was found to characterize a sizeable proportion of respondents in all the countries sampled. An alternative approach to social anxiety focuses on this universality and positions individual concerns with status and reputation within a biological perspective.

The Evolutionary Perspective

Evolutionary psychology has provided analyses for a range of human behaviours. It takes as central to its approach the adaptive significance of behaviour. This is not adaptation in the more common sense in psychological theory, in terms of the individual's adjustment to his or her environment, including the social environment. Adaptation is defined "as traits shaped by natural selection that serve functions that increase net reproductive success" (Nesse, 1998, p. 398). Analysis of social anxiety begins with recognition that the human is a social species, evolved, like many other such species, to live in hierarchically organized groups. Belonging to the group is adaptive in the sense outlined above, whereas social exclusion is maladaptive and makes it less likely that the individual will survive and pass on its genes. Hierarchical organisation is an effective arrangement of social life, facilitating group living while minimizing intragroup competition for mates and resources and its contingent aggression. Fear (and anxiety) has evolved because it is adaptive in a number of important ways, for example in anticipating danger and facilitating avoidance and escape. Nesse (1998) argues that although anxiety is typically thought of as maladaptive, in the sense that for the individual it is a painful experience and can be disruptive, restrictive, and overwhelming, its important feature—and the reason that it has not become extinct over time—is its adaptive significance for reproductive success.

Gilbert and associates (Gilbert & McGuire, 1998; Gilbert & Trower, 1990; see Gilbert & Trower, 2001) have pioneered the application of an evolutionary perspective to social anxiety. Their approach is based on analysis of different forms of group living in the service of reproductive success. Humans, like members of other group-living species, compete with one another for resources and seek to appear attractive to conspecifics, sexually or otherwise. The approach draws upon the thesis (Chance, 1988) that the organisation of living in groups can be classified into two forms. The agonic (threat based) mode is characterized by dominance hierarchies of power and rank. The hedonic (affiliation based) mode is characterized by mutual dependence and reciprocal relationships. Group members have developed appraisal systems that enable them to be alert to social threats of attack, exclusion, rejection, and loss of status, and have also developed competencies for selecting appropriate responses. Anxiety relates to these appraisals and responses. It can arise from the inappropriate activation of the defensive system that is responsive to threat to social status, for example, the individual tends to treat social interactions as potentially threatening. It can result from a failure to recruit the safety system which permits the individual to feel safe in the presence of others, or from fear of appearing unattractive to others.

The model offers an account of the universality of social anxiety and tries to show why social situations are threatening even when they involve little risk of physical danger. It provides an explanation of its pervasiveness, where individuals experience anxiety even though "objectively" they know that it is uncalled for or they try without success to control it. It also gives insight into specific charac-

teristics of social anxiety. For example, lowering the eyes and gaze aversion is a typical response in shyness, embarrassment, and shame (Reddy, 2001). This is frequently interpreted as a social gesture, intended to signal submissiveness or appeasement (Keltner, 1995). It is sometimes construed in terms of shutting out information. For example, Barrett (1995, p. 41) writes that, in addition to communicating submission or deference, gaze aversion, along with lowering the head and hiding the face, serves to "distance" the ashamed individual from important others, and removes the face from their evaluation. This is similar to the interpretation offered within an evolutionary framework by Dixon (1998) who argues that "cut-off" acts and postures are used by animals when their escape from the threatening situation is blocked and they reduce the visual information emanating from the source of threat. This interpretation draws attention to a function of gaze aversion that could be explored in social anxiety research; it can assist in the self-regulation of arousal and gives the organism some "space" in which to seek an alternative strategy.

Explanations of social anxiety in terms of evolutionary psychology or the social psychology of impression management agree in asserting that anxiety is an inherent feature of social life. Although the aversive quality of the experience is more usually the focus of attention, it is salutary to recognize that anxiety serves useful functions. It helps to regulate social life while minimizing the risks of aggression or an irreparable breakdown in the group's activity. It is also functional at the individual level in helping the individual to acquire self-knowledge, in enhancing awareness of standards for behaviour, and in encouraging processes of self-regulation. Nevertheless, there are individual differences in propensity to anxiety and, for many people, this comes to dominate and restrict their social encounters and relationships—shyness is often described as "crippling" or a "handicap". Much of this volume is directly concerned with this individual variation.

MATTERS OF DEFINITION

Thus far we have been shy of offering a formal definition of social anxiety, but we hope that our use of the term anxiety has been uncontroversial since it corresponds to usage in both the lay and the psychological vocabulary, for example, as defined by *The Penguin Dictionary of Psychology*, "A vague, unpleasant emotional state with qualities of apprehension, dread, distress and uneasiness". Leary (1983, p. 15) has offered a formal definition of anxiety as: "a cognitive-affective syndrome that is characterized by physiological arousal (indicative of sympathetic nervous system arousal) and apprehension or dread regarding an impending, potentially negative outcome that the person believes he or she is unable to avert". By social anxiety, we mean that this anxiety is triggered by the prospect or reality of certain kinds of social situations, as opposed to anxiety associated with, say, insects, heights, enclosed spaces, blood, death, and so on. Empirical research can identify the range of social situations that tend to

elicit anxiety (meeting new people, going on a date, public speaking, answering the telephone, etc.) while clinical case studies can identify the specific kinds of situations that trouble individuals.

So far we have treated shyness in its everyday usage as a word that refers to apprehension and uneasiness about social situations while recognizing that it has further connotations of timidity and wariness. It would be a task for sociolinguistic analysis to tease out these connotations. However, some psychologists have also used the term in a technical sense, as a label for a specific emotional state or as a summary of a trait that is called upon to help explain social difficulties. This inevitably raises questions about the relations among the various constructs in this field: shyness, social anxiety, and social phobia. Furthermore, there are questions about the relations between these and constructs that have been developed in studies of children, particularly social withdrawal (Rubin, Burgess, Kennedy, & Stewart, 2003; also Burgess, Rubin, Cheah, & Nelson, *Chapter 5*) and behavioural inhibition, (see Marshall & Stevenson-Hinde, *Chapter 3*). These issues are particularly important for this volume, which aims to bring together research into the origins and development of social anxiety and research from clinical perspectives. This research is often published in separate scholarly journals, and it is essential to establish connections among these. Our approach to these problems of definition is based on two assumptions. The first is that it is useful in research into anxiety to distinguish between a state and a trait. The second is that it is important to consider that experiences like shyness and anxiety are complex, that they can be construed as having cognitive, somatic, and behavioural dimensions, and are not reducible to only one of these dimensions.

State Anxiety

The greatest confusion in terminology seems to occur at the state level. Psychologists have investigated a number of emotions that are distinguished in everyday vocabulary, particularly shame, guilt, embarrassment, shyness, and anxiety. Some, for example, Buss (1980), have defined these as different forms of social anxiety, but this has proved problematic, and it is not obvious that they are all anxiety states. Others have argued that they constitute distinct emotions: for example Miller (1996) argues that embarrassment meets all the accepted criteria for identification as a basic emotion in its own right; it has quick onset, brief duration, involuntary, relatively automatic appraisal process, universal antecedent events, distinctive physiological responses, distinctive emotional display, and is found in other species. (See Lewis, *Chapter 4*, and Miller, 2001, for discussion of shyness and embarrassment.) Whether or not it is a distinct emotion, embarrassment shares with shyness, shame, and guilt at least one component—namely, self-consciousness; indeed, these have been labelled as the "self-conscious emotions" (Tangney & Fischer, 1995). Self-focused attention is also a characteristic of anxiety; for example, there has been considerable research in the

test anxiety literature into the detrimental effects of self-preoccupation upon task performance (Sarason, Pierce, & Sarason, 1996).

Buss (1980) argued that self-attention was the essential element shared by different forms of social anxiety and subsequent research has established its key role in shyness, shame, embarrassment, blushing, social phobia, and negative affect more generally (Mor & Winquist, 2002). For example, shy individuals spend more time in self-focus during a social encounter than the less shy (Melchior & Cheek, 1990). Improvements in social phobia following cognitive behaviour therapy are associated with reductions in self-focused attention (Woody, Chambless, & Glass, 1997). The self, and self-consciousness in particular, plays a key role in current conceptualizations of social anxiety and is addressed throughout this volume (for example: Lewis, *Chapter 4*; Ingram, Ramel, Chavira, & Scher, *Chapter 11*; Clark, *Chapter 9*; Coles, Hart & Heimberg, *Chapter 12*).

These states reflect the individual's concern with threats to his or her reputation or standing in the eyes of others, and self-consciousness may be a key element because it forms part of the appraisal process whereby the individual monitors how his or her conduct appears to others. Leary and Downs (1995) have postulated an executive process, the *sociometer*, which is credited with such an appraisal function, although they also consider that it can operate outside conscious awareness. Clark (*Chapter 9*) also refers to the detailed self-monitoring that is triggered when the anxious individual senses that he or she is in danger of being negatively evaluated by others. Anxiety also makes individuals alert to cues of threat from the environment. Coles et al. (*Chapter 12*) discuss this in terms of hypervigilance for social threats and cues about potentially negative social outcomes. Clark (*Chapter 9*) reviews evidence on biases in processing social cues (see also Baldwin & Fergusson, 2001).

At our current level of understanding it may be more fruitful to consider these states as sharing a family resemblance rather than claiming that they are discrete emotions or that they share a single underlying factor like "social anxiety".

There are circumstances in which experiences are more likely to be labelled in one way than in another. To consider one example, Jane is *anxious* while she is waiting to go on stage in a musical produced by her university drama group. Unfortunately, when she performs her first number, her singing is off key and below the standards of everyone else. Jane might feel *embarrassed* about her performance, attributing it to first night nerves or to the discomfort of the stage lighting and her costume. She might feel *ashamed* of herself for having let everyone down or *guilty* at having taken a part that could have been played by a better singer. She might feel *shy* at the prospect of talking about the show afterwards with the other cast members or with her friends in the audience. Members of the audience could be *embarrassed* for her, empathizing with her predicament, but they could also be *embarrassed* by her performance, unsure how to react. They could be *ashamed* of her, for letting down the university, *guilty* for giving her the part, and so on. They could feel any of these even if Jane is blissfully unaware of how her performance is being received. It is an important goal of research to tease out the various experiences that can occur in social situations like

these. This example suggests that the context in which emotions are elicited is an important consideration in deciding which member of a family of emotions is experienced.

Differences among states are not simply a matter of labelling. There is variation in physiological concomitants; for example, blushing is elicited in some circumstances but not in others (Edelmann, 2001; Crozier, 2004). Some experiences are recurrent, they evoke intense reactions or are difficult for the individual to assimilate to their self-image and cause her problems or predispose her to seek professional help. For example, most people blush, for many this occurs frequently or with intense colour, and some find their fear of blushing so unbearable that they are prepared to undergo irreversible surgery (Drott, Claes, & Rex, 2002). All of these states fall within the domain of social anxiety, since they are all instances of uneasiness and discomfort produced by social situations, even though it is a question for research whether they are indeed forms of anxiety.

Trait Anxiety

The primary problem at the trait level concerns the comparative meaning of a number of related constructs, specifically shyness, behavioural inhibition, withdrawn behaviour, social anxiety, and social phobia. There are important distinctions to be drawn. First, social phobia is not a type of temperament or a personality trait but is a category within a diagnostic classification scheme—in most research into social anxiety, the various editions of the DSM. Whether or not an individual is assigned to this category is, in part, a function of factors that influence his or her decision to seek help (hypothetically, the same level of anxiety can lead one person but not another to seek professional help) or determine access to clinicians who recognize the condition (some physicians may decide the individual is suffering from generalized anxiety or from a condition that is comorbid with social phobia, such as depression or alcohol abuse). It is possible that specific temperaments (behavioural inhibition) or traits (shyness, social anxiety, extraversion or neuroticism, see Widiger, *Chapter 10*) predispose people either to develop extreme fears or to seek help for their problems, but this is a matter for research to establish. Any scheme and its categories evolve as understanding of social anxiety develops. Thus, the defining criteria for social phobia have changed with successive editions of the DSM. DSM-IV introduced a distinction between social phobia and avoidant personality disorder. This distinction may stand the test of time or it may be redrawn in the light of accumulating evidence (see Widiger, *Chapter 10*; also Rettew, 2000). Research suggests that distinctions can also be made among generalized social phobia, where a range of situations produce anxiety, non-generalized social phobia, where anxiety is restricted to a small number of types of situations, and phobia about public speaking (e.g., Westenberg, 1998).

Turner et al. (1990) provided a summary of similarities and differences between shyness and social phobia. These share several features: negative cogni-

tions in social situations; heightened physiological reactivity; a tendency to avoid social situations; and deficits in social skills. Negative cognitions include fear of negative evaluation, self-consciousness, devaluation of social skills, self-deprecating thoughts, and self-blaming attributions for social difficulties. Social phobia is distinct from shyness in that it has a lower prevalence in the population, follows a more chronic course, has more pervasive functional impairment, and a later age of onset. There are problems with these kinds of comparisons. It is not clear in what sense "shyness" is being used, whether as a lay term (e.g. drawing upon findings from the Stanford Survey) or as tied to personality measures, and the sense in which it is used will affect, for example, estimates of the prevalence of shyness. Different kinds of information are used to assess the characteristics of social phobia; for example, interview data are used for prevalence rates whereas clinical evidence is the source for inferences about its chronic and unremitting nature. Nevertheless, it seems reasonable to conclude that individuals who present with the problems that attract a diagnosis of social phobia share many characteristics with individuals who describe themselves as shy and report their shyness as a serious problem. It may be that the differences between them are quantitative rather than qualitative. For example, there are parallel sets of findings between clinical samples of social phobics and samples of students obtaining high scores on measures of shyness or social anxiety (see Clark, *Chapter 9*, for examples of this research).

One hypothesis about the relationship between shyness and social phobia is that they are located at different places along a continuum of intensity of social anxiety. McNeil (2001) proposed that shyness spans a range from normal to pathological levels while at the extreme anxious end of the dimension are found nongeneralized anxiety, generalized social anxiety and, finally, avoidant personality disorder. Thus, the differences between shyness and the anxiety disorders are quantitative rather than qualitative. There have been attempts to test this model with non-clinical samples, taking the Revised Cheek and Buss scale (Cheek, 1983) as a measure of shyness and the Composite International Diagnostic Interview (World Health Organization, 1997) as the measure of social phobia, either based on an interview (Chavira, Stein, & Malcarne, 2002) or self-administered (Heiser, Turner, & Beidel, 2003). Both studies identified overlap between shyness and social phobia. For example, Chavira et al. (2002) found that 50% of those participants with high scores (above the 90th percentile) on the shyness measure obtained a social phobia diagnosis, 36% a generalized social phobia diagnosis, and 14% a diagnosis of avoidant personality disorder. Both studies found that those with high shyness scores were more likely to obtain a diagnosis of anxiety disorder than were those with less extreme shyness scores. Nevertheless, in each study, substantial numbers of extremely shy participants did not attract a diagnosis of anxiety disorder and there was overlap in shyness scores between those with and those without a diagnosis, thus providing at best only partial support for a continuum model. Shy participants with social phobia differed from those without social phobia in several respects. They were more likely to report that their social anxiety impeded functioning in social life and in work

or school (but not in family life) and shy participants with major depression were more likely to have social phobia (Chavira et al., 2002); they were more likely to obtain a diagnosis of avoidant personality disorder (but not any other Axis I disorder), and had higher scores on introversion and extraversion (Heiser et al., 2003). Finally, both studies suggest that shyness is associated with a heterogeneous set of disorders, and not simply with social phobia. Clearly, the reliance on data from college students is a limitation of these studies and future research should investigate relationships between shyness and anxiety disorders in samples that are more representative of the population as well as clinical samples.

Factor analysis has been the preferred method in personality research for bringing order to trait concepts. It has given rise to two views on the status of shyness, the most studied trait in research into social anxiety in non-clinical samples. First, the major factor analytic studies have identified two higher order traits—introversion and neuroticism (see Widiger, *Chapter 10*) and have not identified a shyness factor. Rather, it is proposed, shyness refers to a combination of these two traits or its elements are distributed across various personality dimensions (Rettew, 2000). Counter to this, it can be argued that it does not follow from the finding that measures of shyness are located relative to these two traits in the personality sphere, that shyness is merely the combination of them. Major factor analytic studies of personality traits have identified meaningful factors of shyness that have reliability and validity (Crozier, 1979) and it is a matter of the goals of particular research projects whether to work with these factors or with higher order factors. Furthermore, in practice the intercorrelations among shyness measures are substantial and a factor analysis of sets of items tends to yield one common factor (Briggs, 1988). Shyness measures are also highly correlated with measures of social anxiety (Pilkonis, 1977a) so that it would be difficult to construct a shyness scale that did not correlate significantly with social anxiety scales, and *vice versa*. These findings imply that shyness and social anxiety are not discrete phenomena. Notwithstanding these findings, research has more generally found it valuable to treat anxiety as multidimensional, and to distinguish cognitive, somatic, and behavioural dimensions. Anxiety is associated with worry, self-preoccupation and self-deprecatory thinking, heightened sympathetic system arousal, and behaviours that are expressive of heightened arousal (pallor, trembling) or function to cope with threat (escape, aggression). It seems sensible to maintain these distinctions in the case of social anxiety since research has also identified these dimensions although they take specific forms. For example, self-consciousness is a significant element of the cognitive dimension, blushing of the somatic dimension, and gaze aversion and reticence of the behavioural dimension (these reflect the particular nature of social threats and ways of coping with them, given the difficulty of escaping most potentially threatening situations). Furthermore, some research has shown that shy individuals vary in the emphasis they place on these dimensions of their experience (Pilkonis, 1977a; Cheek & Watson, 1989; Cheek & Krasnoperova, 1999). Finally, keeping the distinction in mind also helps to resolve disagreements in definition. Cheek and Briggs (1990, p. 321) defined shyness as "the tendency to feel tense, worried, or awkward during

social interactions, especially with unfamiliar people" whereas Leary (1986, p. 29) argued that the term is best reserved to describe a specific syndrome that involves inhibited behaviour as well as anxiety. The difference here is on the emphasis that is paid to the various dimensions. It is important that research studies are explicit about the measures of social anxiety that they use; without this information it is difficult to compare studies and accumulate evidence.

Traits and Situations

One key issue with regard to trait anxiety is the relative role of trait and situational influences on social anxiety. Social life consists of a diverse range of encounters with other people, from brief transactions with unfamiliar people, for example, those who serve in supermarkets, garages, restaurants, and so on, to recurrent but superficial encounters with neighbours and acquaintances, to exchanges with colleagues in the work environment, to time spent with partners, friends and family members. By definition, social interactions involve more than one person and they are rewarding, productive, satisfactory, or otherwise depending on the degree of "meshing" between individual goals and styles of interaction. The Stanford Survey established that shyness was more likely when social encounters were unfamiliar, involved power or status differences, gender differences, or the presence of large numbers of people. The prospect of being evaluated by others is an important element in the situations that elicit shyness and it is prominent in the diagnostic criteria for generalized social phobia and avoidance personality disorder (Rettew, 2000). This implies a statistical interaction between trait and situation effects, where individual variation is most pronounced in certain types of situations. Unfamiliar and evaluative situations have been most emphasized in research.

Unfamiliar Situations

The role of novelty has been a constant theme in research into social anxiety. Its influence can be direct, eliciting behavioural inhibition (Kagan, 1998) or shyness (Asendorpf, 1989). It can also be indirect, serving as a potential trigger of the combination of conditions that, according to the Schlenker–Leary theory, produces social anxiety, namely social evaluation concerns and lack of self-confidence (Schlenker & Leary, 1982).

Although children are social creatures from birth and the quality of their early social relationships is widely regarded as a significant influence upon adult personality, there is a long course of development before the individual takes his or her place in the adult social world. Social anxiety in childhood is an important topic for investigation, both for the evidence it provides about the antecedents of adult social anxiety, and because it can create a problem for children's adjust-

ment (Burgess et al., *Chapter 5*; Rapee & Sweeney, *Chapters 6* and *7*). Research has received an enormous impetus from the study of behavioural inhibition in childhood (see Schmidt et al., *Chapter 2* and Marshall & Stevenson-Hinde, *Chapter 3*). Kagan (1998, p. 212) regards "shyness with strangers, whether peers or adults, as only one feature of a broader temperamental category called inhibition to the unfamiliar". In the initial research carried out by his group at Harvard, parents were interviewed by telephone about their child's shyness and a sample of these children were invited to the laboratory for detailed investigation, where they were exposed to a range of unfamiliar situations. Children were identified as inhibited on the basis of their tendencies to be upset, to be hesitant in approaching a stranger or a new toy, and to be little involved in spontaneous interaction. A longitudinal investigation has provided evidence for the relative stability of inhibition and has shown differences on physiological measures between inhibited and uninhibited children that are consistent with the thesis that behavioural differences are mediated by anxiety (see Schmidt et al., *Chapter 2*, and Marshall & Stevenson-Hinde, *Chapter 3*).

Although this temperament relates to reactions to all forms of novelty and not just to unfamiliar social situations, it has clear connections with shyness, and the term "inhibition" is often used interchangeably with shyness. Although inhibition has typically been assessed on the basis of systematic observations of behaviour, ratings by parents, teachers and psychologists have also been frequently used, for example, in such rating scales as the EAS Temperament Survey or Colorado Child Temperament Inventory (Buss & Plomin, 1984) or the Child Behavior Questionnaire (Rothbart, Ahadi, & Hershey, 1994).

Similar patterns of behaviour are to be found among inhibited and shy children. Thus, reticence, more specifically the timing and frequency of speech acts, has consistently differentiated between shy and less shy adults and children, and between inhibited and less inhibited children. In comparison with their less shy peers, shy adults take longer to produce their first utterance in conversation with an unfamiliar person; they are slower to break a silence in conversation, and they speak for a smaller proportion of the time (Pilkonis, 1977b; Cheek & Buss, 1981; Bruch, Gorsky, Collins, & Berger, 1989; Bruch, 2001). Similar trends emerge in studies of children. For example, Kagan et al. (1988) reported that 7-year-old children who had originally been identified as inhibited when they were 21 months old took significantly longer to produce their first spontaneous comment during a test session with an adult experimenter than did non-inhibited children. Eisenberg et al. (1998) reported a similar delay in reaching a criterion number of spontaneous utterances among a sample of children who were rated by their parents as shy. Asendorpf and Meier (1993) reported a similar trend, but their research demonstrates the importance of taking situational factors in shyness into account. In their observational study, children who had been rated as shy by their parents were more reticent in interactions with strangers but there was no comparable trend when they were interacting with those with whom they were familiar.

Among adults admitted to an anxiety disorders clinic, significant correlations have been reported between measures of social phobia, shyness, and retrospec-

tive self-report of behavioral inhibition in childhood (Van Ameringen, Mancini, & Oakman, 1998). In addition to retrospective accounts, there is growing evidence that children who have been identified as inhibited in childhood are at somewhat greater risk for subsequent anxiety disorders (Hirschfeld et al., 1992; Turner, Beidel, & Wolff, 1996) and for shyness and reduced social effectiveness (Gest, 1997).

Schmitz et al. (1999) found that shyness, assessed at four ages—14, 20, 24, and 36 months, was modestly but significantly correlated with a measure of internalizing problems at age four years, and behavioural genetic analysis indicated that there was a genetic influence on shyness and an influence of genetic and non-shared environmental factors on the relationship between shyness and internalizing problems. There is evidence of predictive relationships over more extended periods of time. In an analysis of an Australian cohort of 2,000 children, Prior, Smart, Sanson, and Oberklaid (2000) found that inhibition was correlated with anxiety problems at age 13 to 14 years among those children who had been consistently inhibited throughout the childhood years. Similarly, Schwartz, Snidman, and Kagan (1999) found that children who had been assessed as inhibited in their second year had higher levels of social anxiety at 13 years than those who had not been identified as inhibited. Kagan and Snidman (1999) studied the prevalence of anxiety symptoms at 7.5 years within a sample of children who had been assessed for emotional reactivity when they were aged 14 months. High reactive infants at 14 months were significantly more likely to have anxiety symptoms at 7.5 years than were low reactive infants (45% compared with 15%). There was evidence of both constancy and change. Whereas only a minority of children (18%) were consistently reactive in infancy, inhibited at 4.5 years and anxious at 7.5 years, no child who had been high reactive in infancy was in the uninhibited category or had no anxiety symptoms at the two later ages.

The pattern of findings in studies of inhibition and anxiety shows suggestive parallels with research into relations between shyness and social phobia, namely that there is a statistical association between the category of interest (high reactivity, in the case of temperament, shyness in the case of research into adult anxieties) and anxiety symptoms, the majority of members of the category do not show anxiety symptoms, and there are differences between those who do have anxiety symptoms and those who do not. In the case of reactivity, high reactive children who had anxiety symptoms were more likely than those who did not to have a narrower face (associated with inhibition in Kagan's research) and to show signs of greater sympathetic nervous system influence on cardiovascular activity.

The moderate size of the relationship between behavioural inhibition and subsequent social anxiety may reflect a number of factors (over and above questions about the reliability of the measures of inhibition or temporal changes in inhibited status). First, inhibition may predispose an individual to the disorder by making him or her more vulnerable to stressful experiences; it is not a sufficient precondition, and not all inhibited children will develop social anxiety. Second, there may be alternative pathways to social anxiety that do not necessarily origi-

nate in inhibition and one reason for thinking this is the role of self-evaluative concerns in shyness.

Individual variation in childhood shyness can be detected at an age when it is unlikely that children have any well-developed sense of themselves as social actors or a very sophisticated awareness that they can be the object of negative evaluation by other people. It is possible that individuals who were not inhibited at a younger age become shy only when they do develop the capacity to reflect upon their behaviour from another perspective. One can speculate that a predisposition to this may not simply be a matter of temperament but also of the self-schemata that have been constructed out of attachment experiences or other parent–child interactions (Burgess et al., *Chapter 5*; Alden, *Chapter 8*; Rubin et al., 2003).

Evaluative Situations

Currently there is debate among researchers whether there are distinct forms of shyness—one appearing earlier than the other and related to fear of strangers, and another appearing later, related to social-evaluative concerns (Lewis, *Chapter 4*; Crozier, 1999; Yuill & Banerjee, 2001). Asendorpf has provided evidence implying that a distinction between types of shyness is also apparent in adulthood, and argues, "the same observable shy behavior can arise from two different inhibitory processes. According to this view, abnormal shyness with strangers and abnormal shyness due to social-evaluative concerns may be quite different disorders although they share the same overt behavior" (Asendorpf, 1993, p. 1071). Establishing the validity of this distinction has obvious implications for treatment since greater refinement of categories can lead to interventions targeted at specific concerns.

A detailed analysis of the situations that elicit shyness or social anxiety also plays an important role in psychotherapeutic approaches designed to help people overcome social anxieties. It forms the basis for identifying the belief systems that give rise to, and serve to maintain, anxiety. It assists in the development of approaches to treatment, whether this is systematic exposure to feared situations, the planning of appropriate homework exercises, or the construction of challenges to the coping strategies (or safety behaviours—Clark, *Chapter 9*) that clients have relied upon to help them to deal with particular classes of situation. It has potentially an important role to play in the evaluation of treatment programmes, including pharmacological regimens. Although clinician reports or client self-reports are common outcome measures in evaluation research (Hood & Nutt, *Chapter 13*) the situational nature of social anxiety implies the necessity to assess individuals in the specific situations that concern them.

Social anxiety is evidently a function of social situations as well as of temperament or personality characteristics. Shy individuals can be comfortable in some situations but ill at ease in others. Although research has identified features of social encounters that seem to be important for inducing

anxiety, it should be recognized that the shift from confidence to discomfort can be produced by quite subtle changes in the nature of the situation. Furthermore, it is misleading to consider situational and personal factors as independent since it is the individual's interpretation of the situation that is crucial. This has long been recognized in research into anxiety; for example, manipulation of experimenter instructions can be sufficient to encourage a test-anxious individual to perceive an upcoming assessment as ego-involving and threatening or can induce a less threatening attribution. Nevertheless, it is a fundamental assumption of theories of social anxiety that individuals bring something to social situations, whether this is an inhibited temperament, self-schemata, mental representations of recurring social situations, learned habits, or coping behaviours.

CONCLUSION

Social anxiety is prevalent in the population, whether in terms of self-reported shyness or social fears or symptoms of social phobia. Understanding the reasons for its prevalence will require contributions from many academic disciplines; we have argued that it is a social phenomenon as well as an individual one. Psychological research has developed along several fronts. One approach (the focus of Section Two) examines social phobia from a clinical perspective, aiming to refine diagnostic criteria and to test psychotherapeutic or pharmacological forms of treatment. Another approach has investigated shyness in childhood, and a particularly influential construct has been behavioral inhibition. This research, which is the focus of Section One, has been characterized by the extensive (and welcome) use of longitudinal methods.

Issues of definition remain a preoccupation in research into social anxiety. Clearly there is an onus on researchers to be explicit about the terms that they use, to provide details on the measures that operationalize the definition, and to be particularly careful when mixing lay and technical uses of terms. Social anxiety is neither a simple nor an unambiguous concept, yet we hope that this volume illustrates how investigations have found regularities in the patterns of cognitions, affective reactions and behaviours of individuals who are identified as inhibited, shy, socially withdrawn, socially anxious, or social phobic.

Despite differences in definitions and measures, common threads have emerged and are the focus of much of this volume, and we finish this chapter by alluding to some of these. One is that social anxiety is associated with heightened self-consciousness and with self-deprecation, particularly of the anxious individual's own social competence. A second is that anxious individuals have a heightened sensitivity to cues of social threat. A third is that anxious individuals adopt coping styles that can be counter-productive and function to reinforce rather than alleviate their social difficulties or anxiety. A fourth is evidence of psychophysiological differences between anxious and less anxious individuals, and developments in research here are associated with growing sophistication in

measurement techniques. A challenge for the future is to form connections between different research programmes that are currently undertaken in different branches of psychology. For example, research into the biological bases of inhibition and fearfulness in childhood could result in greater understanding of the neurochemical bases of pharmacological approaches to treatment of social anxiety (reviewed in detail by Hood & Nutt, *Chapter 13*). Research into the origins of self-consciousness or reticence in childhood can yield insight into the low social self-esteem and self-efficacy that characterizes social interaction styles in adulthood. More generally, little is as yet known about the origins and antecedents of social anxiety, and the factors that predispose some individuals rather than others to experience chronic levels of anxiety, but the research into inhibition and shyness that is reviewed in the first section of this volume shows many highly promising lines of enquiry.

We hope that researchers, teachers and practitioners will learn much from this volume, that they will not only find considerable interest and reference value in those chapters more directly relevant to their specialist concerns but will also find the chapters dedicated to other, perhaps less familiar aspects of social anxiety, exciting and useful. We hope, too, that our endeavour to bring together the findings of research from different perspectives and frameworks will stimulate the development of the study of social anxiety and of interventions that can alleviate this common and distressing condition.

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Section One

Origins and Development

Introduction

The Development of Social Anxiety

W. Ray Crozier *and* **Lynn E. Alden**

BIOLOGICAL BASES OF INHIBITION AND SHYNESS
Temperament
The Emergence of Self-consciousness
FAMILY INFLUENCES ON SHYNESS
CONCLUDING REMARKS
REFERENCES

The considerable amount of attention that is currently paid to shyness in the child development literature owes much to the significant programme of longitudinal research into the temperamental category of behavioural inhibition undertaken by Jerome Kagan and his associates at Harvard. In itself, this programme has yielded considerable insights into the origins and development of shyness. In addition, it has stimulated important research in other laboratories, for example, by Fox and his colleagues at Maryland (see *Chapter 2*) and Stevenson-Hinde and her co-workers at Madingley, Cambridge, in the United Kingdom (see *Chapter 3*). However, other research traditions have also contributed to our understanding of the origins and development of social anxiety. In this brief introduction to Section One we consider some of these contributions and also draw attention to links that are currently being made between them and the temperamental approach. These include: links with attachment theory (Marshall & Stevenson-Hinde, *Chapter 3*; Burgess et al., *Chapter 5*), styles of parenting (Schmidt et al., *Chapter 2*; Burgess et al., *Chapter 5*); cognitive development (Lewis, *Chapter 4*); emotional development (Lewis, *Chapter 4*).

BIOLOGICAL BASES OF INHIBITION AND SHYNESS

Temperament

Explanations of individual differences in terms of temperament were neglected in psychology for many years, in tune with a zeitgeist where the emphasis was placed on environmental factors as the predominant influence on human development. This position reflected to a large extent the widespread distaste with biological explanations that followed controversies about race and intelligence. Yet there was much evidence to show that individual differences among babies are evident at birth, and a major investigation (the New York Longitudinal Study) led by Thomas, Chess, and their colleagues, sought to identify a small set of basic temperaments that might underlie this diversity. This research was initially largely descriptive and sought to find order in individual variation, establish the extent of temporal stability of basic temperament dimensions, and investigate their ability to predict child and adult personality and adjustment.

Kagan's programme has been developed within this biological framework, concentrating on a temperament labelled *behavioural inhibition to the unfamiliar*, defined by Kagan, Reznick, and Snidman (1985; cited by Marshall & Stevenson-Hinde, *Chapter 3*) as referring to "the child's initial behavioral reactions to unfamiliar people, objects, and contexts, or challenging situations". Despite the wide range of types of situation that can be unfamiliar, and hence provoke these reactions, there has been an emphasis in the literature on the links between inhibition and behaviour in social settings. Encounters with unfamiliar adults or children play a large part in the assessment of inhibition. Outcome measures in empirical studies include the child's reticence and hesitation in making spontaneous contributions to conversation and his or her tendency to hover at the edge of social situations, in addition to ratings of shyness made by parents or by observers of the child's behaviour. There is some evidence to suggest that the standard measure of inhibition can be disaggregated into social and non-social forms of inhibition (Kochanska, 1991) or into inhibition with peers and with adults (Rubin, Hastings, Stewart, Henderson, & Chen, 1997), and it is possible that research to date has underestimated the strength of the relation between early appearing inhibition in social settings and shyness later in childhood.

The programme design has been longitudinal and has addressed issues such as cross-situational consistency in inhibition, the stability of the temperament over time, and prediction of personality and behaviour in later childhood and adolescence. Kagan has been explicit about the value of treating temperament as a category rather than a dimension, and hence stability is gauged in terms of the likelihood of changes of category membership rather than quantitative differences on criterion measures.

A distinctive feature of the research has been its aim to account for variation, not simply to describe it. Kagan's explanation is in terms of individual differences in reactivity to threat and he assigns a central role to limbic structures, particu-

larly the amygdala and its projections (Kagan, 1994). The psychophysiological model has been tested by making predictions about peripheral response systems, based mostly on measures of heart period and heart period variability, although other measures have been used, such as cortisol levels. The theory has connected with accounts that focus on the role of hemisphere asymmetry in processing negatively charged emotional information (see Schmidt et al., *Chapter 2*, for a summary of this research; also Schmidt & Schulkin, 1999). Marshall and Stevenson-Hinde (*Chapter 3*) provide a thorough review of research into the physiological correlates of behavioural inhibition, and conclude that despite some inconsistent findings, there is substantial support for the proposition that the physiological model has made significant contributions to understanding behavioural inhibition. Physiological correlates of shyness have also been traced in studies of susceptibility to allergies and various medical conditions, for example, susceptibility to Parkinson's Disease (Bell et al., 1995). Evans (2001) has reviewed this literature, and also reported a significant tendency for shy children to be more likely to be absent from school due to illness, particularly gastrointestinal conditions.

Longitudinal studies have demonstrated a degree of temporal stability in inhibition, and stability over time in measures of behaviour or in physiological assessments is more characteristic of a smaller sample of inhibited children who are consistently inhibited. Similarly, these children are at greater risk of later adjustment problems. However, consistency is a complex matter, even after taking into account the issue of whether measures made at various ages are strictly comparable. The social worlds of infants, toddlers, children, and adolescents make very different demands, and the same category of temperament will find different expression in these life periods.

The Emergence of Self-consciousness

One telling observation has been that shyness and social anxiety in later childhood or adulthood is associated with concerns with how one appears to others and the judgements that may be made about the self. The capacity to think about the self in these ways is certainly absent in the early years and this inevitably raises questions about the relationship between infant temperament and later social concerns. Buss (1986) made an influential distinction between early appearing and fearful shyness on the one hand, and later appearing or self-conscious shyness on the other. It is tempting to equate the early appearing form with the pattern of social behaviours identified by Kagan as an aspect of the inhibited temperament. Lewis (*Chapter 4*) has also noted similarities between inhibition and a form of embarrassment that does not require self-evaluation. Furthermore, he identified an interaction between scores on a measure of temperament, the capacity for self-consciousness (see below), and embarrassment. The interaction takes the form that temperament only contributed to embarrassment when self-consciousness was attained and was not evident beforehand.

The distinction between fearful and self-conscious forms of shyness has come to be widely accepted, although there is as yet little evidence to support it. Yuill and Banerjee (2001) have explored it by means of the study of children's conceptions of shyness, arguing that these could be expected to reflect predominant forms of shyness at a given age. They identified a shift in children's conceptions from about 5 years of age, which they related to the child's growing appreciation of other people's perspectives of the self as well as to developments in the awareness of self-presentational concerns. Research has been hampered by the absence of an accepted and validated measure of these different forms of shyness in childhood. A promising advance in this respect is a measure of inhibited/wary and self-conscious/anxious forms of social withdrawal that has been constructed by Younger et al. (2000). It remains unclear how these two forms of shyness map onto the distinct forms of shyness and embarrassment that have been proposed by Lewis (1992) and that have been investigated by Lewis (see *Chapter 4*) and by Reddy (2001). More generally, there is a need to integrate research into temperament, which has devoted little attention to the involvement of self-awareness, and research into social anxiety, which assigns a central role to the self, construed in various ways (see, for example, Leary, 2001).

One of the key investigations of children's cognitive social development has been the series of experiments carried out by Michael Lewis and his associates into children's awareness of the self as assessed by the visual self-recognition paradigm. In the classic mirror rouge test, a dab of rouge is surreptitiously placed on the child's face and the child's reaction to seeing his or her face in a mirror is evaluated. However, children's reactions to their mirror image, with or without this manipulation, are of great interest, and it has been shown that from an early age facial expressions of coyness and embarrassment can be recognized in the child's reaction. Lewis has drawn upon this research to produce a theory of the development of self-consciousness, and this is reviewed in Chapter 4. Lewis regards the emergence of self-consciousness in the middle of the second year as the key event in the development of the emotions. Initially it facilitates the development of "exposure-embarrassment" (the form closer to shyness, according to Lewis), where embarrassment is only observed in those children who do touch their nose in the rouge mirror test. Towards the third year of life, children are also able to judge their behaviour relative to standards, and this enables the development of shame, pride, guilt, and forms of embarrassment associated with failure to behave appropriately (making a faux pas, loss of poise, behaving out of role, and so on).

FAMILY INFLUENCES ON SHYNESS

Shyness is a social phenomenon, linked to self-appraisals and expectations about the reactions of others to the self, and it is scarcely surprising that early social relationships have been proposed as factors in the development just as, for example, they have been argued as important in shame and guilt. Freud's theory,

and the work of his followers who specialized in childhood (Anna Freud, Melanie Klein, John Bowlby, and others), have had a profound influence on the study of child development. This has been achieved not only by their writings and the professional institutions of psychoanalysis but also through the growth of child psychiatry more generally. Their direct influence on the developmental psychology of shyness has not been great, but Bowlby's attachment theory is attracting growing interest. His concept of the mother as a "secure base" from which the child can explore the world and the operationalization of his theoretical concepts in the Ainsworth Strange Situation Test strike obvious chords with shyness researchers. The tentativeness and ambivalence of the shy child implies that he or she lacks the security to explore the social world. The Strange Situation is similar in many (but not all) respects to the assessment of inhibition in Kagan's laboratory.

The relationship between temperament and attachment is treated in various ways in this section. Marshall and Stevenson-Hinde (*Chapter 3*) propose that attachment status, as assessed by the Strange Situation, interacts with inhibition and heart period. They argue that securely attached children are free to express their emotions in a more open manner whereas those who are insecurely attached are likely to develop strategies for dealing with their emotions. They report findings from their own laboratory supporting this hypothesis. Schmidt, Polak and Spooner (*Chapter 2*) refer to research linking secure attachment with children's social competence. Rubin and colleagues (see Burgess, Rubin, Cheah, & Nelson, *Chapter 5*) have proposed a developmental pathway where infants who are temperamentally reactive and who receive insensitive parenting come to develop an insecure-ambivalent attachment relationship with their primary caregiver.

Research into parenting has itself more than one parent, so to speak, and sociological and social psychological perspectives on cultural and individual differences in child-rearing practices have also shaped enquiries into the antecedents of personal capacities for forming social relationships. These perspectives are having an influence on studies of shyness. Rubin and his associates have conducted extensive studies of shyness, withdrawn behaviour, and parenting. The edited volume by Rubin and Asendorpf (1993) on these themes made a key contribution to the expansion of developmental research. Rubin and co-workers (*Chapter 5*) also provide an up to date review of the literature on relationships between parental beliefs and practices and inhibition and social withdrawal and examine how these relationships may be modified by gender and broader cultural factors. Schmidt, Polak, and Spooner (*Chapter 2*) also review findings on parental sensitivity and maternal personality.

CONCLUDING REMARKS

The set of chapters in this section provides a picture of a field of research in robust health, characterized by creative theorizing and vigorous research programmes. Biological and environmental factors, and the interactions between

them, have been implicated in the development of inhibition, shyness, and social anxiety. Seemingly intractable problems about the emergence of self-consciousness are being addressed by empirical methods. Research has been programme driven and findings from different laboratories and countries can be compared, rather than the isolated studies that have characterized this field in the past. Investigators have drawn effectively upon longitudinal designs and have been prepared to marry psychological and physiological approaches to measurement. Of course, the psychology of child development and of the origins of individual differences is complex, and much research yet needs to be undertaken.

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Chapter 2

Biological and Environmental Contributions to Childhood Shyness: A Diathesis–Stress Model

Louis A. Schmidt, Cindy P. Polak, *and* **Andrea L. Spooner**

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The question of how nature or nurture, biology or environment, contributes to the formation of personality can be traced to the early Greeks and is an issue that continues to be a major focus in contemporary fields of personality and developmental psychology as we begin the third millennium. Perhaps one personality trait that captures the very essence of this debate is that of human shyness. For example, one line of thinking is that the etiology of shyness in some people is very much determined by their biology. Much of the work of Jerome Kagan (see Kagan, 1999, for a review, and described later in this chapter) over the last decade on infant temperamental predictors of shyness embodies this belief, as does the earlier work of Buss and Plomin (1984). A second school of thought, while not dismissing the former, argues that environmental causes such as early mother–infant attachment and parental sensitivity contribute significantly to the development of shyness. The work of Joan Stevenson-Hinde (see this volume, *Chapter 3*) is very much rooted in this tradition. While many theorists and researchers working on human shyness often align themselves with one of these camps more than the other, most agree that it is probably an interaction of the two—biology and environment—that plays a role in the development of shyness. In this chapter, we review the importance of these two different perspectives concerning the origins of human shyness and provide an integrative model that incorporates the interplay of biology and environment.

Human shyness is a ubiquitous phenomenon that over 90% of the population have reported experiencing at some point in the lives (Zimbardo, 1977). Shyness reflects a preoccupation of the self during real or imagined social situations (Jones, Briggs, & Cheek, 1986) and is accompanied by feelings of negative self-worth (Crozier, 1981). There are, in addition, a number of distinct behavioral and physiological correlates and outcomes associated with shyness in children and adults (see, e.g., Hirshfeld et al., 1992; Rubin, Stewart, & Coplan, 1995; Schmidt & Fox, 1999). In terms of its conceptual underpinnings, some have argued that shyness reflects an emotion elicited by feelings of shame and embarrassment (e.g., Crozier, 1999) that leads to social inhibition, while others have viewed shyness from a trait perspective, with shyness serving as a dimension of personality (e.g., Cheek & Krasnoperova, 1999). Although the focus of that debate is beyond the scope of this chapter, we view shyness as an enduring personality trait in some people that is linked to an inability to regulate negative emotion in response to social stress, and we focus on the biological and environmental contributions and their interaction in determining shyness.

This chapter comprises three major sections. In the first section, we provide a review of the current literature that argues primarily from a biological perspective. Here, we discuss evidence that suggests that the origins of shyness in some people may be linked to a dysregulation of some components of the fear system that appears to have a genetic basis. In the second section, we review and discuss the role of environment in the development of shyness, focusing on familial and

extra-familial relationships. In the third section, we attempt to combine the literature reviewed in the previous sections and propose an interactionist (i.e., diathesis–stress) model that encompasses both biological and environmental contributions in an attempt to understand the origins of shyness in some people.

GENETIC AND BIOLOGICAL CONTRIBUTIONS

Neural Circuitry of the Fear System

Current thinking suggests that the origins of shy behavior may be linked to the dysregulation of some components of the fear system (LeDoux, 1996, Nader & LeDoux, 1999). Fear is a highly conserved emotion that is seen across mammals, and it is the study of this emotion that has produced the most reliable evidence to date concerning the neuroanatomical circuitry of emotion. There also appears to be considerable variability across humans and animals in fear responses.

There is a rich and growing literature from studies of conditioned fear in animals that suggest that the frontal cortex and forebrain limbic areas are important components of the fear system. The frontal cortex is known to play a key role in the regulation of fear and other emotions. This region is involved in the motor facilitation of emotion expression, the organization and integration of cognitive processes underlying emotion, and the ability to regulate emotions (see Fox, 1991, 1994). The frontal region also appears to regulate forebrain sites involved in the expression of emotion. The amygdala (and central nucleus) is one such forebrain/limbic site and functional anatomical connections have been demonstrated between the amygdala and the frontal region. The amygdala (and the central nucleus) receives input from neocortical sites, in particular, the frontal cortex. There are also links between the amygdala (and the central nucleus) and lower brainstem nuclei used in the regulation of autonomic output. The central nucleus of the amygdala receives visceral projections from the solitary and parabrachial nuclei in the lower brainstem, projecting directly to these regions in addition to other areas of the brainstem intimately involved in arousal (see Schulkin, McEwen, & Gold, 1994, for a review of the neuroanatomical connections of the amygdala).

The amygdala (particularly the central nucleus) is known to play a significant role in the autonomic and behavioral aspects of conditioned fear (LeDoux, Iwata, Cicchetti, & Reis, 1988). For example, electrical stimulation of the central nucleus facilitates fear-potentiated startle responses (Rosen & Davis, 1988), while lesions to the amygdala and the central nucleus disrupt conditioned fear (Gallagher, Graham, & Holland, 1990; Hitchcock & Davis, 1986; Kapp, Frysinger, Gallagher, & Haselton, 1979; LeDoux, Sakaguchi, Iwata, & Reis, 1986). Still others have shown that electrically kindling the amygdala, but not the dorsal hippocampus, facilitates fear responses in rats (Rosen, Hamerman, Sitcoske, Glowa, & Schulkin, 1996). The amygdala also appears to be involved in the attentional aspects related to the recognition of changes in negatively valenced environmental stimuli (Gallagher & Holland, 1994).

Interestingly, the amygdala is known to be more reactive in defensive rather than nondefensive cats (Adamec, 1991). These behaviors are analogous to those seen in extremely fearful and shy children. There also appears to be considerable individual variation in the behavioral and physiological expression of fear and stress responses seen across mammalian species (e.g., Boissy, 1995; Suomi, 1991). It is this variation and its genetic susceptibility to which we will now turn.

Genetic Variation in the Fear System: Animal, Behavioral, and Molecular Evidence

The notion that there may be a genetic basis to individual differences in temperament is an idea that dates from the time of the early Greeks to issues of contemporary personality research. Much of the scientific legitimacy for this notion can be traced to evidence produced by three disparate literatures (see, e.g., Eley & Plomin, 1997), two of which have been reliable and convincing sources for years and a third which has only emerged within the last decade. The first literature involves studies of domesticated and laboratory animals in which there is strong evidence in support of a genetic basis to temperament. For example, as noted earlier, it has long been noted that inbred strains of animals can be produced that are highly fearful, defensive, aggressive, and subdued (see Plomin, DeFries, McClearn, & Rutter, 1997). A second body of work concerns findings derived from longstanding behavioral genetics studies of human twins. In such studies, it has been noted that monozygotic twins appear temperamentally more similar than dizygotic twins and adopted children (see Plomin, 1989). A third source concerns recent findings from the rapidly emerging field of molecular genetics in the study of human personality (see Cloninger, Adolfsson, & Svrakic, 1996; Hamer & Copeland, 1998; Plomin & Rutter, 1998). Here, a number of studies involving human adults have noted associations between genes that regulate specific neurochemical systems and complex human traits. Overall, these three sources are beginning to converge to provide the strongest evidence to date that there may be a genetic etiology underlying some complex human personality traits (see Cloninger et al., 1996; Plomin, 1989; Plomin et al., 1997; Plomin & Rutter, 1998, for excellent reviews of these literatures).

Studies of Inbred Animal Strains

There is a long and substantial animal literature that demonstrates a susceptibility to stress among inbred animal strains (see Blizard, 1989, and Boissy, 1995, for extensive reviews). As Blizard (1989) noted, genetic contributions to individual differences in the behavioral and psychophysiological reactivity to stress seem to be more of the rule rather than the exception. These genetic individual differences have been noted on the multiple fear-related psychophysiological measures implicated in the fear system. For example, strain differences in cardiac

reactivity to stress have been noted among inbred mice (Blizard & Welty, 1971); strain differences in the startle amplitude and corticosterone reactivity in response to stress have been demonstrated in rats (Glowa, Geyer, Gold, & Sternberg, 1992); and studies of human twins have noted a genetic contribution to heart rate reactivity to stress (Carroll, Hewitt, Last, Turner, & Sims, 1985).

In addition to these genetic contributions to stress-related psychophysiological responses, other studies have noted strain differences in stress-related behavioral responses. For example, strain differences in active avoidance behavioral responses have been noted among mice (Collins, 1964) and rats (Harrington, 1981). Also, genetic contributions to emotionality (i.e., covariation in activity and defecation in a novel environment) among mice have recently been noted using behavioral and quantitative trait loci linkage strategies (Flint et al., 1995). Flint et al. (1995) suggested that this animal model of individual differences in emotionality may extend to understanding susceptibility to anxiety or neuroticism in humans. As we will see shortly, temperamentally shy children exhibit an analogous pattern of behavioral and physiological reactivity in response to stress to those seen in some inbred strains of animals.

Studies of Behavioral Genetics

There has been a long history of the use of human twins to study the heritability of personality in children and adults (Jang, Livesley, & Vernon, 1996; Matheny, 1989; Plomin & Rowe, 1979). Twin studies have demonstrated that shy behavior and timidity towards unfamiliar people and situations is heritable in children and adults (Matheny, 1989; Plomin, 1986). These include studies utilizing parental ratings and observational methods (Cohen, Dibble, & Grawe, 1977; Plomin & Rowe, 1979). The Louisville Twin Study reported genetic influences on inhibited behavior and timidity in 12- to 30-month-old children, with changes and stability in behavior being more concordant in monozygotic twins than in dizygotic twins (Matheny, 1989).

Studies of Molecular Genetics and Complex Traits

There have been a number of recent studies which have begun to examine associations of genes that code for the regulation and transportation of neurotransmitters with complex human traits such as shyness. The molecular genetic basis of individual differences in temperament/personality was sparked largely by the publication of three papers implicating a molecular genetic basis to complex human traits in adults. Two of these studies demonstrated an allelic association between novelty seeking and a functional polymorphism in the dopamine D4 receptor gene (Benjamin et al., 1996; Ebstein et al., 1996). Adults with longer-repeats (6–8) self-reported higher novelty seeking scores compared to adults with shorter repeats (2–5). Dopamine has been implicated as a major neuromodulator of novelty seeking because of the role it plays in inducing euphoria in humans and approach behavior in animals (Cloninger, 1987). The shorter alleles code for

a receptor that is apparently more efficient in binding dopamine compared with the larger alleles (see Plomin & Rutter, 1998). A third paper noted an allelic association of a polymorphism in a gene that codes for the transportation of serotonin (5-HTT) with anxiety-related traits. Lesch et al. (1996) reported that adults with one or two copies of a short allele in the serotonin transporter gene self-reported higher levels of neuroticism, anxiety, and depression compared to adults with two copies of a long allele. The short allele reduces efficiency of serotonin promotion and results in reduced serotonin expression. Serotonin has been implicated as a major neurotransmitter of anxiety and withdrawal because of its effects on regulating mood and emotional states (see Westenberg, Murphy, & den Boer, 1996).

While these three papers provide an initial view of the role of genes in personality, it is important to note that other studies have failed to replicate the DRD4–novelty seeking and serotonin–neuroticism associations in adults. For example, Goldman et al. (1996), using a small unselected sample of Finnish adults and American Indians, were not able to replicate the DRD4 and novelty seeking association, nor was a recent study by Jonsson et al. (1997) with Swedish adults, although the trend was in the predicted direction. Plomin and his colleagues (Ball et al., 1997) attempted to extend the findings of Lesch et al. (1996) by using, in addition to self-report measures, peer-ratings of neuroticism and an extreme group design. Plomin's group failed to replicate the allele association in the serotonin transporter gene with neuroticism, as have two other recent studies (e.g., Deary et al., 1999; Kumakiri et al., 1999).

Although there have been relatively few studies of the molecular genetics of complex human personality traits in children, two recent studies (LaHoste et al., 1996; Swanson et al., 1998) noted an association of the DRD4 receptor gene with attention deficit hyperactivity disorder (ADHD). Children with ADHD differed from controls in that the 7-fold repeat form of the DRD4 occurred more frequently than in the control group. Two other very recent studies have noted a similar association of the DRD4 gene and attention-related problems in normally developing pediatric populations. Associations of DRD4 long alleles with less sustained attention in 12-month-old infants (Auerbach, Benjamin, Faroy, Geller, & Ebstein, 2001) and maternal report of attention problems in 4- and 7-year-old children (Schmidt, Fox, Perez-Edgar, Lu, & Hamer, 2001) have been noted in non-clinical samples. Another recent study has noted a gene–gene interaction in determining neonatal temperament (Ebstein et al., 1998). Neonates with the short serotonin transporter promoter, and who lacked the long form of the DRD4, had a lower orientation score on the Brazelton neonatal assessment scale compared to other neonates. In sum, the notion that there may be a molecular genetic basis to complex human traits is not a foregone conclusion, but it may provide a convergent piece of evidence in attempting to understand the origins of shyness.

On the Biology of Human Shyness

Infant Behavioral and Physiological Predictors

One of the most striking behavioral features in early human development is the ease with which some, but not all, infants become aroused and distressed to the presentation of novel stimuli. These differences in behavioral reactivity, which most likely reflect individual differences in sensory and perceptual thresholds, are seen across mammals (see, e.g., Boissy, 1995, and Schmidt & Schulkin, 1999) and are clearly heritable.

Kagan and his colleagues (Kagan & Snidman, 1991a, b) have argued that the origins of shyness in some children may be linked to individual differences in early infant reactivity. For example, infants who exhibit a high degree of motor activity and distress in response to the presentation of novel auditory and visual stimuli during the first four months of life exhibit a high degree of behavioral inhibition and shyness during the preschool and early school age years. There is, in addition, evidence to suggest that there may be a genetic etiology to inhibited behavior. Kagan's group (DiLalla, Kagan, & Reznick, 1994) noted in a behavior study of 157 24-month twin pairs that monozygotic twins showed stronger intra-class correlations of inhibited behavior to unfamiliar stimuli than dizygotic and non-twin siblings. Kagan and Snidman (1991b) have speculated that the locus of behavioral inhibition may be linked to hypersensitivity in forebrain limbic areas, particularly the central nucleus of the amygdala.

We have used measures of frontal EEG activity and the startle eyeblink response to test Kagan's speculation (see Schmidt & Fox, 1999). These two measures are thought to index forebrain limbic and frontal cortical areas involved in the regulation of emotion. In a series of studies with human infants, Fox and his colleagues (see Fox, 1991) have noted that the pattern of frontal EEG activity distinguishes different types of emotion. Infants exhibit greater relative right frontal EEG activity during the processing of negative emotion (e.g., fear, disgust, sadness) and greater relative left frontal EEG activity during the processing of positive emotions (e.g., happiness, joy, interest). In a series of studies with human adults, Davidson and his colleagues (see Davidson & Rickman, 1999, and Schmidt & Trainor, 2001) have noted similar relations between the pattern of asymmetrical frontal brain activity and the processing of emotion. Furthermore, another body of literature suggests that individual differences in the pattern of resting frontal brain electrical activity (EEG) may reflect a predisposition (i.e., trait) to experience/express positive and negative emotion in infants (see, e.g., Fox, 1991, 1994) and adults (see, e.g., Davidson, 1993). For example, Fox and his colleagues have noted a relation between individual differences in resting frontal EEG activity and affective/temperamental style. Infants who displayed greater relative resting right frontal EEG activity were more likely to cry and exhibit distress to an approaching stranger during the second half of the first year of life compared with infants who exhibit greater relative resting left frontal EEG activity (Davidson & Fox, 1989; Fox, Bell, & Jones, 1992). A similar relation between the pattern of resting frontal EEG asymmetry and affective style has been noted in adults.

In a series of studies with adults, Davidson and his colleagues have noted a relation between the pattern of resting frontal EEG activity and affective style. Adults who exhibit a pattern of greater relative resting right frontal EEG activity are known to rate affective film clips more negatively (Tomarken, Davidson, & Henriques, 1990) and likely to be more depressed (Henriques & Davidson, 1990, 1991) compared to adults who exhibit greater relative resting left frontal EEG activity. In addition, adults who exhibited a stable pattern of right frontal asymmetry across a three-week time period reported more intense negative emotion in response to negative affective film clips, whereas individuals who displayed a stable pattern of left frontal EEG asymmetry reported more intense positive affect in response to positive affective film clips (Wheeler, Davidson, & Tomarken, 1993).

The startle response is a brainstem- and forebrain-mediated behavioral affect that occurs in response to the presentation of a sudden and intense stimulus, and its neural circuitry is well mapped (Davis, Hitchcock, & Rosen, 1987). While the startle paradigm has been used extensively in studies of conditioned fear in animals, this paradigm has been adapted for studies concerning the etiology of anxiety in humans. For example, a number of studies have noted relations between startle amplitude and the processing of emotion and individual differences in personality. Adults exhibit exaggerated startle responses during the processing of highly arousing negatively valenced stimuli and attenuated startle responses during the processing of highly arousing positively valenced stimuli (see Lang, Bradley, & Cuthbert, 1990). Furthermore, there are known to be individual differences in the startle response. Adults who score high on trait measures of anxiety (Grillon, Ameli, Foot, & Davis, 1993) and children who are behaviorally inhibited (Snidman & Kagan, 1994) are known to exhibit a heightened baseline startle response.

Using a design identical to that reported by Kagan and Snidman (1991b), Fox and his colleagues (Calkins, Fox, & Marshall, 1996) examined the behavioral and psychophysiological antecedents of shyness in a group of infants selected at age 4 months for temperamental constellations thought to predict behavioral inhibition and shyness in early childhood. Eighty-one healthy infants were selected at age 4 months from a larger sample of 207 infants. The infants were observed in their homes at age 4 months and videotaped as they responded to novel auditory and visual stimuli. The 81 infants were selected by their frequency of motor activity and the degree of positive and negative affect displayed in response to these novel stimuli, and three reactivity groups were formed: a *negative reactive* (*n* = 31) group, which comprised infants who displayed both high amounts of motor activity and negative affect and low amounts of positive affect; a *positive reactive* (*n* = 19) group, which comprised infants who displayed both high amounts of motor activity and positive affect and low amounts of negative affect; and a *low reactive* (*n* = 31) group, which comprised infants who displayed low amounts of motor activity and low amounts of both positive affect and negative affect. The infants were then seen in the laboratory at 9, 14, and 24 months, at which time regional brain electrical activity (EEG) was recorded using a lycra

stretch cap while the infant was seated, alert, and attentive. EEG was recorded from the left and right anterior and posterior brain regions and the startle eye-blink response was recorded during a stranger approach situation. In addition, behavioral responses to the presentation of unfamiliar social and nonsocial stimuli were indexed at 14 and 24 months. We noted that the infants described above who were classified as *negative reactive* at 4 months exhibited greater fear-potentiated startle (Schmidt & Fox, 1998) and greater relative right frontal EEG activation asymmetry at ages 9 (Calkins et al., 1996) and 24 months (Fox, Calkins, & Bell, 1994), and more behavioral inhibition at age 14 months (Calkins et al., 1996) compared to infants in the other two temperamentally reactive groups. It is seems plausible then to speculate that the frontal EEG and startle measures may be indexing individual differences in forebrain sensitivity given the dense connections between the frontal cortex and forebrain limbic areas.

The pattern of frontal EEG activity and heightened startle response suggests that the highly negative reactive infants may have a lower threshold for arousal in forebrain limbic areas involved in regulating stress. Overall, these sets of behavioral and physiological data suggest that some infants may have a temperamental bias towards shyness in early childhood. These features appear early in the first year of life, remain stable during the first two years of life, are the same types of behaviors and physiological patterns observed in some inbred strains of highly reactive animals, and appear to have a genetic etiology.

Childhood Behavioral and Physiological Correlates

The pattern of physiological and behavioral responses seen in temperamentally reactive infants appears to be preserved into the preschool and early school age years and is predictive of shyness. In a series of studies of preschoolers and early school age children, Schmidt and Fox and their colleagues have noted that preschoolers who displayed a high proportion of shy behavior during peer play groups at age 4 exhibited significantly greater relative resting right frontal EEG asymmetry (Fox et al., 1995, 1996) and higher morning basal salivary cortisol levels (Schmidt et al., 1997) compared to children displaying relatively less shy behavior at age 4. Also, children displaying a high degree of observed shy behavior were rated as contemporaneously shy at age 4 by their mothers and a significant proportion of them were likely to have been in the *negative reactive* temperamental group at age 4 months. Kagan and his colleagues (Kagan, Reznick, & Snidman, 1987, 1988; Snidman & Kagan, 1994) had also noted earlier that temperamentally shy children were characterized by elevated morning basal cortisol levels, a high and stable heart rate, and exaggerated startle responses compared to their non-shy counterparts. More recently, Schmidt, Fox, Schulkin, and Gold (1999a) found that temperamentally shy children exhibit a distinct pattern of physiological responses across different physiological measures in response to stress. Schmidt et al. (1999a) noted that, compared with their non-shy counterparts, temperamentally shy 7-year-olds exhibited a significantly greater increase in right, but not left, frontal EEG activity and a significantly

greater increase in heart rate during a self-presentation task as the task became more demanding. These physiological responses were paralleled by an increase in overt signs of behavioral anxiety. We also noted that children who were classified as low in social competence (a feature of shyness) exhibited a significantly greater change in salivary cortisol reactivity in response to the self-presentation task compared to socially competent children (Schmidt et al., 1999b). These data suggest that children who are classified as temperamentally shy during the preschool and early school age years exhibit a distinct pattern of frontal brain activity, heart rate, salivary cortisol levels during baseline conditions and in response to stress and are likely to have been highly reactive infants.

Adult Behavioral and Physiological Correlates and Outcomes

One of the goals of our research program on shyness has been to examine the developmental course and outcomes of temperamental shyness beyond the early childhood years given that temperamental shyness appears to remain stable and predictive of developmental outcomes (Caspi, Elder, & Bem, 1988). In the main, the behavioral and physiological correlates and outcomes associated with temperamentally shy children are comparable to those seen in adults who score high on trait measures of shyness. For example, adults reporting a high degree of trait shyness are likely to report concurrent feelings of negative self-worth and problems with depression in both the elderly (Bell et al., 1993) and young (Schmidt & Fox, 1995) adult populations and display a distinct pattern of central and autonomic activity during resting conditions and in response to social stressors (see Schmidt & Fox, 1999, for a review).

In two separate studies (Schmidt, 1999; Schmidt & Fox, 1994), we have examined the behavioral and physiological correlates of shyness in a group of young adults who scored high on self-report measures of trait shyness (Cheek & Buss, 1981). We recorded regional brain electrical activity (EEG) and heart rate during baseline conditions and during a socially challenging situation. We found that, compared to their nonshy counterparts, adults reporting a high degree of trait shyness exhibited greater relative baseline right frontal EEG activity and a higher and more stable heart rate in anticipation of a social encounter with an unfamiliar same-sex peer. The adult findings extended our prior work with temperamentally shy children; that is, a similar pattern of physiological activity was observed during baseline and socially challenging situations on frontal brain activity and heart rate in adults who scored high on a self-report measure of trait shyness that was noted in temperamentally shy children and high reactive infants. Regardless of age, temperamental shyness was related to greater relative right frontal EEG activity during baseline conditions and an increase in autonomic activity during social stress. Given the similarities in physiological activity between temperamentally shy children and young adults during baseline and emotionally challenging conditions, these data, taken together, raise the possibility that the origins of shyness for some people may be rooted in early temperamental constellations which may be inherited and preserved over the lifespan.

Summary

The animal and human evidence reviewed in this section suggest that the origins of human shyness may be linked to dysregulation of some components of the fear system. There may be individual variation in this dysregulation which may have a genetic basis. This individual variation in dysregulation of fear responses may appear early in life, and its behavioral and physiological expression may remain modestly preserved during development for some people. Although the evidence reviewed in this section provides a strong case for the notion of a biological predisposition to shyness in some people, there is, however, equally compelling evidence of significant environmental contributions to shyness (see, e.g., Fox, Henderson, Rubin, Chalkins & Schmidt, 2001). It is to a discussion of these influences that we now turn.

ENVIRONMENTAL CONTRIBUTIONS

Parental and Familial Relationships

Mother–Child Attachment

The idea that early mother–infant interaction is a significant determinant of social and emotional development has a long history that can be traced not only to the work of Freud and psychoanalytic thinkers but also to more recent ideas proffered by John Bowlby and his seminal work on attachment theory (e.g., Bowlby, 1969). According to Bowlby and his disciples (e.g., Ainsworth, Blehar, Waters, & Wall, 1978) social competence is developed through a secure mother–infant attachment. A secure attachment allows the infant to develop a sense of trust in the caregiver. The establishment of trust allows the child to explore his or her social world, to develop social skills, and to develop a sense of efficacy in succeeding in a complex social world and foster the development of social competence. The child who is socially competent looks forward to engaging in social situations rather than avoiding them. On the other hand, the child who is characterized by an insecure attachment may not develop the same degree of trust with his or her caregiver. The mother of the child who is insecurely attached may not be sensitive, nor rewarding of the child's cues that will allow her child to develop a sense of efficacy. The inability to develop a secure attachment and sense of trust with the primary caregiver may delay or compromise the development of appropriate social skills and social competence. Thus, the insecurely attached child lacking social skills and social competence is likely to feel awkward in social situations and may eventually begin to avoid them entirely. A number of studies have indeed corroborated these theoretical notions. For example, several studies have noted relations between patterns of attachment and differences in social competence during the early and middle school age years (Cohn, 1990; Jacobson & Wille, 1986; Sroufe & Fleeson, 1986). Overall, insecure attachment status was predictive of and concurrently related to low social competence.

Parental Sensitivity

A second area of inquiry that demonstrates the contribution of familial influences on early childhood social development concerns the work on parental sensitivity. There are a number of studies which have shown that variations in parental sensitivity are predictive of social withdrawal in children (Hetherington & Martin, 1986; Maccoby & Martin, 1983; Martin, 1975). Overall, these sets of studies demonstrate that parents who provide warmth and support and set clear expectations have socially competent and sociable children; parents who are distant and rejecting, on the other hand, tend to have children who are characterized as shy and socially withdrawn.

Maternal Beliefs

A third line of research on familial influences has noted important relations between maternal beliefs about parenting and child-rearing and children's social development. For example, a number of studies have noted that maternal beliefs about modes of learning social skills, reactive strategies, attributions, and emotions contribute to social development (see Burgess, Rubin, Cheah, & Nelson, this volume, *Chapter 5*; Mills & Rubin, 1993, for extensive reviews). Rubin and his colleagues (Mills & Rubin, 1993) have noted that, among other things, mothers of socially withdrawn children were less tolerant of unskilled social behavior than other mothers, were more angry, disappointed, guilty, and embarrassed when asked about these behaviors and were more inclined to blame them on traits residing within their children.

Maternal Personality

A final area of study concerning familial relationships and its relation to shyness is that of maternal personality and emotional well-being. There is well-documented evidence that the mother's personality influences the child's social development. Mothers who are depressed are known to display less positive affect and reduced levels of stimulation when interacting with their infants (Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Cohn & Tronick, 1989; Field, 1986; Field et al., 1988). These behavioral symptoms are apparently transmitted to the infant. For example, infants of depressed mothers are known to display less positive affect and increased irritability (Cohn et al., 1986; Cohn & Tronick, 1989; Field, 1986; Field et al., 1985), and greater relative right frontal EEG activity (a marker of stress) (Dawson, Grofer Klinger, Panagiotides, Hill, & Spieker, 1992; Field, Fox, Pickens, & Nawrocki, 1995) compared to infants of non-depressed mothers. Maternal personality also appears to play an important role in childhood shyness.

In an extensive study, Engfer (1993) noted consistent relations between maternal personality and childhood shyness during the first six years of life, particularly for girls. Maternal self-report of degree of nervousness, depressiveness,

irritability, neuroticism, and shy inhibition measured at four months after delivery were highly predictive of observed shy behavior at age 6 years for girls. A similar relation was also noted between maternal personality measures of nervousness, depression, and shy inhibition collected at 18 months after delivery and observed shy behavior at age 6 for girls. In addition, contemporaneous measures of maternal depression were highly correlated with observed shy behavior at age 6.

Summary

The extant literature reviewed above provides compelling evidence for the role of parental, familial, and extra-familial relationships on influencing early childhood social and emotional development (Hartup, 1983; Rubin, Hymel, Mills, & Rose-Krasnor, 1991; Rubin & Mills, 1988). In light of the evidence reviewed above one question then becomes: Is biology or environment in and of themselves sufficient to account for the development of shyness in some people? While the case has been made that it appears that each seems to contribute to the origins of shyness, it is possible that considering both in concert may help to explain additional variance that neither one in isolation can explain. We now turn to an example of how one's biology and environment may interact to account for the development of shyness, at least in some people.

A DIATHESIS–STRESS MODEL OF SHYNESS

The comparative and human evidence reviewed above raise the possibility that there are both genetic/biological and environmental contributions to shyness. We believe that these independent literatures speak to the importance of considering the interplay of biology and environment in understanding the development of shyness. This is further underscored by the findings that not all temperamentally reactive infants, nor all insecurely attached infants, develop shyness, suggesting that it is most likely produced by an interplay of both biology and environment. Accordingly, we propose a diathesis–stress model that might be helpful in attempting to understand the origins of shyness in some people. This model is presented in Figure 2.1.

Along with Kagan (1994), we speculate that there may be a subset of infants who are born with a biological push towards shyness. This biological predisposition is linked to genetic variation in neurochemical and physiological systems involved in the regulation of fear and the fear system. There is a large and growing literature that there are genetic contributions to complex human traits such as shyness.

We speculate that genes that code for the regulation of serotonin may play an important role in the regulation and dysregulation of some components of the

Diathesis

| Genetic variation in neurochemical and physiological systems |

×

Stressors

- Family environment
- School environment
- Peer environment

=

Outcome

- Shyness

Baseline Physiology →

- Greater relative right frontal EEG activity
- High and stable heart rate
- Heightened startle
- Elevated salivary control

Physiological Reactivity =

- Greater increase in right, but not left, frontal EEG activity
- Increase in heart rate, decrease in heart rate variability
- Increase in startle
- Increase in cortisol

Possible Long-Term Outcomes

- Social withdrawal
- Social phobia
- Depression

Figure 2.1 A diathesis–stress model of shyness

fear system. We base this claim on recent studies that have noted an allelic association of a short allele of the serotonin transporter gene with adults' neuroticism (Lesch et al., 1996) and the determination of neonatal temperament (Ebstein et al., 1998). The presence of this genetic polymorphism may contribute to a reduced efficiency of serotonin promotion and a reduced serotonin expression. Serotonin has been implicated as a major neurotransmitter involved in anxiety and withdrawal because of its effects on regulating mood and emotional states (Westenberg et al., 1996).

We speculate that the action of this reduced serotonin expression may be particularly evident in the forebrain limbic and frontal cortex where there are dense concentrations of serotonin receptors. The reduction of serotonin may play an important role in regulating the amygdala and HPA system; that is, serotonin may serve to inhibit (or regulate) the action of amygdaloid firing and activation of the hypothalamic system. Without the regulating effects of serotonin, the amygdala and the HPA system become overactive in some individuals with this serotonin genetic polymorphism. The overactive amygdala stimulates the HPA system and the release of increase cortisol. Cortisol (corticosterone in animals) is known to facilitate fear-related behaviors and responses in animals and humans, including heightened CRH startle responses (Lee, Schulkin, & Davis, 1994) and freezing behavior (Takahashi & Rubin, 1994) in rats. Moreover, exogenous administration of synthetic cortisol is known to increase in right frontal EEG activity (a marker of stress) and anxious mood in healthy human adults (Schmidt, Fox, Goldberg, Smith, & Schulkin, 1999) and adults with agitated depression (i.e., comorbidity of depression and anxiety) are known

to exhibit elevated endo-genous cortisol levels (Gold, Goodwin, & Chrousos, 1988). The overactive amygdala and dysregulated HPA system perhaps leads to the increase activity noted on resting psychophysiological and neuroen-docrine measures that index forebrain and frontal cortical functioning, components of the fear system. As noted above, the startle response, autonomic, and frontal EEG measures are all known to be sensitive to the manipulation of cortisol. Thus, it may not be a coincidence that temperamentally shy children are characterized by elevated basal cortisol levels, high and stable resting heart rate, exaggerated baseline startle, and greater relative resting right frontal EEG activity. It is possible that dysregulation of the HPA system triggered by an overactive amygdala serves to maintain the pattern of resting physiological activity in temperamentally shy children. This scenario is illustrated in Figure 2.1 in which genetic variation of neurochemical and physiological systems, in this case, the regulation of serotonin may contribute to greater relative resting right frontal EEG activity, a high and stable resting heart rate, exaggerated baseline startle responses, and elevated morning basal cortisol levels. In short, these baseline measures may be indexing different components (levels) of a dysregulated fear system at rest.

It is also possible that increased cortisol due to dysregulation of the HPA system brought about by a genetic vulnerability in the serotonergic system continues to "prime" the amygdala and its related components of the fear system. The amygdala is known to be involved in the appraisal of emotional valence and intensity (e.g., Gallagher & Holland, 1994). Now that it is dysregulated and maintained by cortisol, the temperamentally shy child becomes hypervigilant and appraises all environmental stimuli as threatening. The continual priming of the fear system serves to "kindle" the brain circuits regulating normal fear responses, reducing its sensitivity and lowering its threshold for stimulation in response to environmental stimuli (Rosen & Schulkin, 1998).

We further speculate that it may, however, not be enough to have a genetic/biological bias towards shyness. Environmental stressors are also needed (see also Nachmias, Gunnar, Mangelsdorpf, Parritz, & Buss, 1996), which might include familial and extra-familial relationships. For example, maternal insensitivity or rejection by peers may be significant environmental influences that contribute to the development of shyness in some children who already have a biological push towards it. As can be seen in Figure 2.1, when the person with a genetic diathesis towards a dysregulated fear system meets social stress, the diathesis is manifested on multiple behavioral and physiological levels. For example, there may be an increase in focus on the self, increase in behavioral anxiety, increase in right, but not left, frontal brain activity, increase in heart rate, and an increase in adrenocortical activity. Frontal lobe functioning may become dysregulated and perhaps the person has less cognitive control over regulating his or her emotions and behavior in response to stress. The inability to regulate the experience of negative emotion reflected in an increase in right frontal EEG and heart rate, and adrenocortical reactivity during stress may then lead to an increased expression of anxious behavior and social withdrawal. It is possible that exposure to

social situations may be too stressful for people with this genetic diathesis, and their only coping strategies may involve avoiding social interactions altogether. We know, however, that engaging in social interactions is imperative to the development of early social skills and social competence. Now the person's adaptive coping strategies soon become maladaptive, possibly leading him or her down a path towards social withdrawal, social isolation, and perhaps even depression.

It is important to point out that we do not view this model as strictly uni-directional, as there is a complex relation between biology and environment. For example, children's temperament influences maternal practices and attitudes; children seek out environments that are compatible with their temperaments. There are many children who present with features that would be describe as "biological predispositions" but who do not develop shyness. These children may be protected by environmental factors such as warm and sensitive caregiving. There are, in addition, many instances where children without biological corre-lates predictive of shyness develop shyness.

CONCLUSIONS

The origins of shyness are complex and undoubtedly multiply determined through an interaction of genes, biology, and environment. We believe that the etiology of shyness is probably linked to dysregulation of some components of the fear system, and that there appears to be considerable variation in fear responses in humans, possibly due to genetic variation. We reviewed evidence from several disparate sources that are beginning to converge in a systematic way to suggest that there may be a possible genetic/biological contribution to shyness, at least in some people. We also believe, as do others (e.g., Kagan, 1991), that genetic and biological factors are neither necessary nor sufficient to cause shyness. There are many significant environmental influences such as mother–infant attachment status and parental sensitivity which, by themselves, or in concert with biological predispositions, may contribute to shyness. We con-cluded by describing a diathesis-stress model of shyness which may facilitate our understanding of the complex interplay between biology and context in shyness. Future research would be wise to consider the stability of biological and environmental measures used in the study of shyness. Change appears to be the rule rather than the exception. Many children who exhibit particular patterns of early infant temperament which are predictive of shyness never develop shyness. Furthermore, there are many children whose infant temperament was highly predictive of shyness during the preschool years but who are no longer contemporaneously shy during the early school age years even though their physiological patterning may remain stable. It would be prudent for researchers working in the area of human shyness to identify mechanisms that determine or contribute to stability and change in temperamental shyness over

development. It is also important to consider how these mechanisms may influence individual differences in shyness, since there are theoretical (Asendorpf, 1989; Buss, 1986) and empirical (Asendorpf, 1990; Crozier, 1999) reasons to believe that there are different types of shyness in children.

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Chapter 3

Behavioral Inhibition: Physiological Correlates

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Behavioral inhibition to the unfamiliar (BI) refers to "the child's initial behavioral reactions to unfamiliar people, objects, and contexts, or challenging situations" (Kagan, Reznick, & Snidman, 1985, p. 53). Behaviorally inhibited children are characteristically watchful, wary, and quiet in new situations, including social interactions with unfamiliar people. BI may be viewed as a temperamental construct reflecting relatively stable individual differences in behavioral style (e.g., Goldsmith et al., 1987). Longitudinal studies have demonstrated BI to be at least moderately stable throughout childhood (e.g., Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988; Scarpa, Raine, Venables, & Mednick, 1995; Stevenson-Hinde & Shouldice, 1995, 1996), and twin studies have indicated a significant heritable component (e.g., DiLalla, Kagan, & Reznick, 1994; see also Schmidt, Polak,

& Spooner, this volume, *Chapter 2*). Given this heritability and stability, Kagan and others have gone on to identify physiological correlates of BI, with neurobiological models focused on the amygdala (e.g., Kagan, 1994). The aim of our chapter is to consider such a model, with a view to encompassing various correlates of BI—particularly EEG data, cortisol levels, and cardiac functioning (i.e., heart period and respiratory sinus arrhythmia).

FUNCTIONAL CONSIDERATIONS

Ethological considerations suggest that the study of causal mechanisms may be facilitated by considerations of function and evolution (e.g., Hinde, 1987; Tinbergen, 1963). Regarding BI, one may postulate an underlying "fear behavior system", which like other motivational systems involves a variety of responses "distinguished on the basis of common causation . . . [and] . . . usually found to subserve a particular biological function" (Baerends, 1976, pp. 731–733). A behavior systems approach stresses organization within any particular system as well as between different systems: "In the study of behavior as well as neuroscience the investigator must typically deal with interlocking *networks* of organizational processes, rather than being satisfied with simple linear conceptualisations" (Fentress, 1991, p. 78). Such non-linear organization will be reflected in the neurobiological model of BI that follows. Furthermore, a behavior systems approach may be used to conceptualize *individual differences* in BI. That is, one may postulate a unique threshold of arousal of a fear behavior system within each individual, which nevertheless may be amenable to change during the course of development (Stevenson-Hinde & Shouldice, 1996, Fig. 11.1, p. 242).

We may go on to ask how such a fear behavior system, which is both characteristic of our species and yet shows individual differences, may have evolved. Fear of the unfamiliar is a *ubiquitous* characteristic, not only within our own species, but also over a broad range of species, ranging from pumpkinseed sunfish to other primates (e.g., Gosling & John, 1999; Stevenson-Hinde, Stillwell-Barnes, & Zunz, 1980; Wilson, Coleman, Clark, & Biederman, 1993). It is usually potent, interrupting ongoing behavior, and finely tuned to the situation. Such a characteristic, found within and across species, suggests that fearful behavior may have been selected for during the course of evolution. That is, individuals who exhibited wariness of the unfamiliar would have been more apt to survive and leave offspring—or to have increased their inclusive fitness—compared to those who did not. Thus, our propensity to show BI may have been guided by natural selection, with the function being protection from harm (Stevenson-Hinde & Shouldice, 1996). As Bowlby (1969/1982, p. 64) argued,

> It is against this picture of man's environment of evolutionary adaptedness that the environmentally stable behavioral equipment of man is considered. Much of this equipment, it is held, is so structured that it enables individuals of each sex and each age-group to take their places in the organized social group characteristic of the

> species . . . not a single feature of a species' morphology, physiology, or behavior can be understood or even discussed intelligently except in relation to that species' environment of evolutionary adaptedness.

Thus, rather than being "irrational" or "abnormal", wariness of the unfamiliar should be viewed as an adaptive consequence of our evolutionary past, which we all share.

Furthermore, and while not denying the role of experience in development, we may apply a functional argument to the consistent *individual differences* in BI. It is now recognized that natural selection is likely to produce not rigid behavior but behavior adapted to particular circumstances, so that some genetic variability would exist. In addition to the twin studies referred to in this volume (*Chapter 2*), Stevenson, Batten, and Cherner (1992) have shown that with 8- to 18-year-olds, fears concerning harm possibly relevant during the course of evolution (e.g., fear of the unknown, fear of animals, fear of danger) do have significant heritability estimates, while modern-day fears not involving risk of life (e.g., fear of criticism, fear of medical procedures) do not. Wilson, Clark, Coleman, and Dearstyne (1994) have speculated how natural selection may have produced "phenotypically inflexible genotypes", as well as "phenotypically plastic genotypes". Referring to "shyness" and "boldness"—characteristics found in a wide range of species and not unlike "high BI" and "low BI"—they argue that in a *constant* environment the inflexible shy or bold individuals should replace the plastic form. Wilson et al. then extend their argument to *heterogeneous* environments, as follows: "If the opportunities for risk-prone and risk-averse individuals are temporally variable, however, natural selection will promote a mixture of innate and facultative forms, whose relative proportions will depend on the magnitude of temporal variation" (p. 445). Other evolutionary processes such as frequency-dependent selection and habitat choice could also maintain genetic variability (Maynard Smith, 1989).

This emphasis on selection for different types of individuals is compatible with Kagan's approach to BI—namely that children who are extreme, with either high or low BI, are qualitatively different from children in the mid-range. In a chapter devoted to extremes, Kagan concludes "The reluctance to acknowledge that, on some occasions, it is useful to examine extreme groups that may be qualitatively different from the rest of the sample has been slowing theoretical progress in psychology" (Kagan, Snidman, & Arcus, 1998, p. 80). Thus, although many of the following results treat BI as a continuum, we should bear in mind that it is also meaningful to create categories of BI (e.g., Stevenson-Hinde & Glover, 1996).

TOWARDS A NEUROBIOLOGICAL MODEL OF BI

Neurobiological models of BI have arisen from the literature concerning the neural basis of fear and anxiety in both animals and humans. Charney and Deutch

(1996) summarized three necessary features of neural fear systems in the brain. First, afferent sensory input is needed to capture the salient physical characteristics of a potentially threatening stimulus. Second, the capability for affective assessment of stimuli, including the comparison with past experience, is crucial. Third, efferent projections mediate the endocrine, autonomic and motor responses to the threat (see Figure 3.1). We may add another aspect, namely that responses may feed back to the brain to provide information relevant to the regulation of further behavioral and physiological responses.

A neurobiological model of BI posits that inhibited children may differ from uninhibited children at various levels—in peripheral sensory receptor systems, in the early relaying of sensory information through the thalamus, in the process-
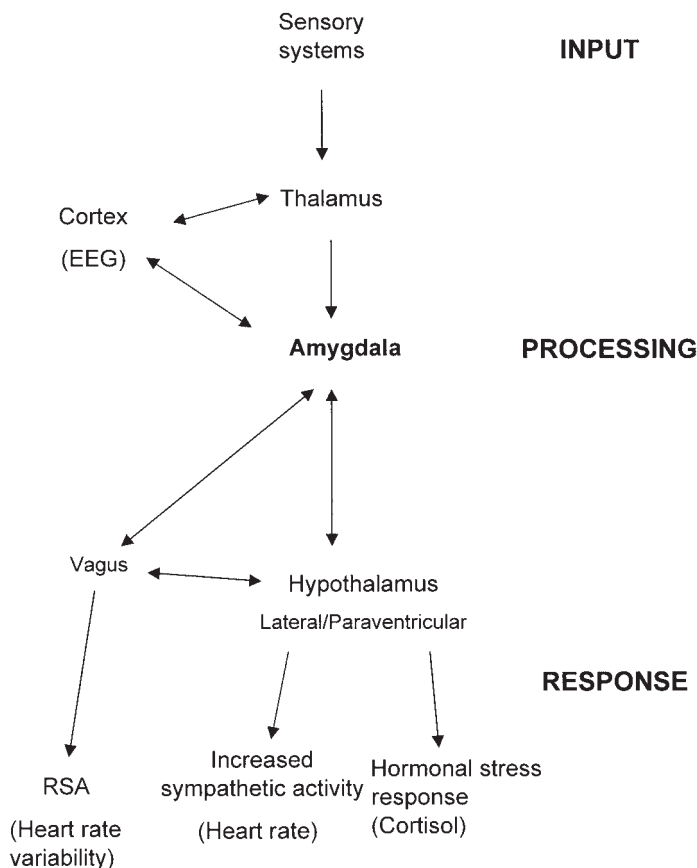
Figure 3.1   A neurobiological model of behavioral inhibition. Schematic representation of some of the pathways which might be activated in novel or challenging situations, with the amygdala playing a central role. (Parentheses indicate the physiological measures central to the present chapter.)

ing of sensory data in the cortex or in subcortical structures such as the amygdala, in the efferent autonomic, neuroendocrine, and motor responses, or in the feedback from these responses.

Of these possibilities, the dominant theme in current models of BI concerns differences between inhibited and uninhibited children at the level of subcortical processing. Kagan and co-workers have proposed that the contrast in reactions to novelty of inhibited and uninhibited children arises from variation in the excitability of neural circuits of the limbic system (Kagan & Snidman, 1991). In particular, this model focuses on the central nucleus of the amygdala, which has been extensively implicated in the generation of fear (Davis, 1992). As reviewed by Schulkin and Rosen (1999), damage to the amygdala interferes with fear-related behavior, stimulation of the central nucleus of the amygdala activates neural circuitry underlying startle responses, stimulation heightens attention toward fearful events, and neurons within the amygdala are reactive to fearful signals. "Thus data from many avenues strongly suggest that the amygdala and its associated neural circuitry appraise fearful signals and orchestrate behavioral and autonomic responses to these events" (Schulkin & Rosen, 1999, p. 144).

The amygdaloid fear circuit can be activated by partially processed sensory information from the thalamus, by more complex sensory and associative information from the cortex, or by general situational information delivered from the hippocampus (LeDoux, 1995). The central nucleus of the amygdala is the primary source of amygdaloid projections to subcortical sites that modulate responses to a threatening stimulus. These sites include the lateral hypothalamus, which is particularly important in mediating autonomic responses, and the paraventricular hypothalamus, which plays a key role in regulating the hypothalamic–pituitary–adrenal (HPA) endocrine response.

The model of increased subcortical activation in inhibited children allows predictions to be made about the central and peripheral manifestations of this limbic excitability in relation to BI. More specifically, increased activity of the central nucleus of the amygdala would be expected to result in increased activity at sites that have extensive connections with the central nucleus. As suggested by Figure 3.1, increased amygdaloid activation may be associated with changes in cortical (e.g., EEG), autonomic (e.g., cardiac), or endocrine (e.g., cortisol) functioning. The following section provides a review of studies that have examined these possibilities.

Physiological Measures That Have Been Related to BI

Four physiological measures, all of which may be monitored non-invasively, arise from the neurobiological model of BI presented in Figure 3.1; EEG measures from the frontal cortex, cortisol levels, heart period, and heart period variability. Each will be considered in turn, in relation to the model on the one hand and to BI on the other.

EEG

The amygdala receives input from diverse areas of the cortex, which suggests a role for the amygdala in the integration and association of sensory and affective information (LeDoux, 1995). Of particular significance for the BI model is the suggested association within the amygdala of stimulus representations with their affective attributes, or their appetitive or aversive significance (Davidson & Irwin, 1998). One source of neural information about the affective value of a stimulus is the frontal cortex, which has been associated with the regulation of motivational responses to appetitive or aversive stimuli (Fox, 1991). Reciprocal communication between the frontal cortex and the amygdala is therefore likely to be important for the expression and regulation of responses to potentially aversive or rewarding stimuli (McDonald, 1998). Within the BI model, several studies have related individual differences in approach or withdrawal behaviors in infancy and childhood to patterns of activation in the frontal region of the brain. The specific focus of this work has primarily been the use of hemispheric asymmetry in frontal brain activation as an index of motivational tendencies related to BI (see below). Such hemispheric asymmetries are often examined by recording electrical activity from left and right frontal scalp sites using electroencephalographic (EEG) techniques. The component of the EEG signal that is usually of interest in this respect is alpha wave activity, which occurs in the frequency range of 8–13 Hz in adults and at lower frequencies in children. EEG alpha wave activity is commonly used as a measure of regional brain activity, with decreased alpha power corresponding to increased neuronal activity (for review, see Davidson, Jackson, & Larson, 2000). A difference in EEG alpha power between the left and right frontal EEG electrodes is therefore assumed to reflect relative differences in neuronal activity between the left and right regions of the frontal cortex. Because the relation is inverse, decreased alpha power in the EEG from the left frontal electrode relative to alpha power from the right frontal electrode is taken as indicating increased neuronal activity in the left frontal region of the cortex compared with the right frontal region. Such a pattern may be referred to as "left frontal asymmetry" as it reflects greater activation of the left compared with the right frontal region. In contrast, "right frontal asymmetry" refers to the reverse.

Fox (1991, 1994) and Davidson (1992) have argued that the functional significance of frontal EEG asymmetry may be conceptualized in terms of motivational systems of approach and withdrawal. In this perspective, the left frontal region promotes appetitive, approach-directed emotional responses, while the right frontal region promotes withdrawal-directed responses to perceived aversive stimuli. Individual differences in frontal asymmetry may therefore serve as an index of relative approach and withdrawal motivations. Evidence for this comes from studies of adults, children, and infants. In adults, left frontal asymmetry has been associated with higher scores on a self-report scale assessing motivational sensitivity to incentive or reward, while right frontal asymmetry has been associated with self-reported withdrawal tendencies (Harmon-Jones & Allen,

1997; Sutton & Davidson, 1997). With infants and young children, a number of studies of frontal EEG asymmetry have worked within the BI paradigm, focusing on the tendency to approach or withdraw from novel situations or stimuli. Fox, Calkins, and Bell (1994) found that infants who displayed a pattern of stable right frontal EEG asymmetry across the first two years of life tended to be more inhibited at both 14 and 24 months of age compared with infants who exhibited a pattern of stable left frontal EEG. Fox, Henderson, Rubin, Calkins, and Schmidt (2001), working with a selected sample, found that infants who went on to be consistently inhibited up to 4 years of age exhibited stronger right frontal EEG asymmetry at 9 and 14 months of age than infants who were to become less inhibited. The latter group of infants exhibited weak right frontal EEG at 9 months of age and left frontal EEG asymmetry at 14 months of age. Davidson and colleagues screened a large sample ($N = 386$) of 31-month-old toddlers in order to select groups of high, middle, and low BI based on each child's behavior in a series of laboratory episodes (see Davidson, 1994). The selected children were followed up and seen at 38 months in a laboratory session during which EEG was recorded. The high BI group showed right frontal asymmetry, while the low BI group showed left frontal asymmetry. The middle BI group showed an asymmetry level that was intermediate between the two extreme groups.

In the early months of life, fear-eliciting stimuli include loud noises or loss of support, but fear of strangers does not appear until around 6 to 9 months of age (e.g., Bronson, 1972). Using longitudinal samples, researchers such as Kagan and Fox have examined infant characteristics in the first half-year of life in order to elucidate possible temperamental precursors of inhibition to novelty in late infancy and toddlerhood. The main finding from this work is that infants who display a high degree of irritability and negative affect during the early months of life are more likely to exhibit inhibited social behavior as toddlers than infants who display high levels of positive affect. Kagan and Snidman (1991) reported that 4-month-old infants selected for high motor activity and high frequency of crying were more likely than other less reactive infants to exhibit behavioral inhibition as toddlers. Similarly, Calkins and Fox (1992) found that, in an unselected sample, infants displaying high levels of negative reactivity at 5 months of age were more likely to be behaviorally inhibited at 24 months of age. Since this original work, further studies have examined whether infants who are active and irritable in the first few months of life also display a unique EEG activation pattern in infancy that may be related to later BI. These studies have generally shown relations between high negative reactivity in early infancy, right frontal EEG asymmetry, and BI in later infancy. Calkins, Fox, and Marshall (1996) found that infants who were selected at 4 months of age for high frequencies of motor behavior and negative affect tended to show right frontal EEG asymmetry at 9 months of age, and were more behaviorally inhibited at 14 months of age compared with infants who showed either high positive affect or low general levels of positive and negative reactivity at 4 months of age. However, it is notable that across the whole sample, frontal EEG asymmetry at 9 months of age was not related to BI at 14 months. This suggests a more complex interplay between infant reactivity,

EEG asymmetry and later BI, a point that is further elaborated by Fox et al. (2001).

A recent report has extended the examination of EEG–BI relations into middle childhood. Earlier in this section we referred to the study described by Davidson (1994), in which right frontal EEG asymmetry was associated with high levels of BI in the third year of life. Davidson and Rickman (1999) followed up this sample, with assessments of BI at 9 years of age and an EEG evaluation one year later. Based on BI at 9 years, the sample was divided into groups of high, middle, and low BI children. The relation between BI at age 9 years and brain activity at age 10 was similar to the relation that had been observed at age 3 years. The high BI group showed relative right frontal activation at 10 years of age, whereas the low BI group showed relative left frontal activation. The pattern of EEG asymmetry for the middle group was intermediate between the patterns of the two extreme groups.

Although similar contemporaneous relations were found at both ages, Davidson and Rickman found no significant stability in either BI or the EEG asymmetry index between the assessments in the third year of life and the corresponding assessments in middle childhood. They provide a number of possible explanations of this instability, including the difficulty of creating analogous yet age-appropriate scenarios for BI, and the considerable plasticity that is occurring in both behavioral and brain development over the relatively long time period that was used.

Despite the instability in EEG asymmetry between 3 and 10 years of age, Davidson and Rickman hypothesized that the small number of children showing right frontal activation *at both ages* would be more likely to be inhibited than children showing stable left frontal activation. Although hindered by low group sizes, these analyses indicate that children showing stable right frontal activation were indeed more likely to have been inhibited at 3 years of age.

In summary, EEG studies indicate a relation between right frontal activation and BI, from infancy to middle childhood. It is likely that the frontal cortex plays an important role in the regulation of responses to novelty, and the extensive connections between the frontal cortex and the amygdala lend weight to the utility of EEG measures in developing a neurobiological model of BI. The examination of EEG alpha asymmetry in relation to individual differences in approach and withdrawal tendencies remains a fertile area of study and debate in both adults and children. For further discussion of this area, the interested reader is referred to Davidson (1998).

Cortisol

Response to a threat may involve activation of the hypothalamic–pituitary–adrenal (HPA) system, with the secretion of cortisol from the adrenal gland as "the final step in a series of complex events" (Takahashi & Kalin, 1999, p. 100). The production of cortisol is principally regulated by the paraventricular region of the hypothalamus, which produces cortisol-releasing hormone (CRH). CRH

stimulates the cells in the anterior pituitary that produce adrenocorticotrophic hormone (ACTH), which is released into general circulation and in turn stimulates the cortex of the adrenal glands to produce cortisol and release it into the bloodstream.

Cortisol levels in children can be noninvasively assessed from saliva samples collected in the home, laboratory or school environments. Salivary cortisol levels have been studied in relation to various aspects of child temperament, including BI (for review, see Stansbury & Gunnar, 1994). There is a theoretical rationale for relations between BI and cortisol levels, since subcortical structures such as the amygdala have important regulatory effects on the HPA axis via the paraventricular hypothalamus (de Kloet, 1991). In the neurobiological model presented here, BI is associated with a more reactive amygdala, which in turn may be expected to be accompanied by a more reactive HPA axis. Support for this aspect of the BI model has been mixed, despite the suggestion of early work that high baseline cortisol levels are associated with high BI. Kagan, Reznick, and Snidman (1987) found elevated cortisol levels in 5.5-year-olds who had been classified as behaviorally inhibited at 21 months of age, compared with those who had been classified as uninhibited at 21 months. Inhibited behavior at 5.5 years of age was also associated with high levels of cortisol measured at the same age. One other recent study of young children is that of Schmidt et al. (1997), who found that 4-year-olds who showed high levels of anxious and unoccupied behavior in laboratory play sessions with unfamiliar peers showed significantly higher morning salivary cortisol levels compared with less wary children.

While the above studies considered baseline levels of cortisol, studies from Megan Gunnar's laboratory have also examined the relations between inhibited behavior in childhood and dynamic changes in adrenocortical activity over periods of social transition (e.g., de Haan, Gunnar, Tout, Hart, & Stansbury, 1998; Gunnar, Tout, de Haan, Pierce, & Stansbury, 1997; Tout, de Haan, Campbell, & Gunnar, 1998). These studies have suggested that the relation between socially inhibited behavior and cortisol levels may be more complex than was suggested by the previous work. For instance, de Haan et al. (1998) found home cortisol levels to be associated with more anxious, internalizing behavior in 2-year-olds, but also found that the cortisol response to starting preschool was correlated with more assertive, angry, and aggressive behavior rather than with socially inhibited or anxious behavior. Gunnar (1994) suggests one reason why inhibited children may not show elevated cortisol reactivity during such transitions. Unlike less fearful children, inhibited children tend to avoid the kinds of social and physical activities that would elicit elevations in cortisol. Another interesting suggestion raised by Gunnar is that adrenocortical activity may not map neatly onto fear- or stress-related constructs, but rather that cortisol levels may be related to the maintenance or failure of coping strategies.

A complement to this suggestion is the study of Nachmias et al. (1996), who examined cortisol responses of 18-month-olds to the Ainsworth Strange Situation and a challenging coping episode. Analyses also included attachment classification and an index of BI for each child. Infants who were highly inhibited and

insecurely attached showed greater cortisol responses to the Strange Situation and the challenging coping episode, compared with children who were highly inhibited but securely attached. The cortisol increase for inhibited-insecure infants was also greater than that for the uninhibited infants, whether securely or insecurely attached. The authors suggest that mothers in insecure dyads who have inhibited children may interfere with their children's strategies for coping with an unfamiliar and/or stressful situation. This disruption of an inhibited child's coping strategy is then reflected in a greater increase in cortisol compared with an inhibited and secure child whose coping strategy is not disrupted. Indeed from an attachment theory perspective, direct interference from mothers need not be implicated. That is, a securely attached child would be expected to have a more adequate coping strategy than an insecurely attached child.

Recent ideas concerning the central action of corticosteroids have raised further interesting suggestions about the HPA system and fear-related behaviors. As discussed above, hypothalamic production of cortisol-releasing hormone (CRH) regulates the production of circulating cortisol. In turn, the levels of peripheral cortisol feed back to control further CRH production. In all the above studies, peripheral cortisol levels were assessed using salivary assay techniques. However, CRH itself may have central effects that can produce fear states, and there have been recent suggestions that central CRH levels can dissociate from peripheral cortisol levels. Schulkin (1994; also Schulkin & Rosen, 1999) hypothesizes that there is a second CRH system in extrahypothalamic sites (e.g., the central nucleus of the amygdala) that is regulated in a different way to the HPA system, and that the effects of this central CRH may in fact underlie a central state of fear. The resulting prediction is that excessively fearful children would have greater central levels of CRH than less fearful children, although this will practically and ethically remain an untestable hypothesis given that central measurement would involve the collection of cerebrospinal fluid.

Heart Period

Autonomic activity is regulated by a set of hypothalamic and brainstem nuclei which establish patterns of sympathetic and parasympathetic activation across the various bodily systems. Given a motivationally significant event, these brainstem mechanisms are themselves adjusted by descending connections from higher structures such as the amygdala. For instance, outputs from the central nucleus of the amygdala include neural pathways to the lateral hypothalamus, which controls sympathetic nervous system responses via brainstem centers (Spyer, 1989). Sympathetic responses to a stressor would include increased adrenergic activity at the sinoatrial cardiac pacemaker, which would cause the heart to beat faster. This sequence provides a rationale for the use of heart period (HP) in the BI model as a noninvasive peripheral marker of limbic activity. The supposition is that inhibited children should show consistently lower HP (higher heart rate) and larger decreases in HP in response to unfamiliarity, compared to uninhibited children (Kagan, 1994). Although the autonomic emphasis in Kagan's

model is on sympathetic activation, there may be other modes of cardiac auto-
nomic control under stress (Cacioppo, Uchino, & Berntson, 1994). Indeed, the
existence of efferent pathways from subcortical structures such as the amygdala
to the vagus, which controls parasympathetic activity in the viscera, suggests that
parasympathetic involvement in the behavioral modulation of HP is also likely
(Porges, 1995).

The main source of information about relations between HP and BI in child-
hood comes from the longitudinal study by Kagan and his associates (e.g., Kagan
et al., 1988). Children in this sample had been classified as inhibited or uninhib-
ited at 21 months, based on a BI assessment during a laboratory visit. At 21
months, 4 years, and 5.5 years, children who were classed as inhibited at 21 months
had significantly lower HP than uninhibited children across a range of labora-
tory tasks (Kagan et al., 1984; Reznick et al., 1986). However, at 7.5 years, HP in
such episodes no longer differentiated the two original behavioral groups (Kagan
et al., 1988).

In addition to tonic between-group differences in HP, Kagan also found that
inhibited children tended to show larger decreases in HP to stressors compared
to uninhibited children. At every age of assessment (from 21 months to 7.5 years
of age), children who were classed as inhibited at 21 months were more likely
than uninhibited children to show a decrease in HP across the trials of a test or
across a battery of cognitive tests. In addition, inhibited children attained their
lowest HP earlier in the course of the assessment than did uninhibited children
(Kagan et al., 1988).

At 7.5 years of age, children who were inhibited at 21 months showed larger
decreases in HP than uninhibited children in response to a change in posture
from sitting to standing. Such a postural change is accompanied by a reflexive
increase in sympathetic influence on the heart, and Kagan regards a larger
decrease in HP upon standing as being indicative of a more reactive sympathetic
nervous system (Kagan, 1994).

As well as relating HP at each age to the initial 21-month behavioral assess-
ment, Kagan also examined the concurrent relations of HP and BI. At each age
of assessment (21 months, 4, 5.5, and 7.5 years), HP during quiet or active tasks
was significantly negatively correlated with BI as assessed at that age (Kagan et
al., 1984, 1988; Reznick et al., 1986). Furthermore, children who were inhibited
at all four assessment ages had the lowest levels of mean HP at each age, while
consistently uninhibited children had the highest levels of mean HP at each
assessment (Kagan, Reznick, & Snidman, 1988).

Outside the Harvard work, only a few studies have examined HP in relation
to BI. In an unselected sample of 2-year-olds, Calkins and Fox (1992) found that
BI was unrelated to baseline levels of HP. Studies that have found significant
BI–HP relations have utilized either large sample sizes or a selection procedure
to focus on extremes. Scarpa, Raine, Venables, and Mednick (1997) explored
HP–BI relations in a large, unselected sample ($N = 1,793$) of 3-year-old Maurit-
ian children. The sample was divided up into high, medium, and low BI groups
based on observer ratings of BI. The high BI group showed significantly higher

baseline heart rate (lower HP) than the low BI group, an effect which remained significant after covarying ethnicity, gender, physical size, and crying behavior.

Marshall and Stevenson-Hinde (1998) examined relations between BI and HP in a sample of children who were selected at 4 years according to criteria for high or low BI on the basis of both a maternal questionnaire and interviewer ratings at home. Subsequent laboratory assessments at 4.5 and 7 years involved further BI ratings as well as the measurement of HP over a series of episodes. No significant relations emerged between BI and HP over the whole sample. However, HP predicted which of the children in the high inhibition group would remain inhibited at 7 years: HP at 4.5 years was significantly lower for children with high BI ratings at 4.5 who remained highly inhibited at 7 years compared to children with high BI at 4.5 years who were less inhibited at 7 years. Contemporaneous relations between inhibition and HP at 4.5 years were found only when attachment security was considered in combination with inhibition grouping (Stevenson-Hinde & Marshall, 1999), as discussed at the end of this chapter.

After reviewing the use of various psychophysiological measures in the assessment of childhood anxiety, Beidel (1989) concluded that HP is a useful variable in this respect and that researchers in the field would be well advised to include it in their assessment battery. This conclusion was based mainly on the evidence from Kagan's longitudinal study, in which HP was among the strongest physiological correlates of BI. In the decade since Beidel's review, HP has remained a useful variable in BI research, especially when methods permit extreme children to be examined. HP is easily measured in the laboratory, and further analyses can provide measures of heart period variability.

Heart Period Variability

The time interval between heartbeats shows distinct variability (Appel, Berger, Saul, Smith, & Cohen, 1989). Heart period variability (HPV), which is correlated with HP, is primarily a result of fluctuations in nerve traffic at the sinoatrial (SA) pacemaker node of the heart, which receives input from both the sympathetic and parasympathetic branches of the autonomic nervous system. Challenging situations would be expected to elicit a decrease in HPV, a change which could be mediated by sympathetic cardiac activation, withdrawal of parasympathetic cardiac influence, or a combination of the two (Cacioppo et al., 1994). These autonomic changes are primarily mediated via the hypothalamus and associated brainstem centers, which share connections to the amygdala (McDonald, 1998). In the context of the BI model, it may be expected that inhibited children would display lower HPV than uninhibited children, an expectation that was supported by Kagan's initial study. Kagan and colleagues employed heart period standard deviation (HPSD) as a measure of total HPV in their longitudinal study of BI. In the first assessment of Kagan's longitudinal sample at 21 months, behaviorally inhibited children had significantly lower HPSD than uninhibited children (Kagan et al., 1984). When assessed at 4 years and 5.5 years, children classed as inhibited at 21 months had significantly lower HPSD compared with children

who had been originally classed as uninhibited. Furthermore, at both 4 and 5.5 years, HPSD was also significantly negatively correlated with inhibition as assessed at those ages (Reznick et al., 1986). However, at 7.5 years, HPSD was not significantly correlated with BI as rated at that age, and it no longer differentiated the groups that were based on the 21-month assessment (Kagan et al., 1988).

Since the original findings concerning HPSD, other studies of BI–HPV relations have employed cardiac measures that are designed to index aspects of HPV that have been related to specific neural processes. The global HPV signal may be thought of as a composite of several periodic oscillations plus an element of aperiodic noise. Parsing the HPV signal into its component oscillations can potentially yield information about the autonomic mediation of cardiac activity: parasympathetic influences on the SA node are manifested in relatively high-frequency oscillations in HP, while sympathetic influences produce lower frequency oscillations in HP (Akselrod et al., 1981; Saul, 1990). Many studies utilizing measures of HPV in the child development literature have been concerned with the high-frequency oscillations in HP that are associated with the breathing cycle. During inspiration, HP transiently decreases, while during expiration, HP increases (Hirsch & Bishop, 1981). These oscillations constitute the reflexive phenomenon of respiratory sinus arrhythmia (RSA), which primarily reflects the influence of the vagus nerve, a primary component of the parasympathetic nervous system, on the heart (see Berntson, Cacioppo, & Quigley, 1993). Porges (1995) has presented RSA as an index of the primary vagal cardiorespiratory center in the brainstem, the nucleus ambiguus (NA). Behavioral influences on RSA are likely to be mediated by descending projections to the NA from higher structures such as the amygdala, which could direct a reduction in baroreflex gain under conditions of stress or effort. This would effectively diminish the basal level of vagal activity that is subject to phasic inhibitory modulation, leading to a decrease in RSA magnitude (Berntson et al., 1993). Placing this in the context of a neurobiological model of BI leads to the hypothesis that high BI would be associated with low RSA. However, as the following studies show, support for this hypothesis is mixed.

Early studies of RSA and social behavior in infants found an association between RSA and approach or withdrawal tendencies. Richards and Cameron (1989) found that baseline RSA was positively correlated with parent-reported tendency to approach at 6 months of age. Fox and Stifter (1989; see also Fox, 1989) found that infants with high baseline RSA at 14 months of age exhibited shorter latencies to approach a stranger and a novel object compared to infants with low RSA. Similar associations were found between 5-month RSA and 14-month behavioral measures: infants with high RSA at 5 months of age displayed a shorter latency to approach a stranger 9 months later.

Despite the promising findings of the above studies, BI–RSA associations have not been forthcoming from the literature. There was no relation between a measure of RSA and fearful behavior in infancy (Snidman, Kagan, Riordan, & Shannon, 1995), and BI and RSA were unrelated at 24 months (Calkins & Fox,

1992). Rubin, Hastings, Stewart, Henderson, and Chen (1997) found that RSA "did not clearly distinguish consistently inhibited toddlers from the other groups" (p. 480). In early childhood, Marshall and Stevenson-Hinde (1998) found no significant relations between RSA and BI in a longitudinal study at 4.5 and 7 years of age. Thus, despite promising early findings relating RSA to approach behaviors in infancy, studies with toddlers and children have failed to find similar relations at later ages. This is somewhat surprising, given Kagan's original finding of lower total HPV being associated with higher BI through early childhood and the high correlation of total HPV measures with measures of RSA (Marshall, 1997). Further work is addressing this issue, including the examination in BI studies of dynamic changes in RSA with changes in behavioral tasks, which has proved to be a valuable technique in research in other domains of early regulatory behaviors (e.g., Calkins, 1997).

Since RSA primarily indexes parasympathetic cardiac influences, and given the focus of Kagan's BI model on sympathetic arousal, some researchers have felt that a measure of cardiac sympathetic activation may be more appropriate for use within the BI framework. Low-frequency (LF) variability in HP (around 0.1 Hz) has been proposed as a marker of cardiac sympathetic modulation (e.g., Pagani, Rimoldi, & Malliani, 1992). However, although the evidence for a substantial sympathetic contribution to LF oscillations is strong, any attempt to quantify this contribution is hindered by the added presence in this frequency range of variability that is parasympathetically mediated (Malik & Camm, 1993). In an attempt to overcome this problem, Snidman (1989) proposed a novel method for interpreting the LF component by making the extreme assumption that parasympathetic influences are evenly distributed across the entire HPV power spectrum. Using this rationale, Snidman demonstrated that changes in HPV over several cognitive tasks in inhibited preschoolers were more likely to be the result of sympathetic influences than were HPV changes in uninhibited children. However, controversy still surrounds the precise interpretation of LF variability, although Mezzacappa, Kindlon, Earls, and Saul (1994) suggest that changes in LF power with postural manipulations may be a useful indicator of sympathetic influences on HP. One study of BI to utilize this technique is that of Snidman et al. (1995), who examined LF variability during supine and erect sleep in early infancy in relation to later measures of BI. LF variability during erect sleep at 2 weeks and 4 months of age was related to BI scores at 14 and 21 months. Furthermore, changes in LF variability between the supine and erect postural states at 2 weeks predicted BI at 14 and 21 months. These results were interpreted as indicating that LF power, and the change in LF power with postural manipulations at 2 weeks of age, were early markers of sympathetically-biased cardiac autonomic regulation that predicted later behavioral regulation.

In summary, measures of heart period variability have promoted an active area of investigation in BI research. Kagan's initial findings of lower HPV in inhibited children compared with uninhibited children sparked further inquiry using more specific indices of HPV. Future studies may further benefit from a more integrated approach to indexing cardiac autonomic influences (e.g., Cacioppo et al., 1994). More specific measures of cardiac sympathetic influence (e.g., pre-

ejection period; PEP) are currently being used in some developmental labs, which may lead to new insights into the autonomic dynamics of BI.

EVALUATING THE MODEL

Over the course of this chapter, we have reviewed the evidence for physiological correlates of BI as predicted by the neurobiological model of increased amygdaloid excitability to novelty in inhibited children. Although each physiological measure has contributed to our understanding of BI, it is also evident that BI–physiology associations may be modest, possibly hiding underlying complexity. This issue is of fundamental relevance to the entire BI construct (e.g., Kagan, 1998).

Testing the hypotheses generated by the neurobiological model of BI involves monitoring peripheral response systems that are some way downstream of the brain structure of interest—namely, the amygdala. The multiply-determined nature of peripheral physiological responses immediately introduces noise into physiological data that may be unrelated to the activity of the subcortical site of interest. In addition, the developmental plasticity of both behavior and physiology adds further complexity. However, patterns of change as well as stability have always been of inherent interest to BI researchers (e.g., Kagan et al., 1988), and recent BI work has focused on related issues including the dynamic relations of behavioral change with changes in physiological measures (e.g., Fox et al., 2001).

Although the amygdala-based neurobiological model of BI makes certain physiological predictions, the above complications raise many issues for researchers interested in the physiological correlates of BI. For instance, Kagan (1998) notes that "a particular cortisol level has no universal meaning across a large sample of infants and young children" (p. 193). Despite such reservations, work stemming from the neurobiological model of BI has contributed much to our understanding of inhibited behavior in young children (Kagan, 1994). Indeed, the inclusion of the physiological level of analysis in the BI paradigm has provided a focus on neurobehavioral regulation that has stimulated a plethora of research and debate. In addition, with the realization of the complexities, there has also been an increased understanding of how BI–physiology relations may be clarified by particular conceptual, methodological, and analytical strategies. We will now illustrate two such strategies, with examples from our own work.

THE WAY FORWARD

Selecting Individuals Who Are Extreme

BI is usually treated as a dimension, reflecting *quantitative* differences between individuals. However, to return the point made in the first section, any dimension of BI may also reflect *qualitative* differences between individuals, and natural

selection may even have fostered "phenotypically inflexible genotypes" in certain environments (e.g., Wilson et al., 1994). Thus, as Kagan has argued over the years, a focus on extremes may promote both theoretical and empirical progress. The identification of extreme groups can be strengthened by the use of longitudinal samples to enable the identification of children who are consistently inhibited or uninhibited. In turn, such an approach may aid the investigation of the physiological correlates of BI. For example, Marshall and Stevenson-Hinde (1998) found that although BI was moderately stable between 4.5 and 7 years, predicted relations between BI and cardiac measures did not occur at either age. However, children who were highly inhibited at both ages had lower HP at 4.5 years than children who were uninhibited at both ages. Furthermore, these consistently inhibited children had significantly lower HP at 4.5 years than children who were highly inhibited at 4.5 years but who became less inhibited at 7 years (Marshall & Stevenson-Hinde, 1998).

Integration with Measures from Other Domains

As we have already seen with BI and cortisol (Nachmias et al., 1996), another domain that might inform relations between BI and physiology is the child's quality of attachment to mother. Indeed, there is growing evidence for a continuous interplay between BI and attachment during development (Stevenson-Hinde, in press). Whereas BI assessments involve behavior in unfamiliar situations such as meeting a stranger, attachment assessments involve behavior on reunion with a well-known caregiver, usually mother. The attachment focus is on how a child uses mother as a "secure base" when distressed, typically observed in reunion episodes within the Ainsworth strange situation. Thus, a behaviorally inhibited child—who would withdraw when a stranger entered and, after being left alone, would not be comforted by the stranger—might nevertheless be relatively easily soothed by the mother upon reunion with her and hence judged securely attached. A characteristic of secure children is that, through interactions with a sensitively responsive caregiver, they are able to express their emotions in a relaxed and open manner. With such "emotional coherence" (Grossmann & Grossmann, 1991, p. 108) secure children would be expected to show a direct relation between autonomic functioning and behavior to strangers.

Relations between cardiac functioning and BI were indeed clarified by taking attachment status into account (Stevenson-Hinde & Marshall, 1999). Analyses of HP were carried out using three BI groups (low, medium, and high) and two attachment groups (secure and insecure). Only the secure children showed the predicted relation between cardiac functioning and BI—with HP highest for the low BI group, next highest for the medium BI group, and lowest for the high BI group. In other words, secure children were enabled to express their own temperamental style in a coherent way, permitting physiology and behavior to be in tune with each other.

Thus, according to attachment theory, secure children feel free to express their emotions in the knowledge that they will be supported, whereas insecure children have developed behavioral "strategies" for dealing with emotions. These involve closing down for the avoidant (A) pattern, over-reacting for the ambivalent (C) pattern, or taking charge for the controlling (CN) pattern. Such strategies may interfere with or even over-ride the predicted relation between behavioral style and indices of autonomic functioning. It is therefore possible that the significant relations that have been found between BI and HP may reflect only secure children, who in fact comprise about two-third of most samples.

New Directions

New directions to enhance our understanding of the biology of BI concern the development of new tasks and methodologies to test facets of the amygdala model, as well as refinements of the model itself.

The current neurobiological model of BI proposes that the main difference between inhibited and uninhibited children lies in the sensitivity of subcortical limbic structures such as the amygdala. However, as outlined earlier in this chapter, such a difference could also arise at other points in the sequence of physiological events associated with the processing of novel stimuli. One possible refinement of the model involves differences between inhibited and uninhibited children in early processing of sensory stimuli. Some BI studies are now including the assessment of auditory event-related potentials (ERPs) in order to investigate this possibility. For example, Bar-Haim, Marshall, Fox, Schorr, and Gordon-Salant (2003) examined the mismatch negativity (MMN) response in the auditory ERP of children who had shown high levels of withdrawal behaviors in assessments with unfamiliar peers at four and seven years of age. The MMN is generated in primary auditory cortex and reflects the automatic detection of a change in an otherwise repetitive stimulus train. Compared to a control group of more outgoing children, the withdrawn children clearly showed a reduction in the MMN response to auditory change. This finding raises a number of intriguing possibilities, including the modulation of early stages of cortical sensory processing in inhibited children by upstream structures such as the amygdala.

Another current direction is the use of eyeblink startle paradigms, which are providing insights into the dynamics of emotion and motivation (see Lang, 1995). The eyeblink startle response is of greater amplitude when an acoustic startle probe is presented during the presentation of negatively-valenced visual stimuli compared with the presentation of positively-valenced stimuli. A related methodology is the use of startle probes in classical conditioning paradigms. The magnitude of the startle response is potentiated when it is elicited in the presence of a stimulus that signals an impending aversive event (Brown, Kalish, & Farber, 1951). Michael Davis and colleagues mapped the neural circuitry of acoustic startle in the rat, and found that projections from the central nucleus of the amyg-

dala to a specific area of the brainstem modulate the fear-potentiated startle response (Davis, 1986; Davis, Falls, Campeau, & Kim, 1993). This led to the proposal that the magnitude of startle potentiation in a fear state may index the sensitivity of the amygdala to fear-related stimuli. Individual differences in eyeblink startle response under a fear state would therefore be expected to relate to individual differences in the susceptibility to fear or anxiety, including BI. In adults, high trait anxiety has been associated with augmented fear-potentiated startle responses (Grillon, Ameli, Foot, & Davis, 1993). In the BI literature, very few studies have used any kind of startle paradigm, and findings have been mixed (Snidman & Kagan, 1994; Schmidt et al., 1997; Schmidt & Fox, 1998). Although theoretically a promising area, very little work has examined potentiated startle in the context of fear conditioning in children, although some current work with adolescents is addressing this issue (Grillon et al., 1999).

Obviously, any BI model should keep abreast of developments in the neurobiological literature concerning the neural bases of fear and anxiety. For instance, it has been emphasized that the amygdala is not a homogeneous structure—neither structurally nor functionally (e.g., Swanson & Petrovich, 1998). Other related structures nearby include the bed nucleus of the stria terminalis, which has a similar morphology to the central nucleus of the amygdala. Like the central nucleus, the bed nucleus activates hypothalamic and brainstem targets involved in behavioral and physiological signs of fear and anxiety. As outlined above, much of the literature relating the amygdala to fear responses is based on animal models of startle responses during classical conditioning. In these models, fear responses to a benign cue (the conditioned stimulus, e.g., a tone or a light) are potentiated by repeated presentation of an aversive stimulus (the unconditioned stimulus, e.g., a shock) in the presence of the cue. Damage to the central nucleus of the amygdala reduces the magnitude of the fear potentiation effect of the conditioned stimulus (Davis et al., 1993). Although this literature is the basis for the amygdala-centered neurobiological model of BI, it is important to note that BI is not usually viewed in the context of classical fear conditioning: there are no obvious analogues for conditioned and unconditioned stimuli in the BI model. Recent work from the animal literature may provide new insights into this problem. Davis and colleagues have suggested that the bed nucleus plays a role in the potentiation of fear responses in situations which do not involve classical conditioning, such as prolonged exposure to a threatening, unfamiliar ambient environmental stimulus (e.g., a bright light). Davis (1998) suggests that the amygdala might be linked to more stimulus-specific fear, while the bed nucleus might be involved in a form of longer-latency anxiety. Further research may clarify the relation of the amygdala to the bed nucleus, as well as the role of the bed nucleus in the behavioral manifestation of anxiety. Such investigations should be monitored, as they have implications for neurobiological models of BI.

One other point concerns the heavy reliance of the BI model on data from non-primate animal studies. Inferences from such animal models are most likely well-founded, but the BI model needs to keep abreast of developments in the primate/human literature. Models of affective neuroscience in humans are utilizing various sources of data, including functional neuroimaging techniques and

patients with amygdala damage, to provide new insights on the role of the amygdala in humans (Davidson & Irwin, 1998). Indeed, Schwartz, Wright, Shin, Kagan, and Rauch (2003) have recently found that adults who had been categorized in the second year of life as inhibited (high BI), compared with an uninhibited (low BI) group, showed greater functional MRI signal response within the amygdala to novel versus familiar faces. It is vitally important that the model of BI keeps apace of these developments.

Another implication of the reliance of the BI model on non-primate animal data is the neglect of the influence of the frontal cortex, especially the prefrontal region. Primates and non-primates do differ in the convergence of projections from cortical areas to the amygdala (McDonald, 1998). In addition to these between-species differences in mature individuals, developmental change occurs within a species. In humans, the prefrontal area of the cortex shows a prolonged functional maturation over childhood (Goldman-Rakic, Bourgeois, & Rakic, 1997) and is thought to play a crucial role in the development of behavioral control and self-regulation (Diamond, 1990; Kopp, 1982). The prefrontal cortex has regulatory control over subcortical structures, including the capability to inhibit amygdaloid responses (Morgan, Romanski, & Ledoux, 1993). This implies that models of BI should make some reference to this developmental increase in cortical regulatory capability. For example, over time, children form cognitive representations of the world that are assumed to have cortical substrates. For some behaviorally inhibited children, continued pairing of novel situations and the subjective experience of fear in infancy and early childhood may result in representations of the world as a fear-provoking and uncertain place (Derryberry & Reed, 1994). By middle childhood, these representations may start to regulate and guide behavior, with a decreasing dependence on the physiological states originally associated with BI (Marshall & Stevenson-Hinde, 1998). The understanding of BI in infancy through middle childhood and its dynamic relations to physiological variables may therefore have consequences for understanding the development of representations of the self in relation to the world. In turn, this knowledge may aid the understanding of the manifestation of social anxiety as discussed in many of the diverse chapters in the current volume.

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Chapter 4

Origins of the Self-Conscious Child

Michael Lewis

To understand what follows, two case studies are briefly presented:

> Victoria is a pretty 3-year-old. When she enters the laboratory she clings to her mother, hiding her head in her skirt when she is spoken to. When asked her name, she does not reply. She readily finishes a puzzle given to her by a research assistant and when complimented about how well she did, Victoria smiles, turns her head, blushes, and moves toward her mother to hold her hand.

> Natasha is also a pretty 3-year-old. She comes into the laboratory without her mother, looks around the room and starts to play. She, too, finishes the puzzle and when complimented, shows a big smile. However, when she gets up from the table, she knocks over a glass and it breaks as it falls to the ground. She sees what she has done, smiles sheepishly, turns away, blushes, and touches her dress nervously.

Both children have shown signs of embarrassment; that is, they blushed, smiled, turned away, and engaged in self-stimulation (Lewis, 1989). Somehow, though, these examples seem different. In this chapter, we will explore this difference, but before doing so we will need to outline a developmental model in regard to emotional development, showing the development of a sense of self, a meta-

representation—or what I have called the *idea of me* (Lewis, 1995). Having done this, we next focus on the development of the earliest self-conscious emotion—embarrassment—and show its earliest manifestation and its subsequent development. Finally, we explore individual differences in this emergent emotion.

A DEVELOPMENTAL MODEL OF EMOTIONS

The model to be presented rests on the proposition that embarrassment belongs to the general class of self-conscious emotions and that these self-conscious emotions require specific cognitions for their emergence. Most of the literature on emotional development focuses on the appearance of what have been called the "primary" or "basic" emotions. These emotions are characterized both by their early appearance and by having universal facial expressions. Beyond the appearance of these early emotions, the emergence of the other emotions remains relatively uncharted. Although some empirical work has appeared on pride, guilt, and shame, especially within an achievement situation (Geppert & Kuster, 1983; Heckhausen, 1984; Lewis, Alessandri, & Sullivan, 1990; Stipek, Recchia, & McClintic, 1992), theories regarding the origin of the later appearing emotions, often called "secondary" or "self-conscious" emotions, are largely unexplored. Operational definitions and the need for a good measurement system are parts of the problem.

The appearance of these emotions, after emergence of the earlier ones, has led to their classification as secondary or derived emotions (see Plutchik, 1980). Another model considers that these emotions follow the primary ones but are not constructed from them (Izard, 1977). The model argued for here proposes that emotions are tied to cognitive processes, those needing the least cognitive support emerging first, and those needing more emerging later (Lewis, 1992; Lewis & Michalson, 1983). Although the sequence of the emergence of these earlier emotions has yet to be fully articulated, it seems that by 6 to 8 months of age they all have appeared (Lewis, 1993). Even so, it is not until the middle of the second year that the secondary or self-conscious emotions are observed (Borke, 1971; Lewis & Brooks-Gunn, 1979; Stipek, 1983).

The model articulated elsewhere (Lewis, 1992; Lewis, Sullivan, Stanger, & Weiss, 1989) can be found in Figure 4.1. In the first months, the "primary" emotions appear. The time of emergence of these emotions is variable and depends upon situation and context. It is reasonably safe to say that they appear either shortly after birth or are seen within the first 6 to 8 months of life (Lewis, 1993). In the second stage, self-referential behavior emerges, which is indicative of the development of a meta-representation. The emergence of this capacity has been associated with such other cognitive features as the use of "me" or "mine" (Lewis & Brooks-Gunn, 1979). Moreover, as proposed by Leslie (1987), we have recently been able to show that self-recognition and/or personal pronoun usage tends to precede pretend play (Lewis & Ramsay, in review). Thus, there is sufficient evidence to suggest that an active meta-representation exists and is used by the middle of the second year of life. In particular, the emergence of this capacity
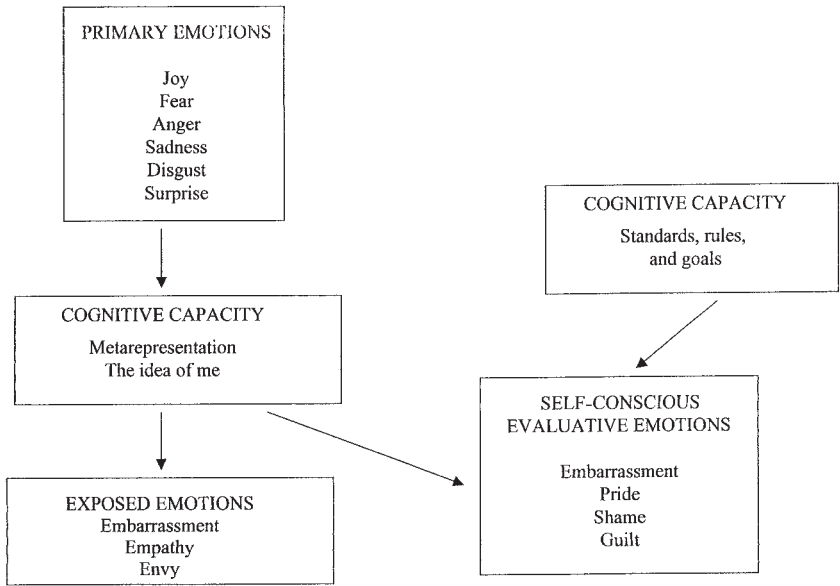
Figure 4.1 Primary and secondary emotions

occurs between 15 and 24 months in normally developing children and requires a mental age of 15 to 18 months to be displayed (Lewis & Brooks-Gunn, 1979; Loveland, 1987a, b).[1]

As can be seen in Figure 4.1, the emergence of self-recognition marks the maturing of the meta-representation. At the same time as this meta-representation can be said to exist, we are able to observe the emergence of what we will call "exposure-embarrassment."

Exposure-embarrassment seems to be related to the emergence of self-referential behavior. Amsterdam (1972), Dickson (1957), and Schulman and Kaplowitz (1977) report instances of self-conscious behavior in children older than 15 months when viewing themselves in mirrors. In our studies (Lewis & Brooks-Gunn, 1979), 20% of the children over 15 months of age who observed themselves in a mirror *without* rouge on their noses, showed coy or silly behavior, which could be taken to reflect embarrassment. Thus, there is reason to believe that the emergence of self-referential behavior is related to embarrassment.

This was tested in a series of studies by Lewis et al. (1989), and we were able to demonstrate that embarrassment did not occur in children who did not show self-recognition in the mirror. In these studies, the self-recognition mirror task was used and embarrassment was observed under four different conditions. The embarrassment-eliciting situations included children looking at themselves in the mirror with other people observing them looking at themselves (mirror condi-

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[1] The technique of self-recognition is well known; we have called it the mirror rouge test so we will not go into details in regard to the procedure.

tion). A "complimenting condition" involved an experimenter initiating interactions with a child during which the child was given four or five compliments. For example, children were told that they were smart, had beautiful hair, and had lovely clothes. Two other conditions included a request for the child to perform a dance. In one, the experimenter handed the mother a small tambourine and asked the mother to coax the child to dance. In the second, the experimenter herself coaxed the child to dance. They each said, "Let's see you dance. Dance for me, I'll sing 'Old MacDonald'" [or a song familiar to the child]. The dance situation was utilized since conspicuousness is thought to be an elicitor of embarrassment (Buss, 1980). The results of these studies (reported in Lewis et al., 1989), showed a direct relation between embarrassment in these situations and self-referential behavior as measured in a previous rouge/mirror situation. Embarrassment was seen almost only for children who showed self-consciousness (touched their noses). Such findings indicate that embarrassment is related to the emergence of this meta-representation of self.

Observation of Figure 4.1 also indicates that *self-conscious evaluative* emotions do not emerge at this time but appear somewhat later, toward the third year of life. While embarrassment requires only self-consciousness, pride, shame, and guilt appear to require additional cognitive capacities. These include the acquisition of standards as well as the ability to evaluate one's behavior *vis-à-vis* these standards. Present work indicates that the emergence of self-conscious evaluative emotions occurs at about 3 years of age (see Heckhausen, 1984; Kagan, 1981; Lewis, 1992; Lewis, Alessandri, & Sullivan, 1992; Stipek et al., 1992).

The emergence of shame, pride, and guilt almost one and a half to two years after that of exposure-embarrassment suggests several important points:

1. The emergence of embarrassment and shame are not coincidental, thus supporting the premise that embarrassment is not the same as shame.
2. The emergence of embarrassment prior to a self-evaluative capacity suggests that exposure-embarrassment does not require evaluation of the self, either in terms of potential failure or of failure itself. Although embarrassment may require a social audience, it does not appear to need a self-evaluative component.
3. Embarrassment seems to occur under situations in which failure is not likely to be a sufficient explanatory device. For example, in the Lewis et al. (1989) study, embarrassment was most elicited by praise and by observing children looking in the mirror at themselves.

Some have argued that compliments to an adult may have a negative component since they are taught to be modest. It is possible then to argue that for older children and adults, being complimented may have some negative feature. However, to argue that children 15 to 24 months of age have been taught and have learned the issue of modesty is hard to accept. Rather, embarrassment seen in this situation is related more to exposure or attention being paid to the self than to the violation of social mores and values. Thus, this model suggests that

there may be two types of embarrassment, each having different developmental timing and being supported by different cognitive processes.

THE TWO TYPES OF EMBARRASSMENT: EXPOSURE VS. EVALUATION

Exposure

Embarrassment elicited by exposure appears to be more similar to shyness than to shame. In certain situations of exposure, people become embarrassed. This type of embarrassment is not related to negative evaluation as in shame. Perhaps the best example is being complimented. The phenomenological experience of embarrassment when complimented is well known. The speaker, introduced with praise, is embarrassed. Buss (1980) has suggested that complimenting elicits social rules for modesty. While this may be the case for adults, it is hard to reconcile learning the rules of modesty in infants as young as 15 to 18 months of age.

Another example of this type of embarrassment can be seen in people's reaction to their public display (Goffman, 1956). When people observe someone looking at them, they are apt to become self-conscious, to look away, and to touch or adjust their bodies. When the observed person is a woman, she will often adjust or touch her hair. An observed man is less likely to touch his hair, but may adjust his clothes or change his body posture. Observed people look either pleased or frightened, rarely sad.

Still another example of exposure-embarrassment comes from a series of experiments I have conducted. In lecturing both to students in my classes as well as other audiences, I often wish to demonstrate that embarrassment can be elicited just by exposure. To demonstrate this point, I inform the audience that I am going to randomly point to someone. I further inform the audience that my pointing has no evaluative component, that it will be random, and not related to anything about the person. Moreover, I inform them that I will close my eyes when pointing. Following these instructions, I point to someone in the room. From the reports of those who are targets of the point, the pointing invariably elicits embarrassment.

The final example comes from a personal observation. I have gone to a dental hygienist to have my teeth cleaned for the past few years. As I sat there with my mouth open, it occurred to me that if I were a dental hygienist I would have a favorite tooth, one which gave me particular pleasure to clean, in part, perhaps because it was easy to clean. With this idea in mind, I asked Barbara, the hygienist, "Which is your favorite tooth?" She stopped her work, looked embarrassed, blushed, and finally said, "How did you know?" Quite by accident I had uncovered her secret. She told me she was not ashamed at having a favorite tooth; just at being "uncovered". This example of embarrassment at being

exposed or uncovered has made me realize that the exposure does not have to be about the physical presence but can extend to the secret part of the self (Meares, 1992).

There are many examples of embarrassment in which there is an evaluative component, yet it may be that self-exposure is in reality the elicitor. Take the simple act of walking into a lecture hall a few minutes *before* the speaker is scheduled to talk. A person who arrives on time or even early may attract attention. On such an occasion, one is likely to experience embarrassment. This situation can promote a negative self-evaluation—"I should have been here earlier; I should have stayed at the back of the hall." I believe, however, that the experience of embarrassment may not be caused by negative self-evaluation, but by simple public exposure. However, rather than believe that it is the exposure alone which produces the embarrassment, people choose to look for a negative evaluation. In other words, the negative evaluation follows embarrassment due-to-exposure as people attempt to explain to themselves why they are embarrassed. *That is, once evaluation of the self skills develop (at around 3 years), it is used as a cognitive device since it becomes a prepotent response.*

Evaluation

The second type of embarrassment is related to negative self-evaluation and to shame. The difference in intensity between embarrassment and shame may be due to the nature of the failed standard. People have different standards, some of which are more important than others to their identity. Violation of these less important standards is likely to elicit a less intense form of shame. For example, failure at driving a car may be embarrassing rather than shaming, if driving is less related to the core self. On the other hand, failure at driving a car may be shaming, if it is a core capacity. In these examples, there appear to be some association between embarrassment and shame. Perhaps there is another and important differentiating cause for embarrassment versus shame. Evaluative embarrassment (as exposure-embarrassment) always needs a socially present audience. Shame does not. Thus, evaluative embarrassment would not only be a milder form of shame, but may need to take place in public.

This distinction allows us to return to the two examples given at the beginning of the chapter. Victoria, as you remember, showed embarrassment in a new situation when she became the object of the researcher's attention—when she was complimented. Because of these circumstances, we would conclude that Victoria has exhibited exposure-embarrassment. Natasha, on the other hand, exhibited embarrassment, not when she was the object of attention (complimented), but when she broke the glass. Her embarrassment was caused by evaluation and is an example of evaluative embarrassment. Exposure-embarrassment occurs at the point when the idea of me exists and is utilized in social exchanges. For some children, social exchanges, where they become the center of another's attention and they are aware of the others' attention toward them, produces embarrass-

ment. This capacity, unlike evaluative embarrassment, emerges in the second year of life.

INDIVIDUAL DIFFERENCES IN EXPOSURE-EMBARRASSMENT

Exposure-embarrassment is a normal emotion which requires the cognitive capacities to (1) represent the self to oneself, and (2) notice the attention of others toward the self. These cognitive capacities emerge in the middle of the second year of life. While embarrassment is a normal emotion which we all have, observation of toddlers and young children reveals that some children show more embarrassment than others when they become the object of others' attention. This individual difference is interesting to observe, is probably related to what others have called shy or inhibited, and may have, as I believe, its roots in individual differences in self-attention and in temperament.

Embarrassment has been related to shyness. Izard and Tyson (1986) consider shyness to be sheepishness, bashfulness, and/or a feeling of uneasy or psychological discomfort in social situations. They suggest that shyness results from a vacillation between fear and interest or between avoidance and approach. They relate shyness to fear, not to evaluation. Individuals who are considered shy are not too much concerned with the evaluation of their performance *vis-à-vis* their standards, as they are with being observed. Buss (1980) sees shyness as an emotional response which is elicited by experiences of novelty or conspicuousness. Buss believes shyness and fear are closely related and represent a general fearfulness toward others—again not an evaluative process, except in the cause of fearfulness, such as fear of a stranger.

In a series of studies, we observed 3-month-old children interacting with their mothers (Lewis & Feiring, 1989), and two different types of children were distinguished. The first group of children appear to be socially oriented even by 12 weeks of age. These children looked at, smiled at, and vocalized in interactive sequences with their mothers and preferred to play with their mothers rather than by themselves. We characterized these children as sociable. Unlike the first group, about 20% of the children preferred not to look at, smile at, or vocalize toward their mothers and they also preferred to play by themselves and with toys more than with their mothers (Lewis & Feiring, 1989). These children were called asocial. The children were observed again at 12 months of age and these differences in sociability were maintained. These differences in sociability appear to be similar to what has been called differences in shy or inhibited children (Kagan, Reznick, & Snidman, 1988). These findings suggest that shyness may be similar to embarrassment since it appears early and does not need an evaluative component. Shyness, like fearfulness, is more likely to be biological rather than a psychological variable. Such an approach to shyness seems reasonable in that it fits with a social self view. For example, Kagan et al. (1988) have pointed

out that children whom they called inhibited, also appeared shy, withdrawn, uncomfortable in social situations, and fearful. Thus, our own observations, as well as those of others, indicate that shyness related to a constellation of factors is not related to self-evaluation. Moreover, there is some reason to believe that these individual differences have a dispositional or constitutional basis (Eysenck, 1956).

Our interest in individual differences in exposure-embarrassment has led to a series of studies. To begin with, we were interested in the relation between temperament and embarrassment since there is general agreement that temperament, however defined, serves to organize or regulate emotional states and expressions (Allport, 1965; Buss & Plomin, 1984; Goldsmith & Campos, 1982; Lewis, 1989; Thomas, Chess, Birch, Hertzig, & Korn, 1963). Rothbart (Rothbart & Derryberry, 1981; Rothbart & Goldsmith, 1985) and Lewis (1989) have suggested that temperament regulates the latency, duration, and intensity of emotional responses. Using parental reports of infant temperament, a modest relation between emotional expression and temperament has been found (Goldsmith & Campos, 1982). Although these studies were primarily concerned with the relation between temperament and the emotions that appear during the first year of life, the role of temperament in the expression of the more complex, self-conscious emotions is relatively rare (Kochanska, 1993; Lewis, 1992; Rothbart, Ahadi, & Hershey, 1994). For example, several studies have examined the role of temperament in the development of the specific emotions of shame, guilt, and empathy as well as the more broad construct of conscience (see Kochanska, 1993, for a review of this literature). In a series of studies, Kochanska and associates have examined the role of temperament in the development of conscience (Kochanska, 1993; Kochanska, DeVet, Goldman, Murray, & Putman, 1994). Findings suggest that the temperament dimensions of low impulsivity and high effortful control (e.g., the ability to focus and to control inappropriate behavior) are moderating factors in the amount of affective distress that young children, particularly girls, show in response to their moral transgressions. Similarly, Rothbart et al. (1994) found that school-aged children who are high on the temperament dimensions of negative affectivity and effortful control show greater amounts of guilt and shame than children low on these dimensions. In a small subsample looking at predictions from infancy to school age, Rothbart et al. (1994) found high anger/frustration and fearfulness to be positively related to later guilt.

The question addressed in the DiBiase and Lewis (1997) study concerned the relation between temperament and embarrassment. There are several possible ways in which temperament differences may affect embarrassment differences. First, temperament differences may affect embarrassment by affecting the timing of the emergence of self-awareness. We have proposed that children who are easily overstimulated and highly reactive may develop self-awareness sooner than children with more "easygoing" temperaments (see Lewis & Ramsay, 1997). Second, temperament may affect individual differences in embarrassment independent of its effect on self-awareness. Although self-awareness may be necessary for embarrassment, temperament differences may affect embarrassment in

those children who already show self-awareness (Edelmann, 1987; Jones, Briggs, & Smith, 1986). Third, temperament may affect the onset of both self-awareness and embarrassment.

Embarrassment was elicited through the use of four distinct situations. First, the experimenter was overly complimentary toward the children, commenting effusively about their clothes, hair, and personal attributes. This situation has been shown to elicit blushing and giggling (Buss, 1980). In the second situation, the mother was instructed to ask her child to dance. She was handed a tambourine and told to use any method that she thought would work. In the third episode, the experimenter asked the child to dance. Here the experimenter played a tambourine and sang "Old MacDonald" while encouraging the child to dance. Finally, children were asked to look at themselves in a mirror. These situations were designed to make the child feel conspicuous and the center of attention, which is thought to elicit embarrassment (Buss, 1980). Embarrassment, measured using Geppert's (1986) coding scheme, was effectively elicited with these situations (see Lewis et al., 1989). Blushing and smiling, followed by gaze aversion and/or self-touching, indicated embarrassment (see also Buss, 1980; Edelmann & Hampson, 1981; Lewis et al., 1989; Modigliani, 1971). Also obtained were measures of self-recognition using the mirror-rouge test. Temperament measures were obtained using the Revised Infant Temperament Questionnaire (RITQ) and the Toddler Temperament Scale (TTS). Each of these questionnaires was designed to rate children on the nine dimensions of temperament proposed by Thomas et al. (1963). The TTS is comparable to the RITQ, but designed for older children.

Infants were classified by temperament using a principal–components analysis with varimax rotation. At 5 months, four factors, accounting for 71% of the variance, had eigenvalues of 1 or greater. The first rotated factor, accounting for 29% of the variance, consisted of negative mood, approach/withdrawal (fearfulness), adaptability, and distractibility. This factor consisted of three of the five dimensions that differentiate infants into the easy–difficult temperament categories described by Thomas et al. (1963), and is consistent with the results of Matheny, Wilson, and Nuss (1984). It also contains the aspects of temperament that Rothbart et al. (1994) and Kochanska et al. (1994) found to be related to self-conscious emotions. The higher the score, the more children were fearful, negative in mood, unadaptable, and distractible. At 13 months, the principal–components analysis with varimax rotation yielded three factors with eigenvalues greater than 1, accounting for 56% of the variance. The first factor accounted for 27% of the variance and was defined by the dimensions of fearfulness, negative mood, nonadaptability, and rhythmicity. As with the 5-month analysis, the higher the score, the more children were fearful, negative in mood, unadaptable, and arrhythmic. The relation between 5- and 13-month temperament factor scores was significant. A score for embarrassment was determined by counting the number of times embarrassment occurred over the four situations used to elicit it. Parental report of temperament is positively related to embarrassment, such that infants who were more fearful, negative in mood, and unadaptable were more likely to show embarrassment than infants who were less fearful, negative in mood, and unadaptable.
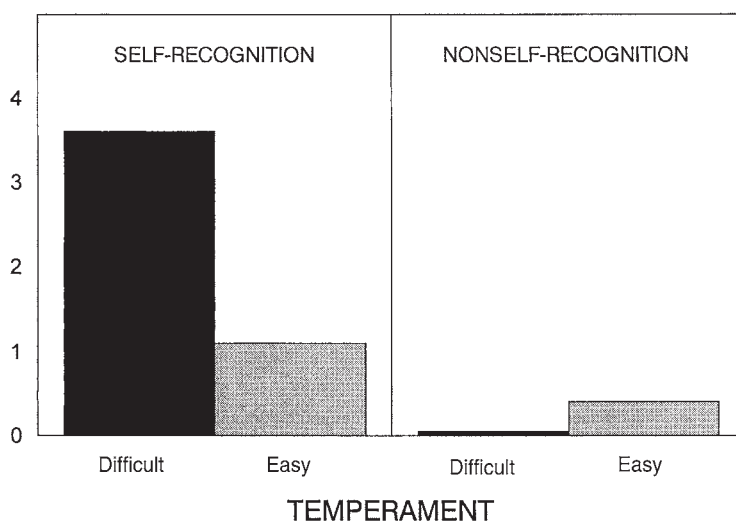
Figure 4.2 Level of embarrassment by self-recognition and easy versus difficult temperament

To assess the interaction between temperament and self-recognition, and embarrassment, four groups were formed at each age: (1) those who showed self-recognition and had temperament scores above the median; (2) those who showed recognition and had temperament scores below the median; (3) those who did not show recognition, but had temperament scores above the median; and (4) those who did not show recognition and had scores below the median on temperament.

Infants who showed self-recognition were more fearful and negative in mood, exhibited significantly more embarrassment than infants who showed self-recognition, and had less of these negative temperament characteristics. Infants who showed no self-recognition, regardless of temperament characteristics, also exhibited little or no embarrassment (see Figure 4.2).

The relation between self-awareness, as measured by self-referential behaviour and embarrassment, has already been demonstrated (Amsterdam & Levitt, 1981; Lewis et al., 1989), and was not, therefore, the focus of this study.

Individual differences in temperament are related to the expression of embarrassment when children show self-recognition. Temperament differences are of no consequence for those children who do not show self-recognition. From these analyses it appears that once infants have the cognitive capacity necessary for the emergence of embarrassment, individual differences in temperament play an important role in its expression. Thus, although embarrassment is dependent on the cognitive capacities associated with self-recognition, individual differences in embarrassment expression are dependent on individual differences in temperament.

In this study, we were able to show a direct interaction between difficult temperament, self-recognition, and embarrassment. In particular, embarrassment was related to temperament once self-recognition appeared. The relationship between temperament and self-recognition was present, but not as strong. We raised the issue that temperament may affect the age of onset of self-recognition and therefore embarrassment. However, temperament may affect both the age of onset of self-recognition and temperament through another mechanism, namely, temperament may make children more prone to focus on themselves. This may give rise to both *earlier* self-recognition and to *more* embarrassment when one becomes the focus of others' attention.

In adults, as described by others (e.g., Duval & Wickland, 1972; Ingram, 1990; Pyszczynski & Greenberg, 1992), attention can be focused externally on the environment or internally on the self. Self-focused attention (or an equivalent construct) has a central role in various theories of attention (Mandler, 1975), attribution (Dweck, 1991; Dweck, Chiu, & Hong, 1995; Weiner, 1986), introspection (Buss, 1980; Hansell & Mechanic, 1991; Mechanic, 1983), and consciousness (Csikszentmihalyi, 1975, 1990; Csikszentmihalyi & Csikszentmihalyi, 1988). To varying degrees, each theory emphasizes the importance of individual differences in the likelihood that attention is focused on the self. Csikszentmihalyi's theory also acknowledges a role for differences in temperament in self-focused attention and self-consciousness. In Csikszentmihalyi's theory, "flow" is defined by intense involvement, deep concentration, loss of a sense of time, and lack of self-consciousness. Individuals differ in the extent to which flow is disrupted by various events, including perceived disparate levels of task challenge and personal skill as well as by internal physiological information associated with such states as hunger or pain. With the disruption of flow, attention becomes focused on the self, and self-consciousness can occur only with this self-focus in attention. Imagine two individuals engrossed in work, one of whom is distracted by hunger pains with the arrival of lunch time, while the other works through the lunch hour without realizing that it has passed. Whereas for one colleague flow was interrupted by internal information, for the other colleague internal information did not intrude on the experience. Thus, the disruption of flow by internal physiological information points to temperament as an important individual difference in self-focused attention and self-consciousness.

In his work on the role of culture, history, and individual consciousness in the perception of pain, Morris (1991) has suggested that individuals' responses to pain may represent how they cope with internal information, information emanating from their own bodies. Extending this view, we propose that individual differences in the onset of objective self-awareness are based, at least in part, on differences in the ability to gate or block internal stimuli as reflected in reactivity to stressful events, including physically and/or emotionally painful ones. The findings by DiBiase and Lewis (1997) on self-recognition and embarrassment led us to consider high reactivity to stress as the aspect of a difficult or negative temperament most closely related to self-awareness. The findings by Kochanska (1995) and Rothbart et al. (1994) are consistent with the view that a lower thresh-

old for stress leads to greater internalization of conscience. Csikszentmihalyi's theory of flow indicates individual differences in the capacity to gate or block from consciousness physiological information associated with stressful events, with a lower threshold for stress likely leading to greater use of regulatory or coping strategies (see Eisenberg & Fabes, 1992; Fox, 1994; Kopp, 1989) to deal with the internal information. Early self-awareness may be one manifestation of the increased use of coping strategies to deal with the information brought on by a low threshold for stress.

In a study by Lewis and Ramsay (1997), self-recognition was assessed at 18 months in a longitudinal sample of infants whose adrenocortical and behavioral responses to inoculation had been observed at 2, 4, 6, and 18 months of age. Because the follow-up age is transitional for the onset of self-recognition, we expected that there would be a comparable number of self-recognizers and non-self-recognizers in the sample. Differences in the stress responses between the self-recognizers and non-self-recognizers were examined before and after the developmental shift in adrenocortical functioning, that is, at 2 to 4 and 6 to 18 months of age. We expected that the self-recognizers would show a greater cortisol response than the non-self-recognizers at the older age level, but that the self-recognizers would not differ in cortisol response at the younger age level.

Finally, given the possibility that experiential factors play a role in self-recognition onset (e.g., Lewis, Brooks-Gunn, & Jaskir, 1985; Schneider-Rosen & Cicchetti, 1984; Tajima, 1982), it seemed important to assess experiential factors to see whether these covaried with the stress response and whether the relation between stress reactivity and self-recognition held after controlling for them. One experiential factor of some interest is life stress events in the family because of the potential impact of life stress on infant stress reactivity and given the possibility that both life stress and infant stress reactivity could affect self-recognition. We predicted that the relation between individual differences in stress reactivity and self-recognition would remain after controlling for life stress. Such a finding would indicate that the reactivity of the infant affects self-recognition onset over and above any effect of the stressfulness of the environment. Self-recognition was observed using the mirror procedure while cortisol and behavioral stress was measured in a way reported in detail elsewhere (see Lewis & Ramsay, 1995a, b).

Our work on stress reactivity found a developmental shift in adrenocortical functioning (Lewis & Ramsay, 1995a, b). Findings for this developmental shift included a decline in magnitude of cortisol response between 2 and 6 months, with no further age change in cortisol response between 6 and 18 months of age. Moreover, there was stability of individual differences in cortisol response between 6 and 18 months, but no stability in cortisol response between 2 or 4 and 18 months of age. This developmental shift and our view on the relation between stress reactivity and objective self-awareness suggest that a high cortisol response from, but not before, 6 months would be associated with an earlier onset of self-recognition.

Table 4.1 Cortisol response and behavioral quieting by self-recognition and age level

	2–4 months	6–18 months
Cortisol response:		
Self-recognizers	0.60 (0.31)	0.35 (0.18)
Non-self-recognizers	0.61 (0.24)	0.15 (0.09)
Behavioral quieting:		
Self-recognizers	0.30 (0.22)	0.38 (0.29)
Non-self-recognizers	0.30 (0.19)	0.67 (0.40)

Note: Standard deviations are in parentheses. $N = 19$ self-recognizers and 10 non-self-recognizers for cortisol response; $N = 20$ self-recognizers and 11 non-self-recognizers for behavioral quieting.

Our behavioral measures of stress reactivity included infants' quieting following the inoculation (Lewis & Ramsay, 1995a, b). Consistent with the cortisol results, there was a developmental change toward more rapid quieting between 2 and 6 months, with no further age change in quieting between 6 and 18 months of age. There was no stability of individual differences in quieting between 2 or 4 and 18 months, with a trend for stability in quieting between 6 and 18 months of age. These results led us to examine whether the relation between stress reactivity and self-recognition was comparable for behavioral quieting and cortisol response.

Table 4.1 shows the cortisol response and behavioral quieting measures by self-recognition and age level. The results indicated that high stress reactivity from early infancy is associated with an earlier onset of self-recognition even when life stress events in the family were controlled. High stress reactivity reflects less capacity to gate or regulate internal information stemming from stressful events. The intensity of the internal stimuli, as well as the need to organize the physiological information, appear to facilitate or accelerate the emergence of self-recognition. Csikszentmihalyi (1975, 1990) suggested that the intensity of internal stimuli is related to intersubject differences in adults' self-consciousness. The present findings were consistent with this view and with available evidence that temperament factors play a role in self-recognition and embarrassment (DiBiase & Lewis, 1997) as well as in the internalization of conscience (Kochanska, 1993, 1995; Rothbart et al., 1994). Maturational factors are important in the timing of self-recognition onset. They serve to limit the age that self-recognition first appears. Given this constraint, stress reactivity and temperament factors also affect when self-recognition emerges.

The findings from these studies in our laboratory suggest that individual differences in embarrassment may be a function of both individual processes, such as how the child attends to its bodily sensations, as well as how others respond to them. These processes in turn may be linked to individual differences in physiological processing of information.

Whatever their cause, there is reason to believe that these individual differences are somewhat stable over time. Lewis, Stanger, Sullivan, and Barone (1991) looked at children's responses to similar embarrassment-provoking situations between the second and third years of life. They found that while embarrassment increased with age, those children who showed more embarrassment earlier were also showing more embarrassment later. The emergence of this type of embarrassment—exposure-embarrassment—in the second year of life may be related to other types of individual differences including the shy or inhibited child. It is important to look at this earlier form of embarrassment for it is our belief that individual differences in the second year of life may be important indications of individual differences in self-consciousness in social situations. Thus, while exposure-embarrassment emerges as a function of the cognitive development of the meta-representation of self, individual differences may be an important marker of how early differences in temperament may express themselves in the toddler.

SUMMARY

We began this chapter by describing two children who showed a set of behaviors we have labelled embarrassment. The embarrassment that Victoria exhibited is related to being the object of others' attention; thus, we have called it exposure embarrassment. The elicitor of this type of embarrassment does not require much cognition. It does not require evaluation of the self against standards of behavior, either one's own or others. It does require the cognitions necessary to know that there is an object called "me", what I have called a self-concept, and that others are attending to that object. It is a basic process, which emerges somewhere between 15 to 24 months of age.

Children differ in the degree of "exposure-embarrassment" that they exhibit, some showing extreme forms while others hardly showing any. Those showing extreme forms have been called shy or inhibited. We have argued that individual differences in this form of embarrassment are less likely to be a function of the types of child-rearing they have experienced. Rather, we see individual differences to be related to temperament-like variables. They are more like biological than learning differences and may be related to how well children can regulate their emotional arousal.

Natasha, on the other hand, shows the other type of embarrassment. It is embarrassment which emerges later in life, after 24 months and is most likely seen from 30 months onward. This form of embarrassment requires considerable cognition since it is based on an evaluation ability of the child in regard to how he or she behaves relative to a standard. The cognitions involved here require that the child has a standard and can apply that standard to his or her own behavior. Such cognitions are seen only after 24–30 months of age.

Individual differences in "evaluative embarrassment" are dependent first and foremost on child-rearing practices. These include the type of standards, how they are taught and enforced by the parents. They also include the same simple cog-

nitions seen in the other type of embarrassment, that is a self-concept. It also requires cognitions about others' awareness of ourself. While it is similar to shame in many regards it differs in that it is less intense a negative emotion since it does not involve the attribution of a damaged self and takes place in a social context, something that the emotion of shame does not require.

The data we have gathered on children's emotional development in the first three years allow us to postulate these two different types of embarrassment. Their relation to shyness, fear, and shame, something others have postulated at this time, can only be speculation. Nevertheless, it is clear from our data as well as those who have studied children's attributions—see, for example, Stipek et al. (1992)—that exposure-type embarrassment emerges almost one year prior to the ability to form standards regarding behavior that are independent of the presence of an adult. These data provide evidence for the existence of these two types of embarrassment and their emergence over time.

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Chapter 5

Behavioral Inhibition, Social Withdrawal, and Parenting

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The study of children's social and emotional development requires that attention be paid to dispositional/biological factors (e.g., temperament), familial inter-actions and relationships, social contexts (e.g., school, neighborhood), and culture. For example, Hinde (1995) has advanced the notion that development be considered from a multi-level perspective beginning with individual char-acteristics and progressing to the interaction, relationship, and group levels of analysis and conjecture. At the level of the individual child, developmental scientists have studied such constructs as temperament that might lead to proble-matic social or behavioral outcomes. One such intrapersonal characteristic is that of "difficult" temperament—a phenomenon typically comprising high activity level and anger proneness, or high emotional reactivity combined with poor regulatory control. Difficult temperament has been thought, by some, to be an early developmental precursor of an externalizing/under-controlled behavior pattern (e.g., Bates, Bayles, Bennett, Ridge, & Brown, 1991; Rubin, Hastings, Chen, Stewart, & McNichol, 1998; Sanson, Oberklaid, Pedlow,

& Prior, 1991). Another dispositional characteristic, behavioral inhibition, has been regarded as a precursor of an internalizing/overcontrolled behavior pattern (e.g., Fox et al., 1995). The focus of this chapter is on behavioral inhibition and its conceptually related constructs and variants; most notably, social wariness, shyness, and social withdrawal.

For the most part, the study of behavioral inhibition, shyness, and social withdrawal has been dominated by literatures pertaining to putative biological origins. Somewhat in support of this biological perspective has been the consistent report that these phenomena are stable (Caspi & Silva, 1995; Kagan, Reznick, & Snidman, 1987, 1989; Rubin, Coplan, Fox, & Calkins, 1995b; Rubin, Booth, Rose-Krasnor, & Mills, 1995a)—inhibited, shy or withdrawn children appear to remain so from one year to the next. In truth, the stability data reported thus far are rather imperfect. Children do change, and some change more than others. A significant question to ask, therefore, is "What are the factors that predict, or are associated with, both stability and change?"

It bears noting that little is known about the extent to which children's interactions and relationships with others, especially parents, serve as causal or moderating agents in the development of behavioral inhibition, shyness and social withdrawal, and their collective correlates and consequences. The primary purpose of this chapter is to examine the ways in which parent–child relationships and parenting beliefs and behaviors may serve in the development, exacerbation or amelioration of inhibition, shyness, and withdrawal. A secondary purpose of this chapter is to explore child gender differences and cultural differences insofar as the relations between parenting and inhibition, shyness, and withdrawal are concerned. Before proceeding, however, it is necessary to address relevant definitional issues.

DEFINING INHIBITION, SHYNESS, AND SOCIAL WITHDRAWAL

Defining the constructs of behavioral inhibition, shyness, and social withdrawal is an issue of significance because researchers and clinicians have often used these (and other) terms interchangeably (e.g., social isolation, peer neglect), and thus inappropriately. Further, researchers have operationalized each of these constructs in different ways. For a thorough discussion of terminology, we refer the reader to Rubin and Asendorpf (1993). Briefly, in their attempt to bring clarity to this area of study, these authors referred to *inhibition* as the disposition to be wary and fearful when encountering novel (that is, unfamiliar) situations. More specifically, behavioral inhibition was regarded as a pattern of responding or behaving, possibly biologically based, such that when unfamiliar or challenging situations were encountered, the child showed signs of anxiety, distress, or disorganization (e.g., Rubin, Hastings, Stewart, Henderson, & Chen, 1997). *Shyness* was referred to as inhibition in response to novel *social* situations. The consistent display of inhibited or shy behaviors and wary emotions in unfamiliar social or

nonsocial situations has been viewed as a precursor to an overcontrolled behavior pattern. *Social withdrawal* referred to the consistent (across situations and over time) display of solitary behavior when encountering both familiar and/or unfamiliar *peers*. *Social isolation* had little to do with the behavioral expression of wariness; rather the term reflected the expression of solitary behavior that results from peer rejection. Simply put, social withdrawal was construed as isolating oneself *from* the peer group, whereas social isolation indicated rejection *by* the peer group.

With regard to social withdrawal in *early* childhood, several different forms of solitary behavior have been described, each of which may have unique psychological properties and meanings. These forms of socially withdrawn behaviors include solitary-passive, solitary-active, and reticent behaviors (Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Rubin, 1982). The common denominator among these different types of solitude is that they occur when the child is among a group of children. *Solitary-passive* behavior involves object exploration and constructive activity while playing at a distance from others. Such behaviors appear to indicate a lack of motivation to either approach or avoid others, and seem not to be associated with psychological maladjustment in early childhood (Coplan & Rubin, 1998; Rubin et al., 1995b). Second, *solitary-active* behavior involves repeated sensorimotor actions with or without objects, and solitary dramatizing. Although infrequent, this behavior has been associated with impulsivity and aggression (Coplan et al., 1994). Third, *reticence* is characterized by the frequent production of onlooking and unoccupied behaviors. While reticent preschoolers may desire peer interaction, thoughts of social approach elicit anxiety/fear and cause the avoidance of interaction. Reticence has been related to overt indicators of anxiety (e.g., crying, automanipulatives), poor performance on cooperative group tasks, and an inability to regulate negative emotions (Coplan et al., 1994; Rubin et al., 1995b). In summary, each of these types of solitude represents independent constellations of behaviors with different psychological meanings.

Importantly, the "meanings" of these forms of solitude change with age. Solitary-passive behavior, for instance, takes on an increasingly negative flavor. For example**,** Kennedy, Cheah, Rubin, and Fox (1999) recently reported that unsociable 7-year-old children tend to display both reticent *and* solitary-passive behaviors among peers. This finding is consonant with Asendorpf's (1991, 1993) conjecture that, by middle childhood, categories of solitude in the peer group tend to come together to form a single cluster—social withdrawal. It is also the case that solitary-active behavior continues to decrease with age beyond the preschool years, becoming practically non-existent among normally functioning elementary school children (e.g., Rubin, Watson, & Jambor, 1978).

ATTACHMENT, BEHAVIORAL INHIBITION, AND SOCIAL WITHDRAWAL

In examining the etiology of children's behaviors and emotions, it has been common for researchers and clinicians to focus not only on temperament, but

also on the quality of the child's relationships with primary caregivers as possible explanatory starting points. Because of the centrality of the parent–child relationship in infancy and early childhood, numerous studies have been conducted on the quality of this relationship, and researchers have often relied on attachment theory as their underlying, conceptual guiding light.

Attachment theorists maintain that the primary relationship develops during the first year of life, usually between the mother and the infant. Maternal sensitivity and responsiveness influence whether the relationship will be secure or insecure (Ainsworth, Blehar, Waters, & Wall, 1978). Researchers have shown that securely attached infants are likely to be well adjusted, socially competent, and successful at forming peer relationships in early and middle childhood (e.g., Egeland, Carlson, & Sroufe, 1993; Shulman, Elicker, & Sroufe, 1994; Sroufe, 1983), whereas insecurely attached children may be less successful at social developmental tasks (Booth, Rose-Krasnor, McKinnon, & Rubin, 1994; Booth, Rose-Krasnor, & Rubin, 1991; Renken, Egeland, Marvinney, Sroufe, & Mangelsdorf, 1989; Rose-Krasnor, Rubin, Booth & Coplan, 1996).

Rubin and colleagues (e.g., Rubin, LeMare, & Lollis, 1990; Rubin & Mills, 1991) have proposed a developmental pathway in which those infants who are temperamentally reactive and who receive insensitive, unresponsive parenting (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984) come to develop an insecure-ambivalent (C-type) attachment relationship with their primary caregivers (Goldberg, 1990). In novel settings these C babies maintain close proximity to the attachment figure (usually the mother). When the mother leaves the Strange Situation briefly, these infants become quite unsettled. Upon reunion with the mother, these infants show angry, resistant behaviors interspersed with proximity- or contact-seeking behaviors (e.g., Greenspan & Lieberman, 1988). It is argued that this constellation of infant emotional hyperarousability and insecure attachment may lead the child to display inhibited/wary behaviors as a toddler. Further, insecure inhibited toddlers have been posited to be at risk for the development of social withdrawal in childhood (Rubin et al., 1990).

There is now emerging support for linkages between temperament C attachment status, inhibition and social withdrawal. For example, Thompson, Connell, and Bridges (1988) reported that infant proneness to fear predicted distress following maternal separation. Further, infants who are dispositionally reactive to mildly stressful, novel social events are more likely to be classified as insecurely attached C (anxious-resistant) babies than are their less reactive counterparts (Calkins & Fox, 1992; Fox & Calkins, 1993). Studies indicate that anxious-resistant (C) infants are more whiny, easily frustrated, and socially inhibited at age 2 than their secure (B) counterparts (Fox & Calkins, 1993; Matas, Arend, & Sroufe, 1978).

Support for both concurrent and predictive associations between insecure attachment, behavioral inhibition, and social withdrawal comes from more recent studies (e.g., Booth et al., 1994; Rubin et al., 1995a). Further, among clinical samples of mothers with anxiety disorders, Manassis and colleagues reported that 65% of children aged 18 to 59 months were behaviorally inhibited (using Kagan's measures) and that 80% were insecurely attached (Strange Situation), although

the authors did not distinguish between A (avoidant) babies and C babies (Manassis, Bradley, Goldberg, Hood, & Swinson, 1995).

The reluctance to explore and socially interact with others impedes the development of social competence (Rubin, Bukowski, & Parker, 1998a). This appears to be a cost of a C-type attachment history (Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989). Given that the social behaviors of preschoolers and toddlers who have an insecure C-type attachment history are thought to be guided largely by fear of rejection, it is unsurprising to find that when these insecurely attached children are observed in peer group settings, they appear to avoid rejection by demonstrating passive, adult-dependent behavior and withdrawal from social interaction (Renken et al., 1989). Indeed, anxious-resistant C babies tend to be less socially skilled as toddlers and rated by their teachers as more dependent, helpless, tense, and fearful than their secure counterparts (Pastor, 1981). Lastly, C babies lack confidence and assertiveness at age four years (Erickson, Sroufe, & Egeland, 1985); then, at age seven years they are seen as passively withdrawn (Renken et al., 1989).

It bears noting that insecure attachment relationships are also predicted by *maternal* behavior. For example, mothers of insecurely attached C babies are overinvolved and overcontrolling compared to mothers of securely attached babies (Erickson et al., 1985). This finding represents a natural segué to the extant literature on the associations between parenting and behavioral inhibition and social withdrawal.

PARENTING BELIEFS, INHIBITION, AND SOCIAL WITHDRAWAL

Thus far, we have suggested that inhibition and social withdrawal may be a function of both dispositional and attachment relationship characteristics. It is also the case that these phenomena are associated with particular parenting styles (e.g., Hetherington & Martin, 1986; Parker, 1983). To begin with, parents' behaviors may be influenced by their beliefs about when it is that children typically come to demonstrate particular behaviors or ways of thinking; why children behave in the ways they do; and how they can influence growth or discourage maladaptive behavior (Bugental & Goodnow, 1998). In their developmental model, Rubin and colleagues suggest that parents' beliefs about how to socialize their children are determined partly by their children's dispositional characteristics (e.g., Rubin, Nelson, Hastings, & Asendorpf, 1999). Specifically, infant/toddler inhibition is cited as representing a determinant of parenting beliefs and behaviors that, in turn, come to reinforce the development of socially withdrawn behaviors in children (e.g., Mills & Rubin, 1993; Rubin, Hymel, Mills, & Rose-Krasnor, 1991b). Further, these authors proposed that early social fearfulness and inhibition would elicit parenting responses of an overprotective, overcontrolling nature (e.g., Rubin, Stewart, & Chen, 1995c). Such parenting beliefs and behaviors would serve to reinforce social fearfulness.

In a recent longitudinal study, Rubin et al. (1999) explored the relations between children's social fearfulness/shyness at ages 2 and 4 years, and parents' beliefs in preferred rearing styles at these same two time points. Parental perceptions of child shyness/social wariness at age 2 predicted both mothers' and fathers' expressed lack of encouragement of independence. Relatedly, toddlers observed to be inhibited at age 2 years have mothers who endorsed parenting styles pertaining to protection, a punishment orientation, and a lack of emphasis on independence training (Chen et al., 1998). Thus, at an early developmental stage, inhibited/shy children are exposed to attitudes or beliefs about parenting that may foster dependency.

In earlier work, Rubin and colleagues assessed the relations between maternal beliefs about children's development of social skills and their preschoolers' observed social behaviors among familiar others. Those preschoolers whose mothers indicated that the attainment of social skills was relatively unimportant were observed to cry more often when attempting to meet their social goals and to experience less success in their interpersonal negotiations (Rubin, Mills, & Rose-Krasnor, 1989). Further, the children of those mothers who believed that social skills emanated primarily from child temperament factors were less socially assertive and successful during their peer exchanges. Finally, mothers who indicated that they would use highly controlling strategies to socialize social skills (e.g., using coercion and strong commands) had children who were more likely to seek help from others and to use non-assertive social strategies to meet their own social goals. Teachers also rated the children of these mothers as anxious, fearful, and withdrawn.

To gain a more precise picture of withdrawal, Rubin and Mills (1990) presented the mothers of extremely anxious-withdrawn children (as identified by teacher and classmate ratings) with stories describing hypothetical incidents in which their own child consistently behaved in a socially withdrawn fashion among familiar others. Compared to mothers of non-anxious ("normal") children, mothers of anxious-withdrawn children were more likely to suggest that they would use high control strategies (e.g., directives) and would be less likely to display low-power strategies (e.g., redirecting the child) and indirect–no response strategies (e.g., seeking information from others, arranging opportunities for peer interaction, not responding) in reaction to their children's demonstration of socially withdrawn behavior. Also, these mothers were more likely to attribute the consistent display of social withdrawal to dispositional sources; and they expressed more anger, disappointment, embarrassment, and guilt about their children's withdrawn behaviors than did mothers of "normal" children.

The findings described above suggest that children who are socially anxious and withdrawn have mothers who may be overinvolved with, and overcontrolling of them. This pattern of parenting has previously been linked to internalizing difficulties in children (Parker, 1983). Indeed, preschool-age children of depressed mothers exhibit significantly more inhibited and anxious-withdrawn forms of play with both familiar and unfamiliar playmates than do children of non-depressed mothers (Kochanska, 1991; Rubin, Booth, Zahn-Waxler,

Cummings, & Wilkinson, 1991a). Consequently, it may be that mothers of socially withdrawn preschoolers transmit their own internalizing problems to their children through overinvolved parenting. Such a parenting style may exacerbate a child's sense of felt insecurity. Further, it may be that mothers of socially withdrawn children are highly sensitized to their children's social and emotional characteristics; such sensitivity may provoke well-intended overcontrol and overinvolvement. This reaction to their child's social behaviors may produce a mixture of defensive reactions (e.g., downplaying the importance of social skills) and negative emotions.

PARENTING BEHAVIORS, INHIBITION, AND SOCIAL WITHDRAWAL

Given that parental beliefs and cognitions influence parents' behaviors (Bugental & Goodnow, 1998), it may be that the socialization practices of parents whose children are inhibited or withdrawn differ from those of parents whose children are "normal" and socially competent. Parents of socially wary/fearful children may sense their children's difficulties and perceived helplessness; and then might try to support their children directly either by manipulating their child's behaviors in a power assertive, highly directive fashion (e.g., telling the child how to act or what to do) or by actually intervening and taking over for the child (e.g., intervening during peer disputes; inviting a potential playmate to the home). As noted above, the mothers of anxious-withdrawn children endorse the use of highly controlling behaviors to handle their children's social withdrawal in the peer group.

Recently, researchers have shown that parental influence and control do maintain and exacerbate child inhibition and social withdrawal. For example, Rubin et al. (1997) observed toddlers interacting with unfamiliar peers and adults in a variety of novel situations in a laboratory; and they found that the toddlers who were the most inhibited across contexts were rated by their mothers as being of wary/shy temperament. Further, these mothers were observed to display overly solicitous behaviors (i.e., intrusively controlling, unresponsive, physically affectionate) during free play, snack time, and clean-up sessions. When interacting with their inhibited toddlers, then, mothers were highly affectionate and shielding of them when it was neither appropriate nor sensitive to be this way.

In a related longitudinal study, Park, Belsky, Putnam, and Crnic (1997) conducted naturalistic home observations of parents with their *male* infants and toddlers, and later assessed boys' inhibition at age 3. They found that the parents of inhibited boys were high on sensitivity and positive affect but low on intrusiveness; moreover, parents were actually accepting of their child's inhibition or trouble coping with anxiety. It is difficult to compare these findings with those of the Rubin et al. (1997) study. The one constant is that inhibited children do not benefit from a high amount of affection under certain conditions; and it is argued that this particular mode of parenting may reinforce fearful, wary behavior, espe-

cially if provided during situations when the demonstration of warmth is inappropriate. The contradictory finding of Park et al. (1997) that parents were *not* intrusive could be explained in light of three factors. First, parenting behaviors were assessed prior to the observation of child inhibition, as opposed to concurrently; this may suggest that parents of inhibited children are actually not overcontrolling in the earliest stage of development, and it is only when they recognize their child's wariness/fearfulness (or it becomes more obvious as their child approaches the toddler and preschool years) that they try to "fix" or change it. Second, Park et al. assessed parents' behaviors in a natural setting with familiar people (i.e., home environment), whereas Rubin et al. assessed parent–child interactions in an unfamiliar laboratory setting with unfamiliar people. Third, Park et al. did not analyze whether parents behaved differently under free-play versus demand situations.

Exploring parental behaviors with respect to the related construct of social reticence, Rubin, Cheah, and Fox (2001) reported that mothers whose preschoolers frequently displayed reticent behavior among unfamiliar peers were more likely than mothers whose children rarely displayed social reticence to use control statements and highly controlling behaviors during a mother–child free-play session. This finding strengthens the contention that children who tend to avoid social interaction have mothers who provide guidance and directives in an otherwise relaxing situation. Directiveness during goal-oriented tasks may be expected of parents (e.g., Kuczynski & Kochanska, 1995), but controlling the child's behavior in a pleasant, non-stressful free-play environment is unnecessary; at the very least, such maternal behavior precludes the child from freely exploring the environment. The use of a highly directive parenting style during free play could suggest that the parent attempts to protect the child from stress or harm when neither is objectively present.

In a related study, Henderson and Rubin (1997) explored whether emotion regulatory processes, as measured physiologically, interacted with parental behavior to predict preschoolers' socially reticent behavior among peers. These researchers began with the premise that vagal tone, a marker of the tonic level of functioning of the parasympathetic nervous system (Porges, 1991), should be associated with the display of social behavior in the peer group. Specifically, children with low vagal tone have been found to be more inhibited in the presence of an adult stranger at age 2 years (Fox, 1989; Rubin et al., 1997), and more reticent among peers at age 4 years (Fox & Field, 1989). Having examined a possible connection between child physiology, child behaviors, and particular parenting styles, Henderson and Rubin (1997) reported that, for preschoolers who showed low resting vagal tone, observed *and* reported maternal directive and critical behaviors were associated with child reticent, wary and anxious behaviors among peers. For children with high resting vagal tone, such maternal direction and criticism were not associated with behavioral reticence.

Examining parents' behaviors toward anxious-withdrawn children (ages $2^1/_2$ to 6 years), LaFreniere and Dumas (1992) found that mothers were poor reciprocators of their own child's displays of positive behavior and positive affect. In

addition, these mothers responded aversively to their child's negative behavior and negative affect. Such non-contingent responding to their children's positive behavior accompanied by punishment of negative behavior could hinder a child's development of self-worth and felt security.

Bolstering these results in an older age group, Mills and Rubin (1998) observed that, relative to mothers of normal children, mothers of extremely anxious-withdrawn children (aged 5 to 9 years) directed significantly more behavior control statements to their children. Further, mothers of anxious-withdrawn children used more psychological control statements, defined as devaluation statements or non-responsiveness to the child. Such parenting practices may also be accompanied by expressions of criticism and disapproval, and this negativity may attack the child's sense of self-worth.

In summary, the studies reviewed above provide support for our contention that once an inhibited behavioral style is established, parents may sense the child's anxieties and insecurities, and seek to help the child's mastery of the environment through authoritarian direction, protection, and oversolicitousness (e.g., solving the child's interpersonal and intrapersonal problems for him or her). These findings support the notion that inhibited/wary or shy children have parents who are reluctant to let them explore novel situations. Importantly, parental overcontrol may be a response to children's early displays of behavioral inhibition. Thus, parents may sense their children's anxiety/distress and choose to constrain independent action rather than subjecting their children to possible psychological or physical risk. An unfortunate consequence of constraining children and providing unnecessary assistance is that their opportunities to develop self-regulatory abilities, learn social skills, and build self-confidence are also limited.

The literature on childhood social withdrawal has focused primarily on its "main effects"—those dispositional and parenting characteristics that uniquely explain significant percentages of variance. There have been few studies in which are examined the independent and interactive contributions of temperament and parenting in predicting withdrawn behavior. Cheah, Rubin, and Fox (1999) recently explored the influence of parenting and temperament at preschool age on the display of social solitude in middle childhood. Also considered in this longitudinal study was the notion that the context in which parenting behaviors occur has a direct bearing on "outcomes". For example, the appropriateness of highly controlling parental behavior, whether positive or negative, may depend on the task environment. Therefore, in this study the researchers examined the display of parenting behaviors during both an *un*structured activity (free play) and a structured situation that required parental control (a teaching task).

Among Cheah et al.'s findings was that reticence at age 4 years significantly predicted reticent, socially anxious behaviors at age 7 years. Thus, it seems that the phenomenon of social reticence is a stable characteristic. Further, mothers' displays of highly controlling and oversolicitous behaviors during a free-play session with children age 4 years uniquely predicted behavioral reticence at age 7 years over and above the initial level of reticence at age 4 years. Again, it

appears as if those mothers of reticent children who are overcontrolling and over-involved (when it is unnecessary) exacerbate child reticence. Notably, this study reveals that such parenting behaviors make a "contribution" to reticence beyond the contribution of child temperament.

GENDER DIFFERENCES, SHYNESS, AND PARENTING

Researchers have indicated that the long-term outcomes of shyness or socially withdrawn behavior may differ for boys and girls. Specifically, it has been argued that boys' shyness and social withdrawal may be accompanied by greater psychological "costs" than those of girls (Caspi, Elder, & Bem, 1988; Engfer, 1993; Rubin, Chen, & Hymel, 1993). This being the case, it seems appropriate to examine the parenting characteristics associated with shyness and withdrawal in boys versus girls.

To begin with, the quality of the parent–child attachment relationship has been associated with the display of shyness for *boys* but not girls. Insecurely attached (C status) boys, but not girls, are more likely than their secure counterparts to display passive-withdrawn behaviors in early and mid-childhood (Renken et al., 1989). Among toddler and preschool-age children, Stevenson-Hinde (1989) and Engfer (1993) reported that the parents of inhibited and shy girls (but not boys) were warm, responsive, and sensitive. A subsequent study found a higher proportion of positive mother–child interactions for moderately shy girls compared to moderately shy boys (Stevenson-Hinde & Glover, 1996). In contrast, Stevenson-Hinde and Glover (1996) also found that mothers interacted more positively with extremely shy boys than they did with extremely shy girls. Thus, any sex differences obtained seemed to depend on the level of shyness or inhibition among girls and boys. Whether the authors' index of "positive interaction" could reflect aspects of oversolicitous parenting is a consideration given the Rubin et al. (1997) report that inappropriate and intrusive displays of warmth are associated with socially wary, inhibited behaviors.

MacDonald and Parke (1984) reported that the parents of socially withdrawn preschoolers were less spontaneous, playful, and affectively positive during parent–child play than were the parents of more sociable children. During father–son interactions, they found that *boys* perceived by teachers as socially withdrawn, hesitant with peers, and as spectators during social activities had fathers who were highly directive and less engaging and physically playful. The findings were less clear-cut for socially withdrawn daughters.

In summary, the empirical literature suggests that inhibited/withdrawn boys might experience different socialization histories than girls. Not only is it important to examine whether parents treat shy/withdrawn boys differently than girls, but also whether boys respond differently than girls to parental behaviors. Note-

worthy are the above-described studies suggesting that mothers' and fathers' behaviors are differentially associated with *boys'*, but not girls', displays of social reticence. The one constant among boys and girls, however, is that highly controlling parenting during situations where such control is unnecessary is associated with the display of social reticence.

PARENTING AND CULTURE

The studies described thus far were completed in North America and Northwestern Europe. Yet, there are reasons to believe that the psychological "meanings" of inhibited/shy behavior varies from culture-to-culture (e.g., Chen, Rubin, & Li, 1995). This being the case, it would seem important to study whether the parenting correlates and associations found with inhibition/shyness/withdrawal in North American and Northwest European cultures are different when studied in other venues. On a broader scale, it would also make a good deal of sense to study whether the etiologies of behavioral problems are similar from one culture to another.

Cultural values play an enormous role in determining the meanings of behavioral adaptation and normalcy. For example, the relative adaptive nature of shyness and social withdrawal appears to vary between Western individualistic cultures and Eastern collectivistic cultures. In the former, shy and withdrawn behavior is regarded as maladaptive, reflecting social incompetence, wariness, and anxiety. Thus, it is unsurprising that some North American and Northwestern European parents encourage their children to be assertive and independent in challenging situations. Children are generally socialized to be increasingly assertive and self-reliant rather than reserved and inhibited.

In contrast, achieving and maintaining social order and interpersonal harmony are the primary concerns of both traditional and contemporary collectivistic Chinese societies. Shyness and behavioral inhibition are *positively* evaluated in Chinese culture because these behaviors are considered to reflect social maturity and understanding (e.g., Chen et al., 1995; Ho, 1987; King & Bond, 1985). Consequently, it has been found that shy and inhibited behaviors are valued and encouraged by teachers and peers in Chinese cultures (Chen, Rubin, & Sun, 1992; Chen et al., 1995).

As one might expect, parental beliefs and behaviors are guided by general cultural norms and value systems (Bornstein, 1991). Thus, in a recent study by Chen et al. (1998), information on child-rearing attitudes and beliefs was obtained from Chinese and Canadian mothers. Consistent with previous reports (e.g., Kagan, Kearsley, & Zelazo, 1978), Chinese toddlers were observed to be significantly more inhibited than their Canadian counterparts. Given the Western notion that

inhibition/shyness reflects incompetence, wariness and immaturity, North American mothers reported being more protective, controlling, less encouraging of achievement, and less accepting of their inhibited toddlers. Conversely, the direction of the associations between toddler inhibition and parental attitudes was opposite in the Chinese sample: child inhibition was positively associated with acceptance and encouragement of achievement, and negatively associated with parental control. These results illustrate the notion that behavioral inhibition is a culturally bound construct.

In addition to studying East–West similarities or differences in parenting and inhibition, a few researchers have compared Northern and Southern cultures. Schneider, Attili, Vermigly, and Younger (1997) presented middle-class mothers of 7-year-olds in Canada and Italy with hypothetical scenarios depicting children being socially withdrawn. The mothers were asked to indicate why they thought children might act in a withdrawn manner, how they would feel if their child displayed this behavior, and what socialization strategies they would use. The researchers hypothesized that Italian families' strong connection with the extended family would reduce the need for emotional investment in relationships outside the family; hence, these parents would regard peer relationships for their children as unnecessary, or as less important, compared to North Americans (Young & Ferguson, 1981). The authors therefore predicted that Italian parents would regard social withdrawal as less bothersome than would parents in the North American culture. Indeed, Schneider et al. (1997) found that English-Canadian mothers indicated stronger negative reactions to withdrawal than did Italian mothers.

Furthermore, the Italian data showed gender differences with mothers indicating less power assertion in response to girls' withdrawal compared with boys' withdrawal; but there was no similar gender difference in the Canadian sample. These results support the authors' hypothesis that gender roles are likely more distinct in the Italian sample than in the Canadian sample. Italian mothers might find social withdrawal by girls (who are expected to assume domestic roles that require less assertiveness with peers) to be less troublesome than parents in the English-Canadian culture with less defined gender roles. It is difficult to interpret the lack of child gender differences with respect to Canadian parents in this study. But, it is important to note that the sample of parents was a normative one; thus, it was unlike prior research (Rubin & Mills, 1990) in which parents of inhibited or withdrawn children were studied. Moreover, where gender differences have been reported, the dependent measure was derived from observations of parental behaviors and not from questionnaires about parental beliefs.

The cross-cultural studies presented raise questions about the universality and

generalizability of the findings reported by the predominantly North American studies on the relations between parenting and inhibition or social withdrawal. It seems important to be aware that, across different cultures, parental beliefs and behaviors are likely to be associated with child behaviors and outcomes in uniquely meaningful ways. Finally, we require longitudinal designs with interactional models concerning parenting and child inhibition or social withdrawal within the context of culture.

CONCLUSION

In conclusion, factors such as child temperament, the parent–child attachment relationship, and parenting beliefs and behaviors play a significant role in the development, maintenance, and amelioration of socially reticent or withdrawn behavior in children. While some infants and toddlers may be physiologically prone to display socially fearful behavior, parents do have a role to play in the development of childhood inhibition and withdrawal and their associated liabilities. It is the case, however, that parental beliefs and behaviors may vary depending on child gender, situational demands/conditions, and culture. North American parents who perceive their infants/toddlers to be socially wary lean toward an overcontrolling, overprotective parenting style when their children reach preschool age. This tendency may serve to maintain or exacerbate the inherent wariness in their children. In turn, the maintenance of a withdrawn profile may lead to negative outcomes such as peer rejection, loneliness, and negative self-regard during the mid-to-late childhood and early adolescent years (Boivin, Hymel, & Bukowski, 1995; Ollendick, Greene, Weist, & Oswald, 1990; Rubin, 1993). In other cultures, however, the continuing developmental associations between parent and child behaviors may yield different adjustment profiles.

Given that *both* inhibited child temperament and particular parenting beliefs and behaviors predict the display of reticent, socially withdrawn behaviors in childhood, it would appear appropriate to question whether the conspiracy between inhibited, shy temperament and oversolicitous/overcontrolling parenting collectively predict later social and psychological difficulty (e.g., internalizing problems). With context and culture in mind, more prospective longitudinal studies and innovative methodologies are required to answer important questions about predictions from inhibited temperament and parent–child relationship variables to specific psychosocial and behavioral outcomes. It is evident from Table 5.1 that few data exist on these fronts.

Table 5.1 Parenting, inhibition, and social withdrawal

Authors	Construct	Age	Parenting measure	Sex differences reported	Cross-cultural differences
Cheah et al. (1999)	Reticence (observed) + Shyness (questionnaire)	4 and 7 years	Observed maternal warmth and control	None	NA
Chen et al. (1998)	Inhibition (observed)	2 years	Parental ratings of parenting styles (protection, punishment, independence training, rejection, encouragement of achievement)	None	Inhibition in Chinese toddlers was correlated positively with maternal acceptance and encouragement of independence but negatively with punishment and rejection. In Canadian toddlers, inhibition was negatively correlated with acceptance and encouragement of achievement, but positively with punishment and protection
Engfer (1993)	Shyness (observed and maternal ratings)	3.3 months and 6.3 years	Observed maternal sensitivity, rated maternal and emotional stability	Whereas at 33 months girls' shyness was negatively related to maternal depression, at 6.3 years maternal depression, insensitivity and anxious overprotection predicted girls' shyness. At 33 months maternal shyness predicted boys' shyness	NA

Study	Construct (measure)	Age	Parenting measure	Findings	
Mills & Rubin (1993)	Withdrawn-internalizing Passive-isolation (peer rating) + internalizing (teacher rating)	5 to 9 years	Ratings of maternal beliefs about proactive teaching strategies, reactive feelings, attributions, and strategies for modifying behavior	None	NA
Mills & Rubin (1998)	Withdrawn-internalizing (teacher and peer ratings)	Kindergarten, Grades 2 & 4	Observed behavioral and psychological control in different behavior contexts (e.g., free play, compliance task)	None	NA
Kochanska (1991)	Social and non-social inhibition (observed)	2–3½ years	Observed maternal encouragement to explore the environment and/or stranger; maternal anger and criticism	Boys were more inhibited to a new environment (nonsocial inhibition), and girls showed more inhibition towards the stranger (social inhibition). Girls received more maternal fostering of interaction with strangers than did boys	NA
Park et al. (1997)	Inhibition (observed)	10–37 months	Observed parental positive and negative affect, sensitivity, intrusiveness, and detachment	Sample consisted of boys only	NA

Table 5.1 (*continued*)

Authors	Construct	Age	Parenting measure	Sex differences reported	Cross-cultural differences
Rubin et al. (2001)	Reticence (observed) Shyness (questionnaire)	4 years	Observed maternal warmth and control	None	NA
Rubin et al. (1997)	Inhibition (observed) Shyness (observed)	2 years	Observed maternal warmth and control	None	NA
Rubin & Mills (1990)	Social withdrawal withdrawal (observed) + internalizing difficulties (teacher questionnaire)	4 years	Ratings of maternal beliefs about proactive teaching strategies, reactive feelings, attributions, and strategies for modifying behavior	None	NA
Rubin et al. (1999)	Shyness/social fear (questionnaire) + inhibition (observed)	2 and 4 years	Parental ratings of parenting styles (encouragement of independence, protection, rejection, acceptance)	None	NA

Schneider et al. (1997)	Social withdrawal (peer nomination)	7 years	Ratings of maternal beliefs about proactive teaching strategies, reactive feelings attributions, and strategies	Italian mothers indicated lower emotional intensity in response to girls' withdrawal than boys'.	Canadian mothers reported stronger emotional responses to withdrawal, were less likely to see it as an internal/stable factor, and more likely to believe that withdrawal was changeable. Italian mothers were less puzzled about social withdrawal, although more surprised
Stevenson-Hinde & Glover (1996)	Shyness (teacher and parent ratings, observations)		Observed positive mood, gentleness, sensitivity, meshing, enjoyment of child	Mothers of moderately inhibited girls were more warm, responsive, and sensitive than mothers of extremely inhibited girls; but withdrawn boys had parents who were cold, less affectionate and responsive than average boys. However, mothers interacted more positively with high shy boys than girls	NA

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Section Two

Clinical Perspectives and Interventions

Introduction

Social Anxiety as a Clinical Condition

Lynn E. Alden *and* **W. Ray Crozier**

CONCEPTUAL ISSUES
Pathological Shyness
Avoidant Personality Disorder
Social Phobia
COMPARISONS
POINTS OF AGREEMENT
DIFFERENCES IN FOCUS
CONCLUSION
REFERENCES

This section of the volume will consider social anxiety as a clinical disorder. In these chapters, a number of distinguished clinical researchers will present their views on the nature and treatment of severe social anxiety. These introductory comments are intended to provide the background context for the chapters to follow, pointing to some landmarks in the clinical study of social anxiety. They will also highlight some of the major themes that run through the chapters, devoting particular attention to differences in the way that the authors conceptualize and treat disorders caused by severe social anxiety. It is our view that matters of disagreement among experienced researchers point to important areas for future study. As we will see, although writers generally agree on the clinical appearance of social anxiety disorder, there are divergent opinions on the underlying nature of this condition and on which of its various features are key to its understanding and treatment.

CONCEPTUAL ISSUES

Social anxiety has been recognized as a matter of clinical concern within a variety of conceptual frameworks. Three of these are well represented in the scientific literature and in this volume. Specifically, severe social anxiety has been viewed as: an extreme variant of a normal personality trait (pathological shyness), a personality disorder (avoidant personality), and a clinical syndrome (social phobia). Each of these views has a long and distinguished history that goes back to the origins of psychology as a discipline.

Pathological Shyness

The view that severe social anxiety is a manifestation of the personality trait of shyness or timidity underlies the writings of many social and personality psychologists. William James (1890), the father of contemporary research in these areas, viewed shyness as one of the basic human instincts and recognized that this tendency created problems for some people. James is also credited with developing the idea that people have both private and social, or public, selves—a distinction that forms the basis of a number of contemporary social and personality theories of social anxiety (e.g., Schlenker & Leary, 1982). Throughout the first half of the 20th century, shyness was included in multifactorial personality inventories as a basic individual difference (e.g., Guilford & Guilford, 1936; Cattell, 1946). The 1960s and 1970s witnessed efforts by researchers to clarify the domain of shyness and to examine its relationship to other constructs (e.g., Crozier, 1979). These efforts were further advanced by Buss's (1980) writings distinguishing early-developing fearful shyness and later-developing self-conscious shyness, a distinction that led to an explosion of studies on private and public self-consciousness.

   The study of shyness as a clinical disorder owes much to the now classic book by Philip Zimbardo, *Shyness, What it is, what to do about it* (Zimbardo, 1977). Zimbardo's writings not only popularized the concept of pathological shyness in the lay public; they led to the development of specialized treatment programs, such as the Stanford Shyness Clinic. In their landmark 1986 volume, *Shyness: Perspectives on research and treatment*, Jones, Cheek and Briggs drew together theoretical research on shyness with descriptions of therapeutic interventions, thereby cementing the notion of shyness as a clinical disorder. Despite recognition that shyness often leads people to seek treatment, most contemporary empirical studies of shyness continue to address conceptual rather than clinical issues. One exception to this tendency has been clinical work conducted at the Stanford Shyness Clinic (Henderson & Zimbardo, 2001).

Avoidant Personality Disorder

Within dynamic, interpersonal, and other personological clinical traditions, severe social anxiety has been viewed as a disturbance in personality or charac-

ter structure. Personality types characterized by social sensitivity and withdrawal appear in early clinical descriptions of personality disorders, most notably in depictions of the schizoid and phobic character styles. For example, Kretschmer (1925) described a hyperaesthetic variant of the schizoid personality that was marked by sensitive susceptibility, shyness, and psychic conflict. Fenichel's (1945) descriptions of the phobic character included such features as the phobic avoidance of desired objects that parallel current descriptions of the avoidant individual. In addition, the early interpersonal writer, Karen Horney, depicted three personality types, which were marked by different interpersonal styles. One of these, the detached personality, displayed an interpersonal style of "moving away from people", that in many ways resembles current views of avoidant personality disorder (Horney, 1945).

Contemporary conceptualizations of avoidant personality disorder have their origins in Theodore Millon's biosocial learning theory. In his books *Modern psychopathology* (1969) and *Disorders of personality* (1981), Millon proposed that the avoidant pattern develops when a child with an anxious temperament is exposed to early social experiences characterized by persistent deprecation, rejection, and humiliation, which results in an *active-detached* coping pattern. Millon's writings led to the inclusion of avoidant personality disorder (APD) in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980). Since then, other models of APD have been developed. For example, A. T. Beck and his colleagues proposed a cognitive model that emphasized the mediating role of cognitive schemas in socially avoidant behaviour (Beck & Freeman, 1990). Various interpersonal writers developed theories that focused on the contribution of core relational schemas to the onset and maintenance of APD (Barber et al., 1997; Benjamin, 1993). According to this view, negative relational schemas colour interpretations of current interactions and lead to a self-perpetuating pattern of re-enacting the early significant relationships that contributed to the individual's social fears. More recently, Widiger and his colleagues drew on the Five Factor Model (FFM) of personality to propose that APD is a pathological extension of the general personality traits of neuroticism and introversion (see *Chapter 10*). In addition to these theoretical formulations, over the last decade, a number of treatment regimens have been developed and evaluated, including cognitive-behavioural, interpersonal, and pharmacological regimens. All of these have demonstrated some success in lessening symptom severity in individuals with avoidant personality disorder (e.g., Alden, 1989; Barber et al., 1997; Liebowitz et al., 1992; Renneberg, Goldstein, Phillips, & Chambless, 1990).

Social Phobia

Within contemporary biological psychiatry and cognitive-behavioural thinking, severe social anxiety is conceptualized as a clinical syndrome, or constellation of symptoms, that together comprise social phobia. The concept of social phobia was

first found in Janet's (1903) descriptions of a condition he termed *phobie des situations sociales*. In the DSM-I and DSM-II, social fears were lumped together with other types of phobias. Following the psychodynamic thinking of that time, these phobic conditions were seen to arise from intrapsychic conflicts that had been projected onto situations symbolically related to underlying fears.

Scientific views of the phobias changed with the seminal writings of Isaac Marks, who distinguished social phobia from other types of phobias and presented a behavioural interpretation of these conditions (Marks & Gelder, 1966; Marks, 1969). When the decision was made to move the DSM-III away from its psychodynamic underpinnings toward a more descriptive focus, social phobia was included as a separate disorder (American Psychiatric Association, 1980). The emergence of a distinct diagnostic category led to studies of the epidemiology and clinical presentation of social phobia. Among other advances, this work revealed that many social phobic patients fear multiple social situations (e.g., Liebowitz, Gorman, Fyer, & Klein, 1985). To reflect this, a generalized subtype of social phobia was included in the DSM-III-R along with a non-generalized, or specific, subtype (American Psychiatric Association, 1987). This addition, along with changes in diagnostic procedures to allow simultaneous diagnosis of social phobia and avoidant personality disorder, increased the overlap with APD and led to considerable debate regarding possible distinctions between the two conditions, a debate that continues today. In the 1980s, landmark review articles by Liebowitz et al. (1985) and Heimberg (1989) on what was called the "neglected anxiety disorder" sparked a decade of empirical work on clinical assessment and treatment of social phobia. In particular, the pioneering work of Richard Heimberg on Group Cognitive Behavior Therapy and Michael Liebowitz on pharmacological interventions have pointed to effective interventions for social phobia.

The chapters comprising this section tend to consider severe social anxiety in terms of social phobia, which is the conceptual perspective that dominates the clinical literature at present. Nevertheless, as we discuss briefly below, the relations among these three clinical perspectives on social anxiety—pathological shyness, avoidant personality disorder, and social phobia—remain a matter of contention, and this matter, as well as the comorbidity of social phobia with other conditions, is taken up in several chapters.

COMPARISONS

For many years, research within each framework was conducted more or less independently, although some attempts were made to take advantage of theoretical advances in other areas. As each literature developed, however, there was growing recognition of the need for integration, and, over the last decade, researchers began to compare these three clinical conceptualizations of social

anxiety. Although research indicates that there is substantial overlap between the three viewpoints, some differences have been identified.

Severe shyness and social phobia are established through different diagnostic procedures. Shyness is often defined by self-attribution, whereas social phobia is typically determined by clinicians on the basis of DSM criteria assessed through structured interviews. As a result, shyness has been found to be a more heterogeneous category than social phobia and to include a broader range of negative emotional symptoms (Turner et al., 1990). Shyness also appears to be more prevalent. Twelve-month prevalence rates for shyness are generally in the range of 20–40% in college students (Spielberger et al., 1984; Zimbardo, 1977), compared with 3–7.9% for social phobia diagnosed according to DSM-III-R criteria. Overall, although individuals who meet diagnostic criteria for social phobia would likely label themselves as severely shy, there appear to be far more self-labelled shy people who would not meet DSM criteria for social phobia.

Like social phobia, avoidant personality disorder (APD) is assessed in reference to DSM diagnostic criteria, typically determined through structured interviews. Because the diagnostic criteria for social phobia and APD are quite similar, the two diagnoses commonly co-occur. Research indicates that the overwhelming majority of individuals with APD also meet diagnostic criteria for Generalized Social Phobia (GSP), and between 50 and 89% of patients with GSP meet criteria for APD (e.g., Fahlen, 1995). Comparative studies indicate that patients with APD report greater social anxiety and depression, lower self-esteem, and display more comorbid diagnoses than do patients with GSP alone, but few other differences emerge (Holt et al., 1992; Turner et al., 1990). The high rate of comorbidity, similarity in diagnostic criteria, and absence of qualitative differences between GSP and APD is a matter of concern to clinical researchers, and various writers have suggested different solutions. Liebowitz and his colleagues proposed that the diagnosis of GSP should take precedence over APD because this would encourage clinicians to use the pharmaceutical and psychological strategies shown to be effective for APD within populations with social phobia (Liebowitz et al., 1998). Heimberg (1996) suggested that APD and social phobia be combined into Social Anxiety Disorder with what is now APD being the extreme end of this condition. The advantage of that approach is the recognition that social anxiety and avoidance are dimensional in nature. Widiger proposed that the Five Factor Model should be substituted for the current categorical system of personality disorder (see *Chapter 10*). In this scenario, APD would be measured in terms of ratings on the dimensions of neuroticism and introversion. Then, researchers could study the links between personality vulnerabilities and Axis 1 conditions, addressing such questions as why one person who is high on neuroticism and introversion develops social phobia whereas another person with similar personality traits develops depression. Finally, Arntz (1999) argued that the apparent overlap between APD and GSP is an artifact of studying APD primarily in GSP populations, as well as misguided changes in the DSM system. He recommended that definitions of APD return to the original concept of a broad-based pattern of avoidance that would include emotional, cognitive, and

novelty avoidance, as well as social avoidance. Research is required to determine which of these suggestions provides the best resolution. The issue of the distinction between social phobia and APD as well as the cut-off between these two conditions and subclinical social anxiety, continues to be a matter of contention, as is noted by Widiger in *Chapter 10*.

POINTS OF AGREEMENT

However defined, researchers agree that severe social anxiety can create significant life problems. For example, individuals with social phobia were found to be less likely to marry or to marry later than patients with other anxiety disorders (e.g., Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), and socially anxious students were more likely to be lonely and have fewer social interactions than non-anxious students (Dodge, Heimberg, Nyman, & O'Brien, 1987). Both social phobia and shyness have been shown to interfere with academic and occupational functioning (e.g., Phillips & Bruch, 1988). Finally, social phobia has been found to increase the risk for other psychiatric disorders, including alcohol and drug abuse and comorbid anxiety disorders (e.g., Schneier, Martin, Liebowitz, Gorman, & Fyer, 1989; Schneier et al., 1992). One of the more serious conditions found in conjunction with social anxiety is depression. Between 40 and 50% of patients diagnosed with social phobia or avoidant personality disorder also meet diagnostic criteria for depression. The exact nature of the relationship between social anxiety and depression has been an issue of many empirical studies and is considered in detail by Ingram and his colleagues in *Chapter 11*.

As you will see in the following chapters, clinical writers agree on the developmental course and general appearance of severe social anxiety as described in previous chapters in this volume. Whether conceptualized in terms of pathological shyness, avoidant personality disorder, or social phobia, social anxiety is recognized to have a substantial heritable or biological component that interacts with familial and learning experiences to produce a constellation of physiological, behavioural, and cognitive symptoms. Writers in all three realms recognize that there are individual differences in the extent to which patients display the three sets of symptoms. Finally, clinicians agree that, in the absence of treatment, severe social anxiety is apt to be a longstanding condition that creates ongoing life problems for these patients.

DIFFERENCES IN FOCUS

Despite general agreement on the clinical manifestation of social anxiety, various clinical writers emphasize different features of this condition. As discussed above, some researchers emphasize the enduring nature of social anxiety, a view represented by Widiger (*Chapter 10*). Other writers place greater emphasis on one or another of the three basic symptom constellations, i.e., behavioural,

cognitive, or physiological. Thus, Clark (*Chapter 9*) presents a model of social phobia that emphasizes the role of cognitive processes. Heimberg and his colleagues (*Chapter 12*) examine cognitive-behavioural patterns in this same disorder, as do Sweeney and Rapee (*Chapter 7*). Most contemporary psychiatric researchers emphasize the biological underpinnings of social phobia and avoidant personality disorder, as reflected in the chapter by Hood and Nutt (*Chapter 13*). Finally, some writers underscore the interpersonal nature of social phobia. Alden (*Chapter 8*) discusses the interpersonal processes that contribute to social phobia and Rapee and Sweeney (*Chapter 6*) describe their important recent work on the role of family interaction patterns in childhood social phobia.

As might be expected, these differences in emphasis led to the development of somewhat different clinical interventions, the most prominent of which, cognitive-behavioural therapy and pharmacological treatment, are discussed in this volume. Both approaches are effective, and the relative strengths and limitations of each is a topic of current interest, as noted in chapters by Heimberg and colleagues (*Chapter 12*) and by Hood and Nutt (*Chapter 13*). In addition, Clark (*Chapter 9*) presents preliminary results evaluating a promising new treatment regimen based on his cognitive model of social phobia. Finally, the recognition that social anxiety generally begins early has led to an interest in the development of treatment programs for children, which are described by Sweeney and Rapee (*Chapter 7*).

CONCLUSION

Certainly much remains to be done to further delineate the key features of social anxiety and to develop alternative treatments for patients who fail to respond to existing regimens. Despite this, as you read these chapters, we believe that you will be impressed as we have been by how far we have come in understanding social anxiety as a clinical condition and developing effective interventions to reverse the often devastating effect of social anxiety on the individual's life.

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Chapter 6

Social Phobia in Children and Adolescents: Nature and Assessment

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Social phobia is one of the most common anxiety disorders in children and adolescents (Verhulst, van der Ende, Ferdinand, & Jasius, 1997). About one in every five children presenting to a specialty anxiety clinic has significant social fears (Beidel & Turner, 1998). Social phobia is associated with a range of psychosocial impairments including social withdrawal and avoidant behaviour, social skill deficits, poor peer relationships, test anxiety and impairment in academic performance, and in more severe cases, depression, and alcohol and substance abuse (Vernberg, Abwender, Ewell, & Beery, 1992; Beidel & Turner, 1998; APA, 1994). Retrospective studies of adult anxiety patients have demonstrated that social phobia in the childhood years is predictive of anxiety in adulthood, with early diagnosis (that is, prior to 11 years of age) predictive of non-recovery in adulthood (Davidson, 1993, in Beidel & Turner, 1998).

Thus far, research on social phobia in child and adolescent populations has focused primarily on understanding the nature and maintenance of the disorder. Etiological explanations of social phobia are scant, while few publications have included detailed assessment protocols for diagnosis and treatment planning. With large numbers of children experiencing social fears and the evidence pointing to detrimental outcomes, research efforts to increase our understanding in these areas is imperative. This chapter will attempt to integrate available knowledge of diagnostic and assessment approaches to assist in the development of best practice with these fearful children. The first part of the chapter examines psychopathology and epidemiology of social phobia in childhood. Next we describe comprehensive and accurate assessment of social phobia in children, with a brief overview of etiology.

In this chapter we will use the words "childhood" and "children" to refer to both children and adolescents unless specifically referring to an adolescent population.

PSYCHOPATHOLOGY AND EPIDEMIOLOGY OF SOCIAL PHOBIA IN CHILDHOOD

Diagnosis and Clinical Correlates

Children with social phobia are fearful that they will embarrass or humiliate themselves in a social or performance situation. Exposure to the feared situation will almost always provoke an immediate anxiety response. This anxiety response in children may include crying, tantrums, freezing, or shrinking from social situations in addition to the fear more characteristic of adults. To meet diagnostic criteria, the child must show evidence of being able to have age-appropriate social relationships with familiar people, and the social or performance fears must be present in situations involving peers and not just in adult interaction settings (DSM-IV; APA, 1994).

As mentioned above, children with social phobia experience a range of psychosocial impairments that can lead to detrimental effects in both the short and

long term. School is the most common place where feared interactions occur. Beidel, Neal, and Lederer (1991) report that social phobic children experience, on average, about one feared interaction every other day, and that the most likely event is an unstructured encounter with a peer. Other commonly feared interactions include talking in front of others (e.g., reading aloud to the class), taking tests, and attending social events. It is not surprising to learn, then, that one study found that 30% of a group of school phobic children refused to go to school due to social fears (Last, Herzen, Kazdin, Finkelstein, & Strauss, 1991). In addition, Strauss and Last (1993) found that 64% of social phobic children reported a fear of school.

Age of Onset and Prevalence

Adult retrospective reports indicate that the average age of onset for social phobia is mid adolescence (APA, 1994; Liebowitz, Gorman, Fyer, & Klein, 1985; Turner, Beidel, Dancu, & Keyes, 1986), although one study using an adult sample reported that almost half of their sample had suffered with social phobia before 10 years of age (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Studies using child samples have also reported earlier onsets. For example, Strauss and Last (1993) reported onset at a mean age of 12.3 years, whereas Beidel and Turner (1988) report that children as young as 8 can meet full criteria for a diagnosis of social phobia. Rapee (1995) suggests that data supporting an average age of onset for social phobia in mid adolescence may be misleading in that it overlooks the existence of social phobia and social evaluative concerns in younger children who may be at risk. Indeed, one study examining the prevalence of feared outcomes in children aged between 6 and 16 years reported a relatively constant fear of evaluative outcomes across all age groupings (Campbell & Rapee, 1994). It may be that social concerns are usually present from an early age, yet only become identified as a clinical disorder when they begin to cause interference in functioning—e.g., dating in adolescence.

Prevalence data are based largely on DSM-III-R criteria with rates of social phobia according to DSM-IV criteria expected to be even higher. Overall, changes in DSM-IV appear to have the benefit of restricting diagnostic possibilities for children with social fears to social phobia (Beidel & Turner, 1998). These changes will probably impact on prevalence rates, and new estimates are likely to be a more accurate reflection of the true prevalence rates of social phobia in childhood.

Most studies cite prevalence of social phobia to be approximately 1–2% of the general child population (Anderson, Williams, McGee, & Silva, 1987; Kashani & Orvaschel, 1990; McGee et al., 1990). Anderson et al. (1987) sampled 11-year-old children and reported a 12-month prevalence rate of 0.9%, whereas Kashani and Orvaschel (1990) reported an overall prevalence rate of 1%. Only one study was found that used DSM-IV criteria. Using an adolescent sample, the six-month

prevalence rate was 6.3% (Verhulst et al., 1997). This increase in prevalence rate is most likely accounted for by both changes in diagnostic categories from DSM-III-R to DSM-IV, and the sampling of older children.

Rates of social phobia in samples of children presenting to anxiety disorder clinics range from 15 to 18% (Last, Perrin, Hersen, & Kazdin, 1992; Albano, DiBartolo, Heimberg, & Barlow, 1995). Several studies of community samples have indicated a greater proportion of female to males who meet criteria for social phobia (e.g., Anderson et al., 1987). On the other hand, clinical sample studies have shown equal numbers of male and female social phobics seeking treatment (Last et al., 1992; Last, Strauss, & Francis, 1987; Strauss & Last, 1993). Given that parents and teachers are often the agents of referral for children, this discrepancy in gender ratios between community and clinical samples may point to differences in parental and community values for girls and boys. For example, a boy of Western cultural origin who actively avoids social situations (due to a fear of negative evaluation and over concern with saying or doing the wrong thing in social settings), may be more likely to cause distress to parents and teachers than a girl with similar problems, and thus be more likely to be referred.

Comorbidity

Based on data using DSM-III-R criteria, children rarely present with social phobia alone. Children are highly likely to meet criteria for at least one other anxiety diagnosis, with fewer children meeting diagnostic criteria for affective and externalising disorders. For example, Last et al. (1992) reported that 87% of children with social phobia met criteria for at least one other anxiety disorder, whereas Strauss and Last (1993) reported that 10% of children with social phobia met criteria for depression. A recent study of 25 socially phobic children based on DSM-IV criteria reported that 20% met criteria for specific phobia, 16% met criteria for generalized anxiety disorder, 16% had ADHD, 16% had learning difficulties, and 8% met criteria for depression (Beidel, Turner, & Morris, 1999).

ASSESSMENT TOOLS

Comprehensive and accurate assessment of social phobia (and child anxiety disorders, generally) is paramount to making clinical diagnoses, planning treatments, and evaluating outcomes. There is general agreement in the field that assessments of this nature are complex, depend on careful measurement, and benefit from including multiple informants in the assessment process (Schniering, Hudson, & Rapee, 2000). A recent review article described the assessment process with anxious children as a "daunting task". The authors went on to stress the impor-

tance of reliable and valid assessment tools that accurately determine the presence of symptoms across different domains, identify symptom clusters and symptom severity, include multiple informant options, and demonstrate sensitivity to outcome evaluations (March & Albano, 1998).

With large numbers of assessment instruments currently available for assessing anxiety disorders in children (see March & Albano, 1996), and mindful of the critical role assessment plays in diagnosis, treatment planning, treatment evaluation, and research, we now examine the utility of the various assessment tools to the evaluation of the socially phobic child.

Diagnostic Interviews

A number of structured and semistructured interviews have been developed for use with children to assist in establishing diagnostic status based on current classification systems. Generally, diagnostic interviews provide a means of quantifying clinical information in a standardized manner, thus increasing the reliability of clinical diagnosis while reducing the degree of interviewer bias (March & Albano, 1996). Structured interviews are relatively inflexible and require minimal interviewer judgements to arrive at a diagnosis, whereas semistructured interviews, although providing a standardized diagnostic questionnaire format, allow more flexibility and rely on interviewer judgement in determining final diagnostic status of the child.

The interviews available for use with children include the Diagnostic Interview Schedule for Children-Revised (DISC-R; Shaffer et al., 1993), the Kiddie Schedule for Affective Disorders and Schizophrenia—Present and Lifetime Version (K-SADS-PL; Kaufman, Birmaher, Brent, Rao, & Ryan, 1997); the Diagnostic Interview for Children and Adolescents (DICA; Herjanic & Reich, 1997), the Interview Schedule for Children (ISC; Kovacs, 1985), the Children's Assessment Schedule (CAS; Hodges, Cools, & McKnew, 1989), the Child and Adolescent Psychiatric Assessment (CAPA; Angold, 1997), and the Anxiety Disorders Interview Schedule for Children (ADIS-C; Silverman & Albano, 1995).

A detailed evaluation of each of these diagnostic interviews is beyond the scope of this chapter. In brief, all interviews include both a parent and child component, span across the child and adolescent age range, and most are under revision to improve reliability or to match changing diagnostic classification systems (Schniering et al., 2000). Otherwise, the diagnostic interviews vary considerably in terms of structure, methods of administration, and how well they cover the anxiety disorders (see reviews by Silverman, 1991, 1994).

Of the aforementioned diagnostic interviews, the ADIS-IV-C (Silverman & Albano, 1995) offers a comprehensive and relevant assessment for a child with social phobia. In addition to assessing for all the anxiety disorders (including a new screening section for selective mutism), affective disorders, ADHD, and screening questions for a range of other disorders, the ADIS-IV-C includes questions about socialization and peer relationships that are particularly relevant

for the child with social phobia. Also, the ADIS-IV-C opens with a series of questions about school thus enabling the socially anxious child time to settle before asking specifics about the child's worries (Beidel & Turner, 1998). The parent version includes the additional diagnostic categories of conduct disorder and oppositional defiant disorder as well as screening for a range of other disorders including enuresis, pervasive developmental disorders, and learning disorders.

While no reliability data have been published as yet on the ADIS-IV-C, a number of studies have reported acceptable reliabilities of both parent and child versions of the ADIS for DSM-III and DSM-III-R. For example, in a large study of 161 outpatients, Rapee, Barrett, Dadds, and Evans (1994) reported moderate to strong inter-rater reliability for the majority of childhood anxiety disorders (Kappas ranged from 0.59 to 0.82). On the other hand, utilizing the same sample, Rapee et al. (1994) reported inconsistent parent–child agreement for most diagnostic categories (Kappas ranged from 0.11 to 0.44). A number of factors have been proposed to account for this discrepancy including child's developmental stage, social desirability, and a tendency for anxious children to report a "larger number of more intense symptoms" than their parents (DiBartolo, Albano, Barlow, & Heimberg, 1998, p. 213). However, in cases where there is poor agreement between child and parent report, diagnosis is more frequently based on parent report (Rapee et al., 1994).

As an alternative diagnostic instrument, a version of K-SADS was specifically modified to improve assessment of the anxiety disorders and demonstrates good concordance rates with other structured diagnostic instruments for the anxiety disorders as well as other diagnostic categories (Last, 1986, cited in Beidel & Turner, 1998; Hodges, McKnew, Burbach, & Roebuck, 1987).

Self-report Measures

Whereas the structured or semistructured interview format is optimal for diagnosis, self-report measures provide a relatively quick method of assessment that allows children to report on a range of anxiety symptoms from their perspective. Given that anxiety is an internalizing disorder, children's self-report can reveal important elements of the symptom picture that are not readily observable to others. Additionally, self-report measures require minimal clinician time and contribute important normative data as well as treatment outcome data. There are many self-report measures that have been developed to assess general anxiety symptoms in the child population, and several of these include a clear social anxiety subscale. Overall, these measures of anxiety appear to be reasonably reliable in children, can discriminate between anxious and non-anxious children (with less support shown for discriminant validity within the anxiety disorders), show utility in measuring the impact of change following treatment, and show relatively low cross-informant agreement between parent and child reports

(similar to the findings of diagnostic interviews) (see Schniering et al., 2000, for a more detailed discussion).

In recent years, two self-report measures have emerged that have been designed specifically to assess social anxiety in children. The *Social Anxiety Scale for Children—Revised* (SASC-R; LaGreca & Stone, 1993) was developed to assess social fears in children by adapting two commonly used adult measures of social anxiety (*Social Avoidance and Distress Scale* and *Fear of Negative Evaluation*; Watson & Friend, 1969). The scale consists of 22 items that comprise three subscales: Social Avoidance and Distress in General, Social Avoidance and Distress in New Situations, and Fear of Negative Evaluation. In terms of reliability and validity of the SASC-R, La Greca and Stone (1993) report acceptable internal consistency for each of the three subscales ($r \geq 0.65$), and respectable concurrent validity in a sample of pre-adolescent children.

More recently, a second self-report measure of social phobia in children has been developed called the *Social Phobia and Anxiety Inventory for Children* (SPAI-C; Beidel, Turner, & Morris, 1995). The measure, designed for children between the ages of 8 and 14, consists of 26 items that comprise three factors: Assertiveness/General Conversation, Traditional Social Encounters, and Public Performance Factor. The authors report excellent internal consistency, high test–retest reliability across both short (2 weeks = 0.82) and longer (10 months = 0.63) periods, moderate correlations between the SPAI-C and other related constructs, such as fear of criticism and general competence, and reasonable discriminant validity between children with social phobia from children with other anxiety disorders, externalizing disorders, and non-clinical controls (Beidel, Turner, & Fink, 1996). A parallel parent form is in the development stages.

Psychophysiological Measures

Despite reasonable interest in the area of physiological functioning in anxious children, few empirical investigations have been reported in the literature. Beidel and Turner (1998) report that people with social phobia show similar patterns of physiological responses to those with other anxiety problems. These authors further point out that people with social phobia experience a particular set of symptoms that implicate the beta-adrenergic system. These symptoms include heart palpitations, shaking, sweating, trembling, and blushing.

Generally, physiological assessments of anxious children most often include cardiovascular and electrodermal responding (see King, 1994, for a comprehensive review). While limited research has examined the utility and reliability of physiological measurement in anxious children, several findings that appear to be relevant to children with social anxiety have been reported. For example, Beidel (1988) reported that socially anxious children demonstrate increases in heart rate during a read-aloud behavioural avoidance test. Further, socially anxious children demonstrated increases in heart rate throughout the behav-

ioural avoidance test compared with non-clinical controls, who showed reduc-
tions in heart rate across the task suggesting habituation. Clearly, more research
is needed in this area, however, availability, expense, and ease of using equip-
ment, as well as general instability of certain responses, appear to hinder both
research investment in this area and inclusion of such measurement for assess-
ment purposes.

Cognitive Measures

Research with adults on the role of cognition in the development and mainte-
nance of anxiety has been extensive over the past several years. In the child
domain, however, researchers have only recently begun to explore relationships
between cognition and anxiety, with very limited research available that specifi-
cally examines cognitive features of children with social phobia.

Cognitive questionnaires for use with children are in their infancy. Several
measures have been developed by modifying existing adult questionnaires. While
there is some degree of support for the use of these measures in assessing cog-
nition in children, research on the psychometric properties of these measures is
fairly limited, and the relevance of the items in the adult measures to cognitive
components in child anxiety remains unexplored (see Schniering et al., 2000, for
more details). Alternatively, measures developed specifically for use with chil-
dren are few in number. The *Negative Affect Self-Statement Questionnaire*
(NASSQ; Ronan, Kendall, & Rowe, 1994) was designed for children and in-
cludes specific anxiety items. The psychometric properties appear reasonable with
anxious items discriminating between anxious and non-anxious groups of chil-
dren, and the overall measures showing sensitivity to anxiety treatment (Ronan
et al., 1994). In a recent study by Spence, Donovan, & Brechman-Toussaint
(1999), a modified version of the *Subjective Probability* (*Social*) *Scale* (Lucock &
Salkovskis, 1988) was used to assess children's perception of the probability of
positive and negative social and non-social events. Three of the four scales
demonstrated acceptable reliability (positive social, positive non-social, negative
non-social), whereas the negative social subscale was a little lower, thus suggest-
ing caution in interpreting results based on this factor. This measure appears
particularly relevant to the assessment of children with social phobia.

Finally, a measure of self-statements has recently been developed specifi-
cally for children based on interviews with several clinical groups (the *Children's
Automatic Thoughts Scale*—CATS; Schniering & Rapee, 2002). Reported self-
statements were listed and administered to both clinical and non-clinical children
for rating. Factor analysis indicated four clear factors: hostility, loss, physical threat,
and social threat. The social threat factor is especially relevant to social phobia,
showing discrimination between socially anxious and non-clinical children.

In addition to self-report inventories, several recent studies have assessed cog-
nitive features of children with social phobia by including behavioural avoidance
tasks (see below).

Family Functioning

Studies that examine family functioning and the interaction patterns of anxious children and their families are a very recent addition to assessment protocols. To date, no studies have been conducted with children specifically diagnosed with social phobia. A number of self-report inventories and family assessment tests have been developed for use with children with anxiety, generally. Results from a limited number of studies suggest that anxious children and their families may experience unique patterns of interaction that may contribute to maintenance of anxious responding in the child. Although in the early stages, this line of research may provide relevant information to treatment planning and outcome evaluation.

A number of self- and parent-report inventories have been developed that assess various aspects of family interaction patterns in anxious children (see March & Albano, 1998). The range of aspects assessed include *family climate, structure, values* (dimensions of the Family Environment Scale; Moos & Moos, 1986), *family conflict issues* (Conflict Behaviour Questionnaire; Prinz, Foster, Kent & O'Leary, 1979), and *parents' expectancies* (Parent Expectancy Questionnaire; Eisen, Spasaro, Kearney, Albano, & Barlow, 1996). Reliability and validity of these measures appear to be reasonable in most cases, although applicability of certain measures to the assessment of anxious populations is still underway—e.g., Family Environment Scale. Overall, these measures appear to provide additional assessment information that bears relevance to treatment planning. Some measures have also shown sensitivity to treatment outcome—e.g., Conflict Behaviour Questionnaire (Prinz et al., 1979).

Several experimental studies have been devised that aim to evaluate constructed interactions between anxious children and their families. These studies include unstandardized behavioural assessment tasks and are discussed below.

Behavioural Measures

Behavioural assessment of anxiety includes the use of behavioural avoidance tests (BATs, also called *behavioural assessment tasks*) and behavioural observation (Dadds, Rapee, & Barrett, 1994). Although not widely used in the assessment of social phobia in children thus far, studies with adults, and recent research with children, indicate that these methods may provide information relevant to our understanding of the phenomenology of the disorder, treatment planning, and outcome evaluation. The main limitation of BATs and behavioural observations is that they are not well standardised, with the exception of BATs designed specifically for use in medical settings (March & Albano, 1998).

Beidel and Turner (1998) illustrate the importance of including behavioural measures in the assessment of socially anxious children. Based on anecdotal reports from their anxiety clinic, Beidel and Turner describe some referred chil-

dren who fail to admit any concerns with anxiety or peer relationships, yet when asked to take part in a behavioural avoidance test of social skills and performance, these same children are unable to demonstrate friendship skills, maintain social interaction, or perform adequately on a social performance task. Thus, in these cases, the behavioural assessment task can identify important information regarding the child's presenting difficulties.

Experimental Studies

Social Skills

In a recent study by Spence et al. (1999) a behavioural assessment task and two behavioural observations were included (in addition to diagnostic interview and self- and parent-questionnaire data) to assess social features of children with social phobia. Using the Revised Behavioural Assessment Test for Children (BAT-CR; Ollendick, 1981—a modification of the Behavioural Assessment Test for Children—Bornstein, Bellack, & Hersen, 1977), children participated in 12 role-plays in social situations involving positive assertiveness in six of the role-plays and negative assertion in the remaining six. Three variables were derived to assess social performance across the 12 role-plays: eye contact, latency of response, and length of response. Two behavioural observations were included to assess social competence: a naturalistic school observation and an observation of assertiveness during the BAT-CR.

Results on these measures indicated that children with social phobia responded with fewer words during the role-paying tasks and were less assertive in role-play situations than control children (BAT-CR—behavioural observation). Across *all* interactions, children with social phobia received fewer positive responses from peers and experienced more instances of being ignored than their non-anxious peers (school observation). Across interactions initiated by the socially anxious child, clinical children were more likely to be ignored than control children (school observation). These findings were consistent with both child and parent reports of social skills and social competence. That is, children with social phobia were rated by themselves and their parents as less socially skilled and as less socially competent than their non-anxious peers.

Interestingly, children with social phobia did not differ from their non-anxious peers on the amount of eye contact used or in the length of time to respond in the role-plays (BAT-CR). Also, when initiating a social exchange, children with social phobia did not differ from their non-anxious peers in the number of positive or negative outcomes they received.

Family Interaction

One study by Barrett, Rapee, Dadds, and Ryan (1996) included a *family* assessment task in which anxious children were presented with ambiguous situations

and asked how they would respond. Next, parents were presented with the ambiguous situation and a brief family discussion ensued. Following this, children were asked a second time to report how they would respond. Interestingly, avoidant responding on the part of anxious children increased considerably following the brief family discussion, whereas oppositional and non-clinical children decreased their avoidant responses following the brief family discussion. Barrett and colleagues termed this phenomenon, the "FEAR" effect (Family Enhancement of Avoidant Responding). Although no studies have specifically examined children with social phobia, the use of this assessment technique with a focus on ambiguous, social, situations may be particularly relevant to the assessment of socially anxious children.

We have recently begun to include behavioural assessment tasks to address some of the limitations in the existing literature on parenting and anxiety (Hudson & Rapee, 1998; 2001). For example, in one study, clinically anxious children were asked to complete two complex cognitive tasks while their mothers sat beside them with the solutions to the tasks. Mothers' instructions were to help only if they felt that the child really needed it. Blind raters scored the behaviour of the mother and child. Compared with mothers of non-clinical children, the mothers of anxious children were more likely to provide unsolicited help and were more generally intrusive in the task.

These results suggest that an over-involved style of parenting is associated with anxiety. The use of behavioural assessment tasks, albeit an unstandardized format, has produced potentially important information for the understanding and treatment of anxious children. The extent to which behavioural assessment tasks can be used in the assessment process awaits further research. In addition, research is needed to determine the extent to which these more general findings are relevant to children specifically diagnosed with social phobia.

CRITICAL CONSIDERATIONS IN ASSESSMENT

There are a number of critical issues in the assessment of children with social phobia, or anxiety more generally, that warrant discussion. These include *social desirability, cross-informant consistency, and developmental sensitivity*.

Social Desirability

Anxious children appear particularly primed for responding in socially desirable ways to assessment measures or tasks. Many researchers have noted anxious children's tremendous concerns with self-presentation and hypersensitivity to evaluation by others and have recognized that these behaviours are likely to result in socially desirable responses on assessment tasks (Kendall & Flannery-Schroeder, 1998; Schniering et al., 2000). Given the salience of fears of negative evaluation and poor social performance in children with social phobia, social

desirability concerns may be even more relevant in this subgroup of anxious children. While measures have been developed that include lie scales—e.g., Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1979)—these items rarely work with children. Interestingly, several empirical investigations that have examined relationships between social desirability and anxious symptoms in children have provided mixed results (e.g., Dadds, Perrin, & Yule, 1998). Further research is needed to clarify the precise relationships between anxiety and social desirability in socially anxious child populations.

Cross-informant Consistency

There have been sufficient studies to conclude that agreement between parent and child reports of anxiety in children is poor (Rapee et al., 1994; Kendall & Flannery-Schroeder, 1998), and these findings hold for questionnaire data as well as for diagnostic interviews. A recent study by DiBartolo et al. (1998) assessed cross-informant consistency in a sample of children with social phobia. Results indicated reasonable agreement between parent and child ratings on social fears, whereas parents reported much higher levels of social avoidance compared with child reports. Further analyses revealed that social desirability accounted, in part, for the low avoidance reports by the children.

Several explanations have been proposed to account for low cross-informant consistency in anxious children, including parental anxiety, over-reporting by parents to ensure their child's acceptance into treatment, items on self-report measures beyond the developmental level of the child, and social desirability. Concerns with cross-informant inconsistency may be addressed, in part, by including multiple methods of assessment for both parents and children. It should be noted however, that in certain circumstances, even young children have been found to be able to provide accurate predictions of their fear and avoidance levels (Cobham & Rapee, 1999). In fact, in some situations, these predictions may be even more accurate than that reported by their mothers.

Developmental Sensitivity

Developmental factors pose complex problems for the assessment of anxiety in children. Given that the majority of available measures are downward extensions of adult measures, the degree to which these actually measure the construct of interest remains unclear (see Campbell, Rapee, & Spence, 2001; McCathie & Spence, 1991). In this regard, the SPAI-C, an instrument designed specifically for children with social phobia, is recommended for use with children between ages 8 and 14 only. This reflects consideration of developmental relevance of the items of the SPAI-C to the population being assessed.

Furthermore, the development of children's understanding of emotion, their ability to introspect and to become self-aware is a process taking place during

the childhood years. While research is limited, findings suggest that young children (<12 years of age) have not developed these concepts sufficiently to be able to answer some of the more complex questions about the experience of anxiety—e.g., questions about cause and effect (Schniering et al., 2000).

Additional Assessment Issues

Diagnostic comorbidity in children complicates assessment and treatment planning, as well as expectations for outcome. Children with social phobia often have an additional anxiety disorder or other psychiatric diagnosis. March and Albano (1998) highlight the need for assessors to consider both cross-sectional and longitudinal comorbidity in case formulation as this will impact on prognosis expectations and thus treatment planning and outcome evaluations.

Culture and gender are also important variables to consider in assessment practice. In brief, studies have shown that cultural factors can influence self-report measures of anxiety. For example, Chinese children have been found to report significantly more social fears than Western children (Dong, Yang, & Ollendick, 1994). In addition, assessment instruments may not include relevant items that capture certain fears found only in Asian cultures (Chang, 1984, in Beidel & Turner, 1998). In terms of gender, the finding that more female children have social phobia in the general population compared to equal numbers of male and female children with social phobia in clinical populations, suggests that further research is needed to improve our understanding of the factors responsible for the relatively lower numbers of female children with social phobia in clinical settings.

AETIOLOGY

Based on the assumption that socially anxious children develop into socially anxious adults (Caspi, Elder, & Bem, 1988), models of the development of social phobia in children would be expected to be identical to those for the development of social phobia in adults. Of course this conclusion is not entirely true since various factors are likely to have slightly different influences at different points along the course of development. For example, twin studies of anxiety in adults almost uniformly demonstrate a strong genetic involvement together with a strong involvement from non-shared environmental factors (Kendler, Neale, Kessler, Heath, & Eaves, 1992). In contrast, twin studies of anxiety in children show slightly less genetic influence together with some reasonable evidence for the role of shared environmental factors (Thapar & McGuffin, 1995). Nevertheless, the major influential components are likely to be consistent for both children and adults. For this reason, we will not provide a detailed discussion of the development of social phobia in children here, since most of the important factors have been elaborated elsewhere in this volume.

In brief, Rapee (2001) has described a comprehensive model of the development of generalized anxiety disorder that is most likely applicable to all of the anxiety disorders, including social phobia. According to this model, genetic factors, as well as both shared and non-shared environmental factors, all play a role in the development of anxiety. In addition, the model pays particular attention to gene–environment interactions as a central component in the development of the individual. While there are assumed to be several pathways to the development of anxiety, it is suggested that many individuals who later develop anxiety disorders, are characterized as temperamentally vulnerable. This temperamental style is characterized initially by high arousal and emotionality (Kagan & Snidman, 1991) and later by withdrawal behaviors (Rubin, Hymel, & Mills, 1989). The crucial issue is that this temperamental style influences much of the individual's environmental interactions that, in turn, have an influence on the individual's temperament. For example, one influential environmental factor in early childhood is believed to be the role of an overprotecting parent (Hudson & Rapee, 1998; Hudson & Rapee, 2001; Rapee, 1997). While a small component of this parenting may be a result of the parent's own anxiety and hence emerge as a shared environmental influence, a large component is likely to be a reaction to the child's temperament in the first place, largely a gene–environment interaction. Specifically, we suggest that an emotional and withdrawn child will elicit over-involvement from a caring parent in order to avoid distress on the part of the child. Over time, the parent will begin to anticipate the child's distress and will intervene earlier and earlier. In turn, this will have the effect of maintaining and possibly increasing withdrawal and avoidance behaviors on the part of the child (Hudson & Rapee, 2001).

We hypothesize that similar interactive processes affect the influence on the development of anxiety of other environmental factors such as parent socialization practices, peer socialization, non-specific stressors, and specific learning experiences (Hudson & Rapee, 2000; Rapee, 2001). In specific socially phobic populations, some retrospective evidence has pointed to the possible role of parent modelling, verbal instruction, and restricted family socialization (Bruch, Heimberg, Berger, & Collins, 1989; Rapee & Melville, 1997).

SUMMARY AND CONCLUSIONS

Epidemiological data indicate that social phobia is one of the most common anxiety disorders or problems in children and adolescents, that such problems are associated with a range of psychosocial impairments, and that it often follows a chronic course when left untreated. While there are a number of studies aimed at understanding the nature and maintenance of social phobia, little research has focused on aetiological explanations, assessment, or interventions designed specifically for the child with social phobia. Indeed research specifically on social phobia in children is still relatively uncommon.

Comprehensive and accurate assessment of children with social phobia requires the inclusion of standardized assessment tools that demonstrate acceptable reliability and validity. Also, assessments should include multiple informants and use multiple methods where possible. A sample assessment protocol that meets the above criteria may include parent, and child, self-report on a diagnostic interview, clinical rating scales, and several additional questionnaires that assess characteristics of children with social phobia such as cognitive features. Psychophysiological functioning, although often not assessed, is relatively easy to assess in some cases (e.g., heart rate) and can provide useful treatment and outcome data.

Very recently, experimental studies exploring parent interactions, parental overprotection, cognitive features, and social skills have begun to emerge. However, the unstandardized nature of these assessment tasks and the absence of reliability and validity data preclude their inclusion in assessment protocols at present. Further research in this area is warranted. In addition, several issues need to be considered as part of the assessment of social phobia in children, including social desirability, cross-informant consistency, developmental sensitivity, comorbidity, and gender and cultural issues. These issues highlight the complexity of factors that need to be considered in the assessment process from the selection of instrument, to the actual assessment, and interpretation thereafter. Certainly, it appears a "daunting task".

While few studies have examined aetiological factors in social phobia in children, several related areas of research, such as social anxiety, shyness, social isolation, and social withdrawal, may contribute to our developing understanding of the origins of the disorder. Based on the available research, we speculate that an inhibited and withdrawn temperament should be a central component in any model of the development of social phobia. In turn, several other influential factors, such as parenting styles, parent and peer socialization, learning experiences, and life events are likely to produce their effects in interaction with this temperamental component.

Focused research attention on anxiety disorders in children and adolescents is currently still a relatively new endeavour. While much of our knowledge of social phobia in adults is of relevance to an understanding of the disorder in children, there are likely to be several factors that differ across the lifespan. Future years will see increased understanding of the unique features of social phobia in young people.

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Chapter 7

Social Anxiety in Children and Adolescents: Psychological Treatments

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Research into the psychological treatment of children with social phobia has received limited attention to date. Only a handful of studies have examined interventions designed specifically for the child or adolescent with social phobia. Epidemiological research has reported significant numbers of children suffering from social fears, while other research has shown that social anxiety and/or phobia in childhood may have detrimental effects on academic, social, and emotional functioning (see *Chapter 6* for more details on the *nature* of social phobia in childhood). In light of this evidence, the development of effective treatment approaches is strongly indicated.

This chapter will review the available behavioural and cognitive-behavioural treatments for children with social phobia. We begin by examining treatments of broad-based anxiety in children where children with social phobia have been included. Next, we review treatment studies designed specifically for children

with social phobia. Following this, and in line with the recent increase in early intervention and prevention, we will discuss recent prevention research with children at risk for developing social phobia, including current research from our laboratory on anxiety prevention in preschool age children.

As in the previous chapter, we will use the words "childhood" and "children" to refer to both children and adolescents unless specifically referring to an adolescent population.

TREATMENTS OF BROAD-BASED ANXIETY

Individual Treatments

Three outcome studies of children with anxiety disorders that utilize an individual treatment approach have recently been published (Kendall, 1994; Barrett, Dadds, & Rapee, 1996; Kendall et al., 1997). Generally, these studies were similar in treatment approach—i.e., cognitive-behavioural treatment package (see Coping Cat manual for more details—Kendall, Kane, Howard, & Siqueland, 1990) with the exception of a parent management component included in the Barrett et al. (1996) study. Also, all three studies included children of similar ages (age range 7–14 years), with sample size smaller in the earlier Kendall study ($N = 47$) and larger in the latter two studies ($N = 79$, Barrett et al., 1996; $N = 94$, Kendall et al., 1997; see Table 7.1).

Overall, all three outcome studies reported similar results. At post-treatment, and at one-year follow-up, treatment conditions of all three studies demonstrated significant effects compared with waitlist control groups. That is, treated children were much more likely to be free of their initial diagnosis, and report fewer anxious symptoms, at post-treatment and follow-up than non-treated children. Barrett et al. (1996) reported greater improvement on several measures for the treatment group that included a parent component. Barrett et al. (1996) and Kendall et al. (1997) performed analyses to examine differential outcome by diagnosis. With few exceptions, findings indicated that treatment success was applicable for each diagnostic grouping.

Group Treatments

Several group treatment studies of broad-based anxiety disorders in children have been conducted recently (Barrett, 1998; Silverman et al., 1999; Rapee, 1996; Rapee, 2000). One study has also examined the relative efficacy of individual versus group administered cognitive-behavioural treatments for children with broad-based anxiety disorders (Flannery-Schroeder & Kendall, 2000; see Table 7.2).

In the first of these studies, Rapee (1996; 2000) conducted a group treatment (similar to Barrett et al.'s (1996) family treatment package) for children aged 7

Table 7.1 Summary table of treatment studies for children with broad-based anxiety disorders

Year	Authors	Type of study	Age range	Sample size	Duration/ type	Outcome
1994	Kendall	Individual/2 group comparison	9–13 years	Tx gp = 27 WI gp = 20	16 week CBT	Tx gp = 60% diagnosis free @ PT WI gp = 5% diagnosis free @ PT Tx gains maintained @ 12 mo. FU
1996	Barrett et al.	Individual/3 group comparison	7–14 years	CBT Tx gp = 28 CBT/FAM Tx gp = 25 WLC = 26	12 week	CBT gp = 57% diagnosis free PT CBT/FAM gp = 84% diagnosis free PT WLC gp = 26% diagnosis free PT Tx gains maintained @ 6, 12 mo. FU
1996/2000	Rapee	Group/2 group comparison	7–16 years	Tx gp = 95 WI gp = 15	9 session CBT	Significantly greater decrease in anxiety across Tx and follow-up in Tx vs. WI
1997	Kendall et al.	Individual/2 group comparison	9–13 years	Tx gp = 60 WLC gp = 34	16 week CBT	Tx gp = 53% diagnosis free PT WLC gp = 6% diagnosis free PT Tx gains maintained @ 12 mo. FU
1998	Barrett	Group/3 group comparison	7–14 years	CBT Tx gp = 23 CBT/FAM Tx gp = 17 WLC gp = 20	12 week	CBT gp = 56% diagnosis free @ PT; 65% @ FU CBTFAM gp = 71% diagnosis free @ PT; 85% @ FU WLC gp = 25% diagnosis free @ PT
1999	Silverman et al.	Group/2 group comparison	6–16 years	CBT Tx gp = 25 WLC gp = 16	10 week	CBT gp = 64% diagnosis free @ PT WLC gp = 13.4% diagnosis free @ PT Tx gains maintained @ 3, 6, & 12 mo. FU
2000	Flannery-Schroeder and Kendall	Group and individual/ 3 group comparison	8–14 years	Group gp = 12 Individ. gp = 13 WLC gp = 12	18 week	Group Tx = 50% diagnosis free @ PT Individ. Tx = 73% diagnosis free @ PT WLC gp = 8% diagnosis free @ PT Tx gains maintained @ 3 mo. FU

Note: CBT = cognitive-behavioural therapy; CBT/FAM = cognitive-behavioural therapy with a family component; PT = post treatment; Individ. = individual; WLC = waitlist control group; FU = follow-up.

Table 7.2 Summary table of treatment studies for children with a diagnosis of social phobia

Year	Authors	Type of study	Age range	Sample size	Duration/type	Outcome
1995	Albano et al.	Group/uncontrolled	Adolescent sample	N = 5	16 week CBT	• 4/5 subjects diagnosis free @ 3 mo. FU • 5/5 diagnosis free @ 12 mo. FU
1997	Beidel et al.	Group/uncontrolled	8–12 years	N = 16	24 sessions over 12 weeks	Child Report: sig. reduction in anxiety concerns @ PT Parent Report: sig. reduction in internalizing beh. @ PT
2000	Beidel et al.	Group/controlled	8–12 years	SET gp = 30 General gp = 20	12 week	SET gp = 67% diagnosis free @ PT General gp = 5% diagnosis free @ PT Tx gains maintained @ 6mo. FU
2000	Spence et al.	Group/controlled	7–14 years	CBT Tx gp = 17 CBTFAM Tx gp = 19 WLC gp = 14	12 week	CBT gp = 58% diagnosis free @ PT CBTFAM gp = 87% diag. free @ PT WLC gp = 7% diagnosis free @ PT Tx gains maintained @ 6mo. FU

to 16 years with broad-based anxiety disorders. Treatment was brief (9 sessions) and this, combined with the group format (around 6 families per group), resulted in a highly cost-effective delivery. Outcome showed good effects—treated children improved significantly more on both self and parent reports of anxious symptomatology than did waitlist children and continued to improve over the ensuing 12 months. Importantly, despite the change to a group format and the reduced number of sessions, effect sizes were similar to those found in earlier individual treatment programs (Barrett et al., 1996; Kendall, 1994). Examining differential outcome by diagnostic status, there was a tendency for children with principal diagnoses of social phobia and generalized anxiety to respond less at post-treatment than children with separation anxiety disorder. However, this trend was not seen at 12-month follow-up. These results seem to suggest that social phobia and generalized anxiety disorder may respond somewhat more slowly to treatment than does separation anxiety disorder.

Barrett (1998) conducted a three-group comparison comprising a cognitive-behavioural treatment group (CBTG: $N = 23$), a CBTG plus family component group (CBTGFAM: $N = 17$), and a waitlist control group (WLCG: $N = 20$). Both treatment groups showed significant change in diagnostic status and symptom measures at post-treatment and follow-up compared with the waitlist control group. Although differences between treatment groups were non-significant, the CBTGFAM treatment showed a trend towards greater improvement.

In a more recent trial, Silverman et al. (1999) treated 25 children and their parents using a cognitive-behavioural treatment program and compared the outcome with a waitlist group of children. At post-treatment, 64% of children in the treatment group no longer met primary diagnosis criteria compared with 12.5% of the waitlist control group. The success of treatment was also evident in clinical ratings of severity of anxiety and child and parent self-report measures. All treatment gains were maintained across 3-, 6- and 12-month follow-up. Analyses evaluating differential outcome by diagnostic group (social phobia, generalized anxiety disorder, and overanxious disorder) revealed no significant differences, thus supporting the applicability of this particular treatment package for children with social phobia (Silverman, personal communication, July, 1999).

Finally, Flannery-Schroeder and Kendall (2000) conducted a randomized clinical trial examining the relative efficacy of individual (ICBTG) versus group (GCBTG) administered cognitive-behavioural treatments for children with broad-based anxiety disorders. Results indicated that children in both the individual and group treatment conditions were significantly more likely to be free of their primary anxiety diagnosis and to show improvements on anxiety and coping measures at post-treatment and three month follow-up compared to children in the waitlist control group.

Although few in number, the above studies indicate that individual and group treatment of children with broad-based anxiety disorders (including social phobia) can be successful using a comprehensive cognitive-behavioural treatment package, and may be further enhanced with the inclusion of parents. More

importantly to this chapter, two of the three individual studies and two of the four group studies examined differential outcome by diagnosis and found that success of the treatments was equally applicable to children with a primary diagnosis of social phobia or avoidant disorder, thus providing preliminary support for the use of cognitive-behavioural treatment approaches for children with social phobia. An interesting finding from the Rapee (1996; 2000) study suggests that social phobia and generalized anxiety disorder may respond a little more slowly to cognitive-behavioural interventions, at least initially, compared to other diagnostic groups but the long-term results are equivalent.

TREATMENT OF SOCIAL PHOBIA

Group Treatment: Uncontrolled Studies

Two uncontrolled studies evaluated group treatment of children with a diagnosis of social phobia (Albano, Marten, Holt, Heimberg, & Barlow, 1995; Beidel, Turner, & Morris, 1997). In the first of these studies, Albano et al. (1995) presented findings from a pilot study of five adolescents with a principal diagnosis of social phobia. The study examined a 16-session multicomponent cognitive-behavioural group treatment package designed specifically for use with an adolescent population. The components of the treatment were largely drawn from successful treatment studies of adults with social phobia (see Heimberg, Salzman, Holt, & Blendall, 1993). In addition, specific skill-building strategies for adolescents were included, drawing largely from the work of Christoff, Scott, Kelley, Baer, and Kelly (1985). These treatment components comprised psychoeducation, social skills training, problem-solving and assertiveness training, cognitive restructuring, exposure techniques, and weekly homework assignments. Parental involvement was also an important part of the treatment package with the inclusion of parents at four "key" points in the 16-week treatment program.

At three months post-treatment, four of the five subjects no longer met diagnostic criteria for social phobia, whereas the remaining subject received only a provisional diagnosis of social phobia. At 12-month follow-up, all five subjects were free of a clinical diagnosis of social phobia with one subject receiving a "subclinical diagnosis of social phobia in partial remission" (Albano et al., 1995, p. 652).

This study, as a preliminary investigation, provides encouraging findings regarding the utility of a multicomponent cognitive-behavioural treatment package for adolescents with social phobia. However, the small sample size and absence of a control group make interpretations tentative. The authors are currently conducting a controlled trial comparing the effectiveness of this multicomponent cognitive behavioural treatment package with an educational control group for adolescents with a primary diagnosis of social phobia.

Using a younger sample of children with social phobia, Beidel et al. (1997) have reported preliminary findings using their own treatment program called

Social Effectiveness Therapy for Children. As with the Albano et al. (1995) treatment package, Beidel and colleagues based their treatment program on intervention strategies that have been demonstrated to be effective in treating adults with social phobia. The pilot study, comprising 16 children between the ages of 8 and 12, consisted of 24 sessions over a 12-week period. The main treatment components were exposure and social skills training. Each week the children received one treatment session focused on exposure and the second treatment session on social skills training. Unique to this treatment program was the inclusion of a "peer-generalization component" (Beidel & Turner, 1998, p. 256). Following the weekly social skills training session, children with social phobia were paired with non-anxious peers for a 90-minute outing. This created natural opportunities for the child with social phobia to practise the newly learned social skill with a non-anxious peer.

The children reported significantly less social anxiety concerns at post-treatment on several measures. Similarly, parent reports indicated a significant reduction in internalizing behaviours from pre- to post-treatment. On behavioural tasks of reading aloud and role-playing, children were rated by independent and blind observers as significantly more skilled and with significantly less observable anxiety than pre-treatment ratings. These results are encouraging to the extent that they support continued evaluation of this particular treatment program for social phobia in adolescents. Multiple assessment modalities—i.e., questionnaire data and behavioural observations, as well as multiple informants—were used with all reports indicating reductions in social anxiety.

Group Treatment: Controlled Studies

Two controlled treatment outcome studies of children with social phobia provide further support for the utility of cognitive-behavioural approaches for treating this population (Spence, Donovan, & Brechman-Toussaint, 2000; Beidel, Turner, & Morris, 2000).

One study by Spence et al. (2000) compared the effectiveness of two different treatments (a cognitive-behavioural group [CBG; $N = 17$] versus a cognitive-behavioural group plus parent component [CBGPC; $N = 19$]), with a waitlist control group ($N = 14$). Children, ranging in age from 7 to 14 years, were randomly assigned to one of the three groups. Treated children received 12 weeks of weekly therapy sessions of 90 minutes' duration with two booster sessions at 3 months and 6 months post-treatment. Parents in the CBGPC received 12 weeks of weekly sessions of 30 minutes' duration, as well as observation of child sessions.

The treatment package consisted of social skills training, problem-solving, relaxation training, cognitive restructuring and exposure therapy (see Spence, 1995, for more details). The parent treatment component included instructions in parent management techniques particularly for socially anxious children as well as modelling and reinforcing of treatment objectives. Parents in the CBGPC also observed their child's sessions.

Significantly fewer children met criteria for a clinical diagnosis of social phobia at post-treatment in both active treatments compared with the waitlist control group: 87% diagnosis free in CBGPC; 58% in CBG; and 7% in the waitlist control group. These gains were maintained at follow-up. On measures of general and social anxiety, both treatments showed significant reductions at post-treatment compared with the waitlist group. Parent reports of children's social skills also increased for both treatment conditions compared with the control group. While there was a trend towards better results in the cognitive-behavioural treatment that included the parent component, this difference did not reach significance.

In a sample of 50 pre-adolescent children (8–12 years of age) diagnosed with social phobia, Beidel et al. (2000) compared the effectiveness of their Social Effectiveness Therapy for Children (SET-C; $N = 30$) with an active, but non-specific intervention ($N = 20$), primarily a test-taking and study-skills training program. Treatments were matched in terms of therapist contact time, group versus individual treatment time, the giving of homework, and number of weekly sessions.

Results were very encouraging. At post-treatment, 67% of the children in the SET-C group were free of their principal diagnosis of social phobia, compared with only 5% of children in the non-specific group. Furthermore, 52% of the SET-C group were judged to be treatment responders, while only 5% of the non-specific group achieved this classification. Similar to the Spence et al. (2000) study, improvements were also evident on other measures of social anxiety and social skills performance. All gains were maintained at 6 months post-treatment.

Overall, these preliminary studies support the utility of a multicomponent group cognitive-behavioural treatment approach for treating children with social phobia. The two controlled studies (Spence et al., 2000; Beidel et al., 2000) provide the most direct evidence of the efficacy of cognitive-behavioural interventions for children with social phobia, with exposure and social skills training the central treatment components in both studies.

Despite the promising results to date, several questions remain to be answered in future research. First, it is not clear from the current research which are the active or essential components to treatment. It is interesting to note that the studies that have been aimed specifically at treatment of social phobia have typically included some form of social skills training. An important question, then, is whether this is a necessary component of treatment for social phobia in children. The fact that treatment programs aimed at anxiety disorders in general in children do not include a strong social skills component and yet produce good effects, argues against this possibility. However, final decisions must await the conduct of treatment studies using a deconstruction methodology. It is also important to note that few of the treatment studies to date have focused on the treatment of social phobia in adolescents. It is possible that adolescents and younger children may have somewhat different needs and therefore, controlled outcome trials comparing techniques across different ages may be warranted. On this point, it should be noted that the study by Barrett et al. (1996) that was

focused on anxiety disorders in general, showed a clear need for the inclusion of parents in younger children, but not for adolescents. Research that addresses other, more cost-efficient, forms of delivery, such as bibliotherapy may also be of value, as would research aimed at examining the application of treatment to difficult populations such as those with comorbid depression.

EARLY INTERVENTION AND PREVENTION

In line with the increasing trend towards *early intervention* and *prevention* in mental health, particularly in child populations, researchers have begun to evaluate the potential for cognitive-behavioural treatments to be used effectively as an early intervention or preventative approach with children who are anxious. Dadds, Spence, Holland, Barrett, and Laurens (1997) conducted a combined child- and parent-focused treatment for the prevention and early intervention of anxiety problems in children between the ages of 7 and 14. Of an initial cohort of 1,786 children, 128 met criteria for inclusion and agreed to participate in the school-based treatment. Children who met inclusion criteria were considered "at risk" based on a combination of child self-report of anxious symptoms, teacher ratings of shyness and anxiety, and parent report on a structured diagnostic instrument (see Dadds et al., 1997, for complete screening and inclusion details). The intervention was virtually identical to the treatment outlined above—i.e., *The Coping Koala*, Barrett et al. (1996), with minor modifications for administration in the school setting. Children were assigned to either the *Coping Koala* treatment program or a monitoring group.

Seventy-five per cent of the identified children met diagnostic criteria for an anxiety disorder. Hence, for these children, this study is another example of treatment for relatively mild anxiety disorders. Improvements were noted for both groups at post-treatment with significant differences between groups not emerging until 6-month follow-up. Longitudinal data were reported for 12- and 24-month follow-up in this sample (Dadds et al., 1999). Interestingly, at 12-month follow-up, differences between groups disappeared, whereas at 24-month follow-up, small but significant differences emerged again with children in the treatment group evidencing somewhat lower rates of anxiety disorders (20%) than did untreated children (39%).

The results of this study are of greater interest for the 25% of children who showed symptoms of anxiety without yet meeting criteria for an anxiety disorder. Only these children provide evidence relevant to prevention. For these children, there was a small but significant difference between treated and untreated children in the development of anxiety disorders two years following treatment. 16% of the untreated children with anxiety symptoms at pre-treatment developed an anxiety disorder in the two years following treatment compared with 11% of treated children. Thus, while the prevention effects were not especially strong, they do point to the potential value of indicated interventions for the prevention of anxiety.

An alternate model is to focus on selective prevention with children at high risk for the later development of anxiety disorders. One of the strongest demonstrated risk factors for anxiety disorders such as social phobia is a temperamental style labelled behavioural inhibition (Kagan, Reznick, & Gibbons, 1989, see Marshall & Stevenson-Hinde, this volume, *Chapter 3*). We have recently completed a longitudinal prevention trial with preschool age children who showed early signs of withdrawal, and their parents (Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2004). Our "at risk" group comprised 3.5–4.5-year-old children who were identified as withdrawn or inhibited based on both maternal report and laboratory observation (see Rapee, 2002, for a description). Parents of children who were assessed as inhibited on both measures were randomly assigned to either a six-week cognitive-behavioural education group or a monitoring-only group. The six-week program (Rapee & Sweeney, 1998) educates parents in how to deliver cognitive restructuring and exposure to their children and teaches parent management strategies, as well as helping parents to become aware of their own anxieties and ways to manage them.

Earlier pilot testing of this program indicated promising results (Rapee & Jacobs, 1998). In the current trial, children whose parents underwent the education program showed a significant decrease in anxiety diagnoses (see Figure 7.1). However, there was no significant effect on inhibition/withdrawal and the changes in diagnoses were not mediated by changes in withdrawal. Apart from the interesting theoretical implications of these results for distinguishing temperament and disorder, the education program shows promise as a very early intervention for anxiety disorders. However, modification of the anxiety risk factor, inhibited temperament, will require further advances.

SUMMARY AND CONCLUSIONS

To date, few treatment studies have been conducted that include a specific focus on the treatment of socially phobic children. Nevertheless, results from these studies are encouraging and support the value of cognitive-behavioural treatments for children with social phobia.

There are a number of individual and group treatment studies for children with broad-based anxiety disorders, including social phobia. Generally, these studies have used a cognitive-behavioural treatment package, and in some cases, a family or parent component. The primary treatment components include education, cognitive restructuring and exposure therapy. Overall, results are encouraging, showing significant reductions in the number of children maintaining a diagnosis at post-treatment and follow-up compared with waitlist control groups as well as marked decreases in symptoms of general anxiety. These studies also show few differences in final outcome between children with social phobia and other anxiety disorders. Interestingly, results from our clinic suggest that children with a diagnosis of social phobia may respond a little
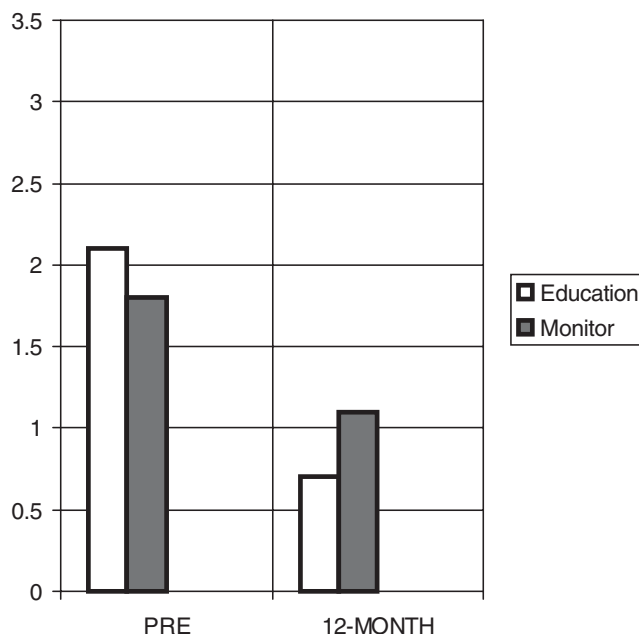
Figure 7.1   Changes in number of anxiety disorder diagnoses across 1 year in preschool children whose parents either received education or no intervention (*N* = 146)

more slowly to treatment than children with separation anxiety disorder (Rapee, 1996).

Two pilot studies and two very recent controlled treatment outcome studies have examined cognitive-behavioural treatment programs for children specifically diagnosed with social phobia. The two controlled studies provide the most direct evidence of the efficacy of cognitive-behavioural interventions for children with social phobia, with exposure and social skills training the central treatment components in both studies. Additional replication studies are needed. Future efforts with samples of children with social phobia should also focus on using deconstruction methodology to assist in evaluating the effectiveness of different treatment components, conducting studies with adolescents, and assessing the usefulness of an individual treatment approach.

More recently, attention has begun to turn to the possible prevention of anxiety disorders such as social phobia. While indicated prevention for mildly symptomatic children shows some promise, selective prevention programs with temperamentally at risk children may provide a valuable alternative. This exciting new development in the management of anxiety still requires considerable investigation. However, it may form the basis of a whole new direction in anxiety management, moving it into the realm of public health.

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Chapter 8

Interpersonal Perspectives on Social Phobia

Lynn E. Alden

CENTRAL THESIS

At a fundamental level, social phobia is an *interpersonal* disorder. The characteristic symptoms of this condition, anxiety and self-doubt, arise when the individual contemplates interacting with other people, and their most devastating effect is to impair the person's ability to develop satisfying personal and workplace relationships. Contemporary clinical research, on the other hand, is based on cognitive-behavioral formulations similar to those developed for other anxiety disorders. As a result, studies have focused more on the individual's anxiety-related symptoms and behaviors rather than on the ways in which interpersonal processes contribute to the development and maintenance of this condition. Over the past decade, researchers have increasingly documented how social anxiety impairs interpersonal relationships and conversely, how interpersonal processes perpetuate social fears. In this chapter, we will examine social anxiety and social phobia through the lens of interpersonal theory to determine whether an interpersonal perspective contributes to our ability to understand and treat socially anxious patients.

The chapter will begin with a brief overview of the interpersonal perspective to outline the central tenets of this approach. I will then examine the empirical literature to determine what is known about the interpersonal aspects of social anxiety. Next, I compare the interpersonal model with contemporary cognitive-behavioral models of social phobia. Here, I will argue that the interpersonal model highlights factors that have been under-recognized in other approaches and points to new directions for research and treatment. My central thesis is that contemporary formulations of social phobia would benefit from a more explicit inclusion of the role of interpersonal processes in the development and maintenance of this condition. Let us now turn to a description of the interpersonal framework.

INTERPERSONAL FRAMEWORK

Interpersonal models have emerged in a variety of contexts, most notably within psychodynamic, personality, and social psychological writings (e.g., Benjamin, 1993; Blatt & Zuroff, 1992; Coyne, 1976; Kiesler, 1983; Strupp & Binder, 1984) Although each model has its own domain of interest, theoretical viewpoint, and research methods, they share the common assumption that good social relationships are intimately tied to an individual's psychological well-being and, conversely, that poor social relationships contribute to psychopathology. At the heart of the interpersonal perspective is the idea that social behavior is interactive, in that one person's behavior exerts a "pull" on others' responses to them, and self-perpetuating, in that people tend to evoke responses from others that maintain their basic assumptions about the nature of their relationships with other people.
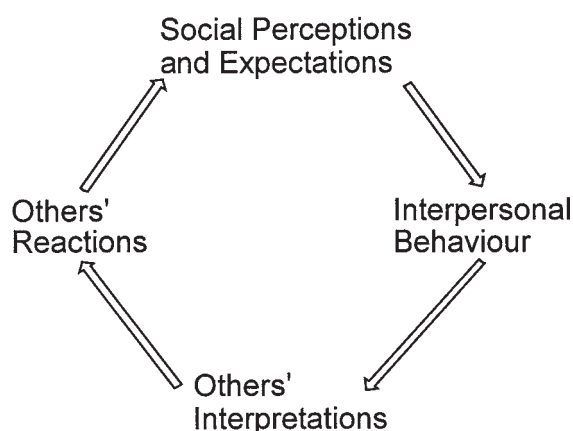
Figure 8.1 Interpersonal transaction cycle

In general, interpersonal writers assume that social behavior is best envisioned as a cycle of cognitive, emotional, and behavioral events that begin with one person and elicit complementary cognitive, emotional, and behavioral reactions from others. For purposes of this chapter, the interpersonal cycle can be depicted as a circular arrangement of several individual elements (see Figure 8.1). Although there is variability among interpersonal writers that cannot be captured in this brief review, interpersonal models are based on several underlying tenets. We will consider each of these in turn.

Social Pathogenesis

The first tenet of most interpersonal theories is that dysfunctional behavior develops from a pathological interpersonal environment, a process called social pathogenesis. Although interpersonal writers acknowledge that innate temperamental and physiological tendencies are the biological roots from which social behavior emerges, their primary interest is the way in which social processes shape and contribute to innate tendencies to form enduring interpersonal patterns. Thus, these writers assume that current social behavior reflects the person's developmental experiences, particularly his or her habitual transaction patterns with significant others (e.g., Benjamin, 1993; Strupp & Binder, 1994; Sullivan, 1953). According to interpersonal models, people develop their characteristic interpersonal strategies in order to deal with early relationships, and these strategies become self-perpetuating as people come to define themselves in terms of the specific relational roles they have assumed, for example, as someone whom others find unlikeable and will criticize.

Relational Schema

Following from above, the second tenet of the interpersonal perspective is that early social relationships shape our enduring sense of self. Interpersonal writers propose that habitual patterns of interaction are distilled and stored in memory in the form of relational schemas, or structured cognitive representations that depict the relationships one had with significant others (Benjamin, 1993; Bowlby, 1977; Strupp & Binder, 1984). When we reflect on who we are, the information that comes most readily to mind is based on the concerns and fears we experienced and the behaviors we developed in the context of those early interactions. Interpersonal writers posit that contemporary social situations affect our experience of self because they bring to mind different relational schemas. For example, social cues that are reminiscent of an early negative relationship can elicit the concerns we experienced and the behavioral patterns we adopted in that earlier context, whereas cues reminiscent of a positive relationship will elicit a more positive sense of self.

Self-perpetuating Transaction Cycles

The third and most important tenet of the interpersonal model is that people establish interaction patterns that maintain their views of self and tendencies to adopt certain roles in relationships. As can be seen in Figure 8.1, there are at least four parts to the interaction cycle: how we perceive others, how we act toward them, how they interpret our actions, and how they respond to us in return. In particular, our perceptions and expectations of others are powerful determinants of our actions toward them and their actions in return. Interpersonal writers emphasize that our social perceptions are not always veridical, but can be biased by developmental experiences. Under some conditions, social cues bring to mind, or activate, specific relational schema that lead us to attribute qualities found in significant others in the past to people in the present (e.g., Strupp & Binder, 1984).

Such biases in the interpretation of interpersonal events influence the behavioral strategies we choose to manage those events. The traditional interpersonal position is that social cues that bring to mind past relationships lead people to resort to their habitual roles and thereby unwittingly re-enact the relationships they had with significant others (e.g., Strupp & Binder, 1984). However, some interpersonal writers take a broader view and suggest that the individual does not necessarily continue to play the same role. Benjamin (1993), for example, proposed that there are three general "copy processes", or ways in which early relationship patterns are transferred to current interactions. People may behave as though significant others are present (re-enactment); they can treat others as they have been treated (identification); or they can treat themselves as others have treated them (introjection). This view suggests greater variability in the way in which developmental experiences affect current behavior. Whatever form the pattern takes, interpersonal writers believe that there is an observable link

between developmental experiences and people's behavior in important contemporary relationships.

The final and critical element in the cycle is that the behavioral patterns that are selected by people tend to pull reactions from others that confirm existing relational schema. Of course, others' responses reflect their own concerns and learning experiences as well any pressures that arise from our behavior. However, interpersonal writers believe that through our characteristic social behavior we exert a subtle force on other people that pulls for a complementary response, often a response that perpetuates our views of ourselves and our role in relationships (e.g., Kiesler, 1983). This concept of a self-perpetuating interactional cycle is at the heart of the interpersonal perspective.

Social Motivation

A fourth interpersonal tenet is the assumption that dysfunctional social behavior is an attempt, albeit ineffective, to maintain social connectedness (Benjamin, 1993). Humans are known to be inherently social beings who are highly motivated to build and maintain social relationships. Interpersonal writers posit that two basic goals drive social behavior: *attachment*, or closeness with others; and *differentiation*, or developing a sense of oneself as a separate, yet socially valued being. Developmentally, attachment is primary, and the infant's earliest social behaviors are directed toward eliciting closeness and nurturance from others (e.g., Bowlby, 1977; Sullivan, 1953). Once the child is assured of the availability of nurturing caretakers, the goal of asserting individual autonomy comes into play (e.g., Mahler, 1968). In ideal circumstances people develop behavioral strategies that allow them to maintain closeness with others yet assert individual desires. In adverse circumstances, on the other hand, people learn dysfunctional ways of maintaining closeness and asserting autonomy. Even here, however, what appear to be maladaptive interpersonal strategies are posited to represent strategic attempts to accomplish these same interpersonal goals. In particular, these writers believe that problematic interpersonal behavior reflects an underlying desire to maintain a sense of relatedness to others (Benjamin, 1993).

Summary

In summary, interpersonal writers posit that there are interpersonal themes that run through the person's life, linking past and present. Early experiences shape our sense of who we are and what we can expect from others. As we go through our lives, we continue to assign certain roles to ourselves and to others, even when it is not warranted, and our behavior tends to elicit responses from others that reinforce our pre-existing beliefs. Finally, no matter how maladaptive an individual's social behavior appears to others, the person's underlying goal is to maintain a sense of relatedness to significant others.

Although the interpersonal cycle is represented in Figure 8.1 as linear and unidirectional, most writers agree that bidirectional feedback loops between various elements of the cycle are also possible. One example of this is when people base their perceptions of a social event on their own feelings or behavior rather than on external information, such as others' reactions to them. Another example is when others' unsolicited behaviors confirm pre-existing relational schema without any input on our part. It should also be noted that different theorists emphasize different facets of the interpersonal model. For example, dynamic writers traditionally placed greater emphasis on developmental experiences, whereas interpersonal models of depression tend to underscore the impact of the person's behavior (e.g., reassurance-seeking) on others' responses (e.g., rejection; Coyne, 1976; Joiner & Meltalsky, 1995). Despite such differences, at the center of these various interpersonal theories lies the concept of a developmentally-based, self-perpetuating transactional cycle.

EMPIRICAL EVIDENCE

We turn now to an examination of the elements of our interpersonal model in the context of social anxiety and social phobia. In each section we will review empirical studies that speak to one of the interpersonal tenets discussed above. Our goal is to evaluate critically the available data to determine which of these tenets have empirical support and which do not.

Social Pathogenesis

According to interpersonal writers, the dysfunctional behavior of socially anxious people results in part from the social environments in which they were raised. The biological underpinnings of social inhibition and anxiety have been amply documented (Kagan, Reznick, & Snidman, 1987; Plomin & Daniels, 1986; see also Schmidt, Polak, & Spooner, this volume, *Chapter 2*). Our question here is whether there is empirical support for the role of the social environment in shaping the expression of these biological factors.

The first evidence in favor of social pathogenesis can be found in the seminal studies of Jerry Kagan and his colleagues on behavioral inhibition. This work revealed that approximately one-quarter of children who were extremely timid at 21 months were no longer so at age 6 and, conversely, about one-quarter of children who were not inhibited at 21 months became inhibited by age 6 (Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988). Although it is possible to posit two separate biological processes to explain these findings, another explanation is that a positive social environment can reduce innate behavioral inhibition, whereas an adverse social environment can produce inhibition in initially non-timid children. Consistent with this line of reasoning, patients who reported late onset shyness, as opposed to early onset shyness, were found to describe their

parents as emotionally or physically abusive (Alden & Cappe, 1988; see also Stemberger, Turner, Beidel, & Calhoun, 1995; Johnson, Smailes, Cohen, Brown, & Bernstein, 2000).

Developmental researchers have attempted to identify those aspects of the social environment that moderate innate behavioral inhibition. These studies indicate that a number of parental behaviors are associated with shyness (see also Burgess, Rubin, Cheah, & Nelson, this volume, *Chapter 5*). To take several examples: parental encouragement of open communication and involvement in social activities was associated with less shyness at both 12 and 24 months (Plomin & Daniels, 1986). Reductions in social inhibition were observed in temperamentally reactive infants whose mothers were not overly responsive to fretting and crying (Arcus, 1991). A six-year longitudinal study revealed that maternal responsiveness and personality characteristics predicted later shyness in girls, although not in boys (Engfer, 1993). In another longitudinal study, Rubin and his colleagues found greater shyness in children whose mothers responded to timid, unskilled child behavior with feelings of anger and disappointment and attempts to direct or control how the child behaved. Rubin concluded that a combination of temperamental factors and non-supportive parenting behavior interact to produce a negative self-schema that leads to shyness in social situations (Mills & Rubin, 1993; Rubin, LeMare, & Lollis, 1990). In an intriguing study of anxious children, some of whom had social phobia, Rapee and his colleagues found that parents tended to overprotect the anxious child during a laboratory task (Hudson & Rapee, 2000; see also Rapee & Sweeney, this volume, *Chapter 6*). Together, these studies indicate that parenting behaviors that calm the timid child and encourage engagement with life reduce the effects of innate inhibition, whereas excessive attempts at protection and control, and the expression of negative emotions, exacerbate them.

Several researchers specifically addressed bi-directional models of parent–child relationships. For example, Rubin, Nelson, Hastings, and Asendorpf (1999) found that parents' perceptions of their child's social wariness led them to adopt socialization strategies that limited opportunities for the child to develop independence. In turn, those parenting styles predicted social reticence in middle childhood over and above initial levels of reticence at age four (Burgess, Rubin, Cheach, & Nelson, *Chapter 5*). In addition, Rubin, Burgess, & Hastings (2002) conducted longitudinal assessments of children between age 2 and 4. They found that an interaction of child inhibition and maternal behavior at age 2 predicted social reticence at age 4. Specifically, when mothers were intrusive, overprotective, or derisive, their toddlers' level of inhibition at age 2 was strongly correlated with reticence at age 4, whereas there was no relationship between reticence at age 2 and 4 when mothers did not display these behaviors. Those findings suggest that maternal behavior played a significant role in perpetuating social reticence. In short, socially reticent children and their parents display a cyclical interaction pattern that appears to perpetuate the child's social inhibition.

Clinical researchers have examined the effect of parental behavior, albeit retrospectively, by assessing patients' recollections of their parents' child-rearing

attitudes and behaviors. Consistent with developmental studies, patients with social phobia viewed their parents as having been more controlling and less affectionate than did nonphobic controls (e.g., Arrindell, Emmelkamp, Monsma, & Brilman, 1983; Arrindell et al., 1989; Parker, 1979). These patients also described their parents as more concerned with others' opinions and more likely to use shame to discipline than did control subjects (Bruch & Heimberg, 1994). It is also notable that patients with more severe social fears were characterized by more pathogenic social environments. Patients with generalized social phobia reported more childhood social isolation and less family socializing than did patients with nongeneralized social phobia (Bruch & Heimberg, 1994). Finally, social phobics reported more negative behaviors in their parents than did patients with agoraphobia, a disorder that shares the anxiety-related aspects of social phobia, but with less prominent social fears (e.g., Arrindell et al., 1989; Bruch, Heimberg, Berger, & Collins, 1989). This association between degree of social developmental pathology and degree of contemporary interpersonal dysfunction is what interpersonal theories would predict. Although we cannot rule out the possibility of negative biases in retrospective reports of this type, the parental descriptions of social phobic adults are consistent with the type of parenting behavior observed to exacerbate behavioral inhibition in children (e.g., Hudson & Rapee, 2000; Rubin et al., 1990).

Less work has been devoted to the effects of peer relationships on social anxiety. Some studies indicate that socially anxious and inhibited individuals either reported or were observed to experience bullying and harassment from their peers (e.g., Olewus, 1993; Gilmartin, 1987; Ishiyama, 1984). However, the interpretation of these findings is limited by their cross-sectional or retrospective designs. One longitudinal study painted a more complex picture (Vernberg, Abwender, Ewell, & Beery, 1992). These researchers followed a group of early adolescents who had recently relocated. Social anxiety was found to predict less intimacy and companionship, but not direct peer rejection. Peer rejection, on the other hand, produced increases in social anxiety and fear of negative evaluation. These writers suggested that shyness interferes with friendship formation, but does not evoke rejection, whereas rejection can exacerbate the cognitive aspects of shyness (Vernberg et al., 1992).

Summary   Taken as a whole, these studies support the idea that early interpersonal experiences contribute to the problems of inhibited children. This work suggests that the pathogenesis of social anxiety resides in an interaction of innate temperament and a family environment that either fails to help children overcome their innate timidity or exacerbates their fears through overprotection, control, or the expression of negative emotions. In addition, social anxiety appears to choke off the development of positive peer relationships that might temper these early experiences, while negative peer interactions intensify the child's self-doubts and evaluative fears. All in all, these studies are supportive of the concept of social pathogenesis proposed by interpersonal writers.

The Relational Self

According to the interpersonal perspective, the developmental experiences noted above shape the individual's sense of self, or self-schema. In particular, interpersonal writers propose that key information about the self concerns the person's role *vis-à-vis* significant others. Thus, how we see ourselves is based to a large extent on the nature of our habitual interactions with important others, which are distilled and stored in the form of relational schemas. If we have experienced different types of relationships with different significant others, our sense of self will be multifaceted, i.e., contain multiple relational schemas, any of which can become salient as social events bring to mind various significant relationships. If the interpersonal model is correct, the self-information critical to social anxiety should be of a relational nature, that is, concern the self in relation to significant others, not the self in isolation. In addition, the anxious person's sense of self should vary depending in part on which relational schema (e.g., positive or negative) are activated.

It is worth noting that many social-personality writers propose relational views of self (see Alden, Ryder, & Mellings, 2000). Schlenker and Leary's (1982) classic self-presentation theory postulates that people have a public, as well as a private, self (Leary & Kowalski, 1995). The public self is defined as our perception of others' impressions of us, and it is the decision that the public aspects of ourselves will fail to make the desired impression that triggers social anxiety. In a similar vein, Higgins and his colleagues posit that social anxiety arises when the person becomes aware of a discrepancy between knowledge structures representing the actual-self and the ought-other self, or the self one believes others think one ought to be (e.g., Higgins, Klein, & Strauman, 1985). The ought-other self is based on parental expectations and can therefore be seen as an internal store of information derived from experiences with significant others. Baldwin postulated that because socially anxious individuals have extensive experience with disapproving others, they develop elaborated negative relational schema (Baldwin, 1992; Baldwin & Main, 2001). These negative schemas are then easily activated by social cues associated with early experiences and, once activated, lead to negative expectations in current social interactions and therefore to social anxiety (Baldwin & Main, 2001). What is notable for our purposes is that all three theories postulate that it is the activation of relational information structures that precipitates social anxiety.

Is there any *empirical* support for the notion that information about the self is inherently connected to information about others? The best evidence comes from a series of ingenious studies by Baldwin in which he used experimental manipulations to activate different relational schema. In one set of studies, subjects were asked to envision either an accepting or critical significant other and then participate in a second allegedly unrelated task in which they rated their mood and self-esteem. Baldwin found that subjects who envisioned the critical other displayed a drop in mood and self-esteem (Baldwin, 1994, 1995). Other

studies had subjects engage in paper–pencil tasks in the presence of photograph of a significant other that either depicted the person smiling or looking somber. The presence of the photograph produced changes in subjects' mood and self-evaluation (Baldwin, Carrell, & Lopez, 1990). These studies demonstrate that bringing to mind information about different significant others automatically alters one's experience of oneself as well. Additional support for these ideas are also found in several studies conducted by Higgins and Strauman, who demonstrated that priming procedures that increased awareness of discrepancies between the actual self and the ought-other self produced arousal (e.g., Higgins, Klein, & Strauman, 1985; Strauman & Higgins, 1987). Further work by Strauman indicated that patients with social phobia were characterized by larger discrepancies between the actual and ought-other self structures than were depressed patients (Strauman, 1989, 1992).

Summary   Although more work needs to be done to evaluate the concept of the relational self, these studies suggest that cognitive stores of information about self are intertwined with information about others' reactions to the self. These findings support the interpersonal notion of relational schema, or knowledge structures in which self and others are linked. Furthermore, the activation of negative *relational* information appears to precipitate social anxiety, a pattern consistent with the interpersonal perspective.

Maladaptive Transactional Cycles

At the heart of the interpersonal model is the concept of the self-perpetuating interpersonal cycle. As noted earlier, interpersonal writers propose that developmental experiences lead to biases in people's interpretations of contemporary social events, leading them to adopt behavioral patterns learned in earlier relationships. These behaviors, in turn, pull reactions from others that confirm people's pre-existing views of their role *vis-à-vis* other individuals. We will examine each aspect of the cyclical pattern by itself and then examine the evidence that the various elements of the cycle work together as postulated.

Biased Social Perceptions

As we have seen, developmental and clinical studies of childhood experiences indicate that the parents of socially anxious people may have been controlling, nonaffectionate, even angry, and shaming, and that peers may have bullied, harassed, or simply ignored them. If the interpersonal model is correct, socially anxious people should perceive contemporary significant others to have these same qualities and, equally important, their social interpretations should be inaccurate or biased.

Interpretative biases have been examined in two contexts: laboratory tasks and close relationships. Three studies found evidence for negative biases in laboratory social judgement tasks. Socially anxious subjects who read social scenar-

ios expressed the belief that others would evaluate both themselves and other students negatively—a pattern the researchers interpreted as reflecting a generalized view of others as critical (Leary, Kowalski, & Campbell, 1988). In a similar vein, socially anxious students interpreted standardized facial expressions as conveying a more negative response to them than did nonanxious students (Pozo, Carver, Wellens, & Scheier, 1991). Finally, Lundh and Öst (1996) found that social phobic patients had better memory for pictures of negative faces than positive faces.

Other laboratory studies examined social perception during initial encounters. In a study of group interaction, shyness was correlated with negative perceptions of other group members on dimensions such as warmth and friendliness (Jones & Briggs, 1984). Several studies conducted in our lab found that patients with a social phobia who participated in a brief interaction rated their partners' liking for them lower than did control subjects. Furthermore, their perceptions of their partners were inaccurate in that they underestimated their partners' liking for them relative to their partners' actual responses (e.g., Alden & Wallace, 1995). There is also reason to believe that socially anxious subjects might selectively attend to certain types of social information. Rapee found that social phobics attended to negative, as opposed to positive, cues from members of an audience listening to their speeches, although the audience members were carefully trained to provide an equal number of positive and negative reactions (Veljaca & Rapee, 1998).

Jones and his colleagues examined biased interpretations in the context of close relationships. These researchers found that shy students rated their friends more negatively, i.e., as less considerate and courteous, than did non-shy students (Jones & Briggs, 1984). To determine whether this was due to an interpretative bias or to the selection of friends who actually had negative characteristics, a second study asked students and their best friends to rate themselves and each other. Although the shy students rated their friends negatively on attributes important to relational competence, the friends themselves did not—a finding the researchers interpreted as indicative of a negative bias in the social judgements of shy people (Jones & Carpenter, 1986).

Not all studies have found negative perceptual biases (e.g., Stopa & Clark, 1993; Alden & Wallace, 1995). However, one explanation for these inconsistent findings is that interpretative biases do not occur in all situations, but only when situational cues are reminiscent of significant earlier experiences (e.g., Strupp & Binder, 1984). Baldwin's work on the activation of relational schema supports this explanation. So too does a study by Alden and Bieling (1998), who found that manipulations that led socially anxious subjects to appraise their interaction partner as either potentially critical or accepting led to different interpretations of and reactions to the same partner behavior. Finally, the results of another study suggested that negative interpretation biases may be confined to socially anxious people with particular social developmental histories. In a study of patients with social phobia, Taylor and Alden (in press) found that patients who reported childhood parental abuse interpreted an ambiguous partner as cold and unfriendly,

whereas patients with other types of social developmental histories did not display that negative bias.

   Summary   Overall, this work indicates that although socially anxious people do not always perceive others negatively, in some situations they incorrectly interpret others' behavior as cold or unfriendly, and they display a tendency to selectively attend to negative social information. Thus, the evidence is largely, but not uniformly, supportive of the interpersonal notion of biased social interpretation, although there is some suggestion that interpretation biases may be confined to socially anxious people with particularly traumatic social developmental experiences.

Behavioral Patterns

According to the copy process theory proposed by Benjamin (1993), the behavior of socially anxious individuals should conform to one of three patterns: behaving as if a critical, controlling, nonaffectionate person were present (*reenactment*), behaving in a nonaffectionate, critical, controlling manner toward others (*identification*), or behaving in a critical, controlling, and nonaffectionate way toward oneself (*introjection*). Although people with social anxiety and social phobia do not *always* display avoidant or maladaptive social behavior (e.g., Leary & Kowalski, 1995; Pilkonis, 1977; Rapee, 1995), certain situations tend to elicit responses that appear to be awkward and unskilled (e.g., Alden, Bieling, & Meleshko, 1995; Glass & Arnkoff, 1989; Glass & Furlong, 1990; Turner Beidel, Dancu, & Keys, 1986). If the interpersonal model is correct, their behaviors should reflect significant developmental events in the predicted manner.

   Empirical studies provide clear support for two of Benjamin's patterns, reenactment and introjection. Faced with a critical, controlling person, one would likely attempt to deflect attention, avert one's eyes, talk less, disclose less, withdraw as soon as possible, and avoid future contact. Research suggests that these are typical behavioral responses of socially anxious and social phobic people (e.g., Glass & Arnkoff, 1989; Meleshko & Alden, 1993; Spence, Donovan, & Brechman-Toussaint, 1999; Turner et al., 1986). The research literature also indicates that socially anxious people are self-critical and hold themselves in low regard, behaviors that are consistent with the notion of introjecting a critical other (e.g., Cheek & Melchior, 1990; Glass, Merluzzi, Biever, & Larsen, 1982; Spence et al., 1999). The extent to which socially anxious people identify with critical others and become critical and controlling themselves has received less attention. In support of this pattern, Jones and his colleagues found that shy people reported feeling critical and nonaffectionate toward their friends (Jones & Briggs, 1984; Jones & Carpenter, 1986); Erwin, Heimberg, Schneier, and Liebowitz (2003) demonstrated that relative to nonanxious controls, patients with social phobia reported more state and trait anger, as well as a tendency to express anger when criticized or treated unfairly, or even without provocation. Wenzel (2002) found that patients with social phobia were more likely to attribute the cause of negative relationship events to some stable characteristic of their spouses, which suggested

they were negative and blaming toward their partners. Recent work by Henderson also indicated that some severely shy individuals are characterized by high levels of blaming others (see Henderson & Zimbardo, 2001). Finally, we also found that some social phobic patients respond to their therapists with irritation and disapproval (Alden & Koch, 1999). On the other hand, some studies did not find this cold, critical pattern in social phobic patients (Alden & Wallace, 1995; Rapee & Lim, 1992; Stopa & Clark, 1993), and social anxiety is typically associated with nonassertive, not controlling, behavior. Thus, at present, support for a behavioral pattern reflecting identification with critical, controlling parents is mixed and requires further study. It may be that this particular pattern of behavior characterizes relatively fewer socially anxious individuals than the more anxious and self-critical patterns. Certainly more study of the role of blame and other-directed criticism in social phobia is needed.

Summary   Overall, the behavioral patterns found in socially anxious and social phobic individuals are consistent with interpersonal proposals. Greater support was found for behavioral strategies reflecting reenactment and introjection of significant early relationships, but there are also suggestions that some socially anxious individuals may display identification with critical others. Although these patterns of contemporary behavior are similar to those found in developmental studies of the family interactions of shy children, it remains to be established whether these behaviors were actively adopted to manage early negative relationships, as suggested by interpersonal writers, or were simply the byproducts of innate anxiety or inadequate opportunities to acquire social skills.

Others' Reactions

Another key tenet of the interpersonal model is that socially anxious individuals elicit negative responses from other people. Studies of shy and socially anxious individuals suggest that this is the case. Shy individuals were rated more negatively on a variety of interpersonal dimensions (e.g., warmth, relational competence, likability) by both objective interviewers and their best friends (e.g., Gough & Thorne, 1986; Jones & Briggs, 1984). Even more persuasive are several studies indicating that shy individuals were rated as less intelligent than non-shy people by peers during initial interactions, even though there is no actual association between social anxiety and intelligence (Gough & Thorne, 1986; Paulhus & Morgan, 1997). This finding suggests the presence of a global negative halo in others' perceptions of socially anxious people.

Studies conducted in our lab found that others were less likely to desire future interactions with socially anxious as opposed to nonanxious students following brief first-meeting conversations (e.g., Meleshko & Alden, 1993; Papsdorf & Alden, 1998). The social behavior of these anxious people apparently led others to disengage from the relationship. We also attempted to identify the exact behaviors that precipitate disengagement. Anxiety-related behavior (e.g., low eye contact, anxious mannerisms) was one factor, although this behavior displayed a relatively modest negative correlation with desire for future interaction. More

significant were failing to reciprocate others' self-disclosures and self-focused, as opposed to other-focused, attention. These behaviors led others to perceive socially anxious targets as dissimilar to themselves and disinterested in them, factors that weighed heavily in their partners' decisions to disengage (Alden & Bieling, 1998; Alden & Mellings, 1999; Meleshko & Alden, 1993; Papsdorf & Alden, 1998). Other recent work indicated that children with social phobia were less likely than other children to receive positive outcomes from peers (Spence et al., 1999). Interestingly, there is reason to believe that others' negative reactions change with longer exposure to the socially anxious person. Spouses and long-term acquaintances typically rate shy people more positively than do strangers or recent acquaintances (e.g., Gough & Thorne, 1986).

The strongest support for this tenet of the interpersonal model comes from a study by Creed and Funder (1998) who used the Q-sort technique to examine how socially anxious people were perceived by their college friends. Friends' Q-sort ratings indicated that they viewed socially anxious students as, among other things, sensitive to demands, having brittle ego defenses, moody, and self-pitying. Another important contribution of the study was to examine how unacquainted students behaved during interactions with socially anxious targets. Partners of socially anxious students were rated by observers as trying to dominate the interaction, displaying irritability, and talking at rather than with them. The authors concluded that socially anxious people irritate and alienate strangers fairly rapidly.

Summary   Overall, it seems that socially anxious people evoke distinct reactions from other people, particularly in the early stages of relationship formation. Others interpret the behavior of anxious people as an expression of disinterest and dissimilarity and disengage from future contact, thereby choking off friendship development. Consistent with the interpersonal model, socially anxious people unwittingly produce the very response they fear—a lack of interest or even negative evaluation from others.

Documenting a Cyclical Pattern

To support an interpersonal model of social phobia, it must be demonstrated that these events are linked in the predicted cyclic pattern, specifically that biased perceptions produce dysfunctional behavior that, in turn, evokes negative social responses. Several studies have examined the links between these various events. In one such investigation, an experimental manipulation was used to alter subjects' appraisals of an upcoming interaction with an experimental confederate. When a critical-other schema was activated, socially anxious subjects engaged in self-protective behaviors, and these behaviors led to negative responses from their partner. In contrast, when an accepting-other schema was activated, the behavior of the socially anxious subjects did not differ from that of non-anxious controls and furthermore, their partners liked them as well as nonanxious controls (Alden & Bieling, 1998). A second study confirmed this pattern. Once again, self-protective behaviors, in particular avoidance of eye contact and lack of self-

disclosure, produced lowered desire for future interactions (Papsdorf & Alden, 1998). These studies indicate that when socially anxious individuals interpret a situation as potentially negative, they adopt behavioral strategies that unwittingly produce the very outcomes they fear and, conversely, when they interpret others' motives more positively, they display prosocial responses.

Relatedness as a Social Goal

The interpersonal model assumes that dysfunctional behavior, such as the pattern noted above, represents a maladaptive attempt to relate to others. On the face of it, social phobics do not appear to be motivated by the desire to maintain closeness, as suggested by interpersonal writers. They tend to withdraw from or avoid social contact and have fewer friends than nonanxious people. Their behavior (little eye contact, less speech, low voice volume) often appears to reflect a desire to avoid rather than maintain closeness. Is there any reason to believe that this behavioral pattern is a strategic attempt, however inept, to maintain relatedness to others? If the interpersonal model is correct, two things should be true:

(1) the behaviors of social phobic people should be strategic, that is, designed to accomplish some goal rather than the result of other factors, such as skill deficits or conditioned anxiety;
(2) the ultimate goal of this behavioral pattern should be to maintain rather than avoid closeness with others.

According to social-personality writers, social behavior is motivated by a combination of acquisitive goals, the desire to garner positive outcomes such as attention and approval, and self-protective goals, the desire to avoid negative outcomes such as criticism and rejection (e.g., Schlenker & Leary, 1982; Arkin, Lake, & Baumgardner, 1986). Because socially anxious people chronically expect negative outcomes, they are said to direct their behavior, at least initially, toward self-protection. What is notable for our purposes is that both motive systems continue to operate. Thus, social anxiety is said to involve a conflict between the desire for positive outcomes and the desire to avoid negative outcomes (Arkin, 1981). Moreover, the function of self-protective motivation is to maintain social relatedness. Self-protective concerns are said to motivate people to take steps to reduce the likelihood they will be rejected and excluded from the group, an outcome with considerable evolutionary survival value (see, for example, Leary, Tambor, Terdal, & Downs, 1995). One implication of this duality is that acquisitive goals should temper self-protective behavior and the desire to maintain closeness should be visible in the self-protective behavior of socially anxious people. Another implication is that the behavior of the socially anxious person should be flexible. If the salience of negative outcomes is reduced or the possibility of success is increased, anxious people should readily shift to acquisitive goals and prosocial behavior.

Empirical studies support some aspects of the dual motivational perspective. First, socially anxious individuals were found to subscribe to both acquisitive and protective motives. Whereas nonanxious control subjects displayed a predominance of acquisitive motivation, socially anxious and social phobic subjects displayed approximately equal amounts of both drives (Meleshko & Alden, 1993; Wallace & Alden, 1997). In addition, the relative strength of the various motivations changed in response to changes in the social situation. Social phobic patients displayed greater concern with gaining approval and less concern with avoiding disapproval when their conversational partner was friendly than when the partner was cool (Wallace & Alden, 1997; Arkin et al., 1986). Moreover, when there is a shift in goal orientation, socially anxious people readily engage in more effective social performance (Alden & Bieling, 1998; DePaulo, Epstein, & LeMay, 1990). These studies are consistent with the interpersonal notion that socially anxious people are motivated to maintain relatedness to others and when concern with disapproval is reduced, they readily direct their efforts toward doing so. However, one key aspect of the interpersonal model—that dysfunctional social behavior is an attempt to maintain closeness to significant others—has not been well studied. To establish this pattern, one would have to demonstrate that, consciously or unconsciously, the ultimate function of self-protective behavior is to maintain closeness with others. Some work provides hints that this may be the case. Socially anxious people do not always avoid or withdraw from social interactions. At times they display behaviors such as innocuous agreeableness, neutral conformity, or hovering on the periphery of social groups—strategies that allow them to remain in contact with others, while reducing the likelihood of negative outcomes (Arkin et al., 1986). Thus, it may be that the function of self-protective behaviors is to reduce the likelihood of exclusion.

Summary   All in all, the behavioral flexibility of socially anxious people suggests that their behavior represents a strategic attempt to minimize negative outcomes, rather than a skill deficit or conditioned anxiety—factors that would be expected to exert a continuous effect on behavior, not the shifting behavioral strategies found in socially anxious people. In addition, the observation that socially anxious subjects readily work to gain attention and approval once self-protective concerns are reduced suggests that their ultimate goal is to relate to others, not to avoid closeness. Together these studies provide some support for the motivational views inherent in the interpersonal perspective outlined above.

INTERPERSONAL CONTRIBUTIONS

Having determined that social anxiety and social phobia can be conceptualized from an interpersonal perspective, we must now ask whether there are any advantages in doing so. There are many similarities between the cognitive-behavioral and interpersonal perspectives. Furthermore, many of the interpersonal tenets discussed above can be explained within the cognitive-behavioral framework, even if these events are not prominent features. The interpersonal model is

complex and some elements, particularly related to internal events such as copy processes and the relational structure of the self-schema, require more scientific scrutiny. Before we consider incorporating elements of this model into cognitive-behavioral formulations, we must evaluate whether the benefits of doing so outweigh these disadvantages. A model is useful to the extent that it provides a better explanation for empirical findings than alternative theories, points to unrecognized or under-recognized phenomena, or offers new suggestions for intervention. Space does not permit a full analysis of each of the topics reviewed above; however, we will examine some of them to determine whether the interpersonal model meets these criteria.

Social Pathogenesis

Although cognitive-behavioral writers would be quick to agree that perceptual biases and dysfunctional behavior are learned responses, the interpersonal perspective more closely links social developmental experiences to current behavior and underscores the role of specific experiences in shaping the fears and behavioral patterns found in patients. Thus, an interpersonal perspective points to the importance of understanding the interpersonal histories of social phobic individuals. There is reason to believe that this understanding might be useful in treatment. First, reviewing significant interpersonal experiences can help the clinician to identify more quickly the specific interpersonal beliefs and behaviors that cause problems for individual patients. A discussion of such experiences can also be used to illustrate to patients that their social expectations were learned and are not a wholly accurate reflection of contemporary interactions. This understanding can then be used to encourage patients to look more objectively at current social events.

The interpersonal perspective also draws attention to variation in the developmental experiences of social phobic patients. When we look closely at childhood studies, we find a range of social environments: social isolation, over-controlling behavior, and parental abuse. Interestingly, those developmental dimensions were found to be largely independent (Alden, Mellings, Taylor, & Laposa, 2004). Developmental psychopathologists note that there can be multiple pathways through which psychological disorders develop, the principle of equifinality (Ollendick & Hirshfeld-Becker, 2002). Different early social environments may create different developmental trajectories to social phobia. According to interpersonal writers, these various social learning experiences should translate into different social fears and behavioral patterns. For example, one might expect that socially anxious people who had critical, abusive parents would display greater perceptual biases and distrust than those who grew up with socially isolated or shy but loving parents (see Taylor & Alden, in press). Again, this points to researchable questions. Do different learning histories translate into different symptom patterns? If so, do these differences affect the process and outcome of treatment?

At least two studies examined variability in the fundamental nature of adults' interpersonal behaviors and fears. One such study found that patients with avoidant personality disorder displayed a variety of interpersonal problem profiles as assessed by the Inventory of Interpersonal Problems-Circumplex Scales (Alden & Capreol, 1993; Alden, Wiggins, & Pincus, 1990). Some patients reported warm-submissive types of problems, such as excessive fears about hurting others' feelings and difficulties with assertiveness, whereas other patients reported cold-submissive types of problems, such as an inability to experience warm feelings toward others and uncertainty about the benefits of intimacy. Furthermore, patients with different patterns of interpersonal problems benefited from different cognitive-behavioral regimens (Alden & Capreol, 1993). Patients with warm-submissive behavior problems benefited from a behavioral regimen that focused on increasing self-disclosure and closeness to others. In contrast, avoidant patients with cold behavioral patterns responded better to a graduated exposure regimen that required them to increase their contact with other people. Apparently the warm avoidant patients were more capable or desirous of emotionally intimate relationships than were the cold avoidant patients. A second study found similar variability in the core interpersonal problems reported by group of patients with social phobia (Kachin, Newman, & Pincus, 2000). Although one must be cautious when drawing conclusions from so few studies, these results suggest that it may be useful to examine how interpersonal differences affect the clinical picture and treatment response of social phobic patients.

The Relational Self

For more than a hundred years, writers have observed that socially anxious individuals have negative self-concepts. Moreover, cognitive-behavioral theories include self-related processes such as self-focused attention and negative biases in self-related judgements. Is there anything to be gained by incorporating the somewhat cumbersome notion of the relational self in theories of social phobia?

The empirical literature suggests several advantages. First, the concept of a relational self provides a ready explanation for such findings as the automatic linkage between changes in thoughts of others and changes in mood and self-esteem (e.g., Baldwin, 1994, 1995). Our views of ourselves appear to change when we envision different interpersonal relationships. Second, relational information has been found to distinguish social anxiety from other emotional disorders. For example, both social phobic and depressed individuals have negative self-concepts and engage in dysfunctional self-related processes, such as self-focused attention and negative self-evaluation. However, social phobic individuals appear to use unique and distinctively interpersonal reference points to arrive at their negative self-judgements. For example, Strauman that found social phobia was uniquely associated with actual ought-other self discrepancies, whereas depression was associated with actual-ideal self discrepancies (e.g., Strauman, 1989, 1992). In a similar vein, Wallace and Alden (1995, 1997) found that socially

anxious and social phobic patients displayed discrepancies between their ratings of self-efficacy and perceptions of others' standards, whereas depressed individuals displayed discrepancies between self-efficacy and personal standards. The social phobics appeared to judge themselves in light of their perceptions of what others expected, whereas depressed people judged themselves in light of their personal goals. Thus, although negative self-judgements do not discriminate the two conditions, relational information does.

All in all, this work suggests that when examining self-related processes in social phobia, it is necessary to consider the interpersonal nature of the self-schema. In particular, it would be useful to further delineate how interpersonal cues alter self-perception. Following from this, it may be possible to develop techniques that evoke positive relational schema, which could then be used to enhance the effects of cognitive-behavioral strategies such as exposure.

Others' Reactions

A key tenet of the interpersonal model is that others' responses are crucial to the maintenance of social anxiety. Similar ideas have been expressed by cognitive-behavioral writers (e.g., Clark & Wells, 1995), particularly those who espouse skill-deficit theories of social phobia (e.g., Turner, Beidel, Cooley, Woody, & Messer, 1994). What then does the interpersonal model add to these ideas?

First and foremost, an interpersonal perspective underscores the importance of understanding the specific nature of the interaction between socially anxious individuals and others. Different patients may alienate others in different ways. Again, this perspective points to the need to study variability in the interpersonal patterns established between different patients and those around them.

Another interpersonal contribution is the notion of using others' responses to identify the precise behaviors and qualities that evoke rejection. Studies following this strategy indicated that two important types of behavior are failure to reciprocate others' disclosures and self-preoccupation (e.g., Alden & Mellings, 1999; Meleshko & Alden, 1993; Papsdorf & Alden, 1998). Other studies suggest that socially anxious people are better received by those who have ongoing contact with them, perhaps because exposure allows others to rule out mistaken hypotheses about socially anxious people (e.g., Jones & Carpenter, 1986; Paulhus & Morgan, 1997). Findings such as these may be useful in treatment. First, these results could help patients to establish appropriate behavioral goals. For example, this information might be used to help patients to recognize that it is more important that they display interest in others and reciprocate others' disclosures than that they give a polished social "performance". Patients might also benefit from recognizing that they will fare better if they seek out social settings that allow repeated interactions with the same people. Not only does ongoing interaction increase the patients' comfort with others, it increases the likelihood that others will come to appreciate them as well (e.g., Paulhus & Morgan, 1997).

Social Motivation

The notion of self-protective motivation is strikingly similar to the concept of safety goals included in cognitive-behavioral models. For example, Clark and Wells (1995) proposed that social phobic patients adopt behaviors designed to prevent feared outcomes, thereby increasing their sense of safety, and research by these same writers underscores the importance of reducing safety behaviors when treating social phobic patients (Wells et al., 1995). In light of these similarities, what do we gain from an interpersonal approach?

The contribution of the interpersonal model here is the explicit recognition that social phobic patients are motivated by more than the pursuit of safety—they also desire closeness with others. Moreover, they are often capable of more effective social behavior than is initially apparent. It is helpful for clinicians to keep in mind that when the salience of negative outcomes is reduced, or the likelihood of success is increased, anxious people can readily shift to acquisitive goals and prosocial behavior because they are motivated to be close to others. Cognitive-behavioral treatment often involves behavioral rehearsal with video-taped feedback designed to help patients' improve their behavioral performance. Another approach might be to use such behavioral exercises to demonstrate to patients that their behavior is effective under certain conditions. For example, one often finds that patients with social phobia are more comfortable and effective with some types of people than with others. This information can be used to illustrate to patients how social cues lead them to anticipate different responses from others and adopt different roles. Another suggestion comes from Baldwin, who proposed that therapists experiment with procedures that prime positive and negative relational schema prior to social interactions (e.g., Baldwin, 1992).

The Interpersonal Process of Treatment

The final interpersonal contribution that we will consider here is the role of interpersonal processes in treatment. Interpersonal writers underscore the fact that therapy is an interpersonal process no matter what the therapeutic orientation. The literature reviewed above points to several interesting questions about the treatment process. One question is whether the social anxiety and dysfunctional interpersonal behavior that characterize patients with social phobia disrupt their ability to collaborate with therapists and benefit from treatment. By the very nature of their anxiety, patients with social phobia are particularly likely to be sensitive to interpersonal elements of treatment. Moreover, treatment sessions combine a number of features that are problematic for these patients—an ambiguous situation, an authority figure, subtle or not so subtle pressure to talk openly about personal failures. It is easy to see how treatment could evoke the same concerns and behavioral patterns that characterize these patients' daily social encounters. Consistent with these ideas, recent work at our clinic indicated

that social phobic patients' perceptions of their relationship with their therapist predicted response to cognitive-behavioral treatment (Alden & Koch, 1999). Specifically, social phobic patients who perceived their therapist to be interested and concerned about them were more likely to complete homework assignments and to benefit from their treatment involvement than were patients for whom treatment evoked concerns about therapist disinterest. Thus, some, but not all, social phobic patients do have difficulty establishing working relationships with their therapists.

Another question is whether the interpersonal heterogeneity found in the developmental histories and social behavior of socially anxious patients affects treatment response. Several studies suggest that this might be the case. As noted earlier, Alden and Capreol (1993) found that patients with avoidant personality disorder who reported problems related to emotional detachment and hostility were less likely to benefit from treatment focused on relationship development than patients who reported "warm" types of problems, such as fear of offending or disagreement with others, which reflect a desired to maintain social connections. Erwin et al. (2003) found that social phobic patients with higher levels of trait anger were more likely to drop out of treatment and responded less well to a cognitive-behavioral regiment than non-angry patients. Finally, one study indicated that patients who reported childhood abuse by parents were more resistant to therapeutic suggestions (Alden, Taylor, Laposa, & Mellings, in press).

Together, these findings suggest that interpersonal factors affect the process and outcome of treatment and that treatment will be more effective if tailored to the specific interpersonal concerns and problems displayed by the patient. In particular, interpersonal anger, irritability, and resistance bode poorly for treatment outcome and must be recognized and addressed for treatment to be effective. All in all, it appears beneficial for therapists to be consider how interpersonal processes enter into treatment.

SUMMARY

Our review indicated that the empirical literature supports the basic tenets of an interpersonal model of social phobia. We also identified some ways in which this framework contributes to existing clinical theories by drawing attention to under-recognized events, offering a better explanation for some empirical findings, and suggesting new directions for research and treatment. In particular, this framework more explicitly recognizes interpersonal variation in developmental experiences and in the beliefs and behavioral patterns derived from those experiences. It also suggests interesting possibilities about the nature of the self-schema and about the importance of understanding others' perceptions and responses to socially anxious people. These contributions suggest that an interpersonal perspective could be used to enrich current clinical theories of social phobia.

The purpose of this volume is to draw together research from a variety of fields, including developmental, social, personality, and clinical psychology.

An over-arching advantage of the interpersonal perspective is that it provides a conceptual framework in which to integrate these various literatures because the model ties developmental experiences, self-schema, motivational goals, and current behavioral problems into a cohesive pattern. This integration not only enables cognitive-behavioral clinicians to draw on advances in child development, social cognition, and social psychology, it provides a common ground for researchers from all fields to meet and share their perspectives on social anxiety.

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Chapter 9

A Cognitive Perspective on Social Phobia

David M. Clark

The persistence of social phobia is a puzzle. Individuals with other phobias such as claustrophobia, height phobia, and small animal phobias are able to success-fully avoid most encounters with their phobic object, and it is generally thought

that this avoidance is the main reason for the persistence of their fears. In contrast, the nature of modern society is such that patients with social phobia often have to enter feared social situations. This distinction is recognized in recent versions of the *Diagnostic and Statistical Manual for Mental Disorders* (APA, 1987, 1994) where avoidance is necessary for the diagnosis of all phobias except for social phobia where it is specified that the phobia situation must be either "avoided *or* endured with intense distress" (APA, 1994, p. 417; emphasis added). Why does social phobia persist despite regular exposure to feared social situations? The present chapter provides an overview of a recent cognitive model of social phobia (Clark & Wells, 1995; Clark, 1997; Wells, 1997, 1998; Wells & Clark, 1997) that was specifically developed to explain such persistence.[1] Following a description of the model, research testing key aspects of the model is summarized, a treatment programme which aims to reverse the maintenance processes specified in the model is outlined, and preliminary evaluations of the treatment and its components are reviewed.

THE COGNITIVE MODEL

For the purpose of exposition, the model is divided into two parts. The first part concerns what happens when a social phobic enters a feared social situation. The second concerns what happens prior to entering, and after leaving a social situation.

Processing in Social Situations

Figure 9.1 illustrates the processes that Clark and Wells suggest occur when a social phobic enters a feared social situation. On the basis of early experience, patients with social phobia develop a series of assumptions about themselves and their social world. The assumptions can be divided into three categories:

- *Excessively high standards for social performance*, e.g., "I must not show any signs of weakness", "I must always sound intelligent and fluent", "I should only speak when other people pause", "I should always have something interesting to say".
- *Conditional beliefs concerning the consequences of performing in a certain way*, e.g., "If I disagree with someone, they will think I am stupid/will reject me", "If my hands shake/I blush/or show other signs of anxiety, people will think I am incompetent/odd/stupid", "If I am quiet, people will think I am boring", "If people get to know me, they won't like me".

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[1]The Clark and Wells model draws heavily on the writings of earlier theorists, especially those of Beck, Emery, and Greenberg (1985), Butler (1985), Hartman (1983), Heimberg and Barlow (1988), Leary (1983), Salkovskis (1991), Teasdale and Barnard (1993), and Trower and Gilbert (1989), but is unique in the particular synthesis it proposes. If the reader views the synthesis as worthwhile, it is because its authors benefited from "standing on the shoulders of giants".
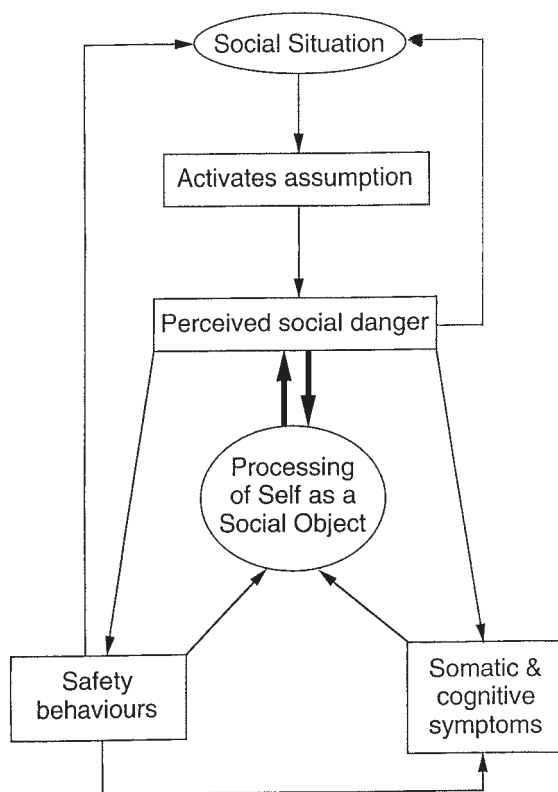
Figure 9.1   A model of the processes that occur when a social phobic enters a feared social situation (adapted from Clark & Wells, 1995)

- *Unconditional negative beliefs about the self*, e.g., "I'm odd/different", "I'm unlikeable/unacceptable", "I'm boring", "I'm stupid", "I'm different".

Such assumptions lead individuals to appraise relevant social situations as dangerous, to predict that they will fail to achieve their desired level of performance (e.g., "I'll shake, I'll make a fool of myself"), and to interpret often benign or ambiguous social cues as signs of negative evaluation by others. Once a social situation is appraised in this way, the social phobic becomes anxious. Several interlinked vicious circles then maintain the individual's distress and prevent disconfirmation of the negative beliefs and appraisals.

Processing of the Self as a Social Object

A key factor is a shift in focus of attention and a particular type of negative self-processing. When individuals with social phobia believe they are in danger of negative evaluation by others, they shift their attention to detailed monitoring and

observation of themselves. They then use the internal information made accessible by self-monitoring to infer how they appear to other people and what other people are thinking about them. In this way, they become trapped in a closed system in which most of their evidence for their fears is self-generated and disconfirmatory evidence (such as other people's responses) becomes inaccessible or is ignored.

Three types of internal information are used to generate a negative self-impression. First, feeling anxious is equated with looking anxious. This can lead to marked distortions. For example, an individual may have a strong shaky feeling and assume that others must be able to see his or her hand shaking violently, when all that can be observed by others is a mild tremor or nothing at all. Second, many patients with social phobia appear to experience spontaneously occurring images in which they see themselves as if viewed from an observer's perspective. Unfortunately, what they see in the image is not what the observer would see but rather their fears visualized. For example, an individual who was concerned that she would appear stupid if she joined in a conversation with colleagues experienced marked tension around her lips before speaking. The tension triggered an image in which she saw herself with a contorted facial expression, looking like the "village idiot". Third, more diffuse types of "felt sense" can also contribute to the negative impression of one's social self. For example, the woman with the distorted image also felt "different and apart" from the other people she was sitting close to and wanted to talk to. This "felt" sense further reinforced her perception of herself as appearing stupid and uninteresting.

Safety Behaviours

When discussing phobias in general, Salkovskis (1991, 1996) suggested that patients often fail to benefit from the non-occurrence of a feared catastrophe when they are in a phobic situation because they engage in a variety of safety-seeking behaviours that are intended to prevent or minimize the feared catastrophe. If the catastrophe then fails to occur, patients ascribe the non-occurrence to the safety behaviour rather than inferring that the situation is less dangerous than they previously thought. Clark and Wells agree that safety behaviours operate in this fashion in social phobia and highlight several additional interesting features of social phobia-related safety behaviours.

First, although termed "behaviours", many safety-seeking acts are internal mental processes. For example, patients with social phobia who are worried that what they say may not make sense and will sound stupid, often report memorizing what they have said and comparing it with what they are about to say, while speaking. If everything goes well, patients are likely to think, "it only went well because I did all the memorizing and checking; if I had just been myself people would have realized how stupid I was".

Second, because there are often many levels to social phobics' fears, it is common for patients to engage in a large number of different safety behaviours while in a feared situation. Table 9.1 illustrates this point by summarizing the

Table 9.1   Safety behaviours associated with a patient's fear of blushing

Feared outcome	Safety behaviour intended to prevent feared outcome
"My face (and neck) will go red"	Keep cool (open windows, drink cold water, avoid hot drinks, wear thin clothes). Avoid eye contact. If in a meeting, pretend to be writing notes in order to look professional. Keep topic of conversation away from "difficult" issues. Tell myself the man isn't really attractive; "He's no more than a 2 (out of 10) for attractiveness".
"If I do blush, people will notice"	Wear clothes (scarf, high collar) that would hide part of blush. Wear make-up to hide the blush. Put hands over face; hide face with long hair. Stand in a dark part of the room. Turn away.
"If people notice, they will think badly of me"	Say something to suggest an alternative explanation for red face; viz. "It's hot in here", "I'm in a terrible rush today", "I'm recovering from flu", etc.

Adapted from Clark (1999, p. 58).

safety behaviours used by a patient who had a fear of blushing, especially while talking to men whom she thought other people would think were attractive. There were three components to her fear of blushing: fearing she would blush, fearing people would notice the blush, and fearing people would evaluate her negatively because of the blush. Several safety behaviours were used to try to prevent each feared outcome.

Third, safety behaviours can create some of the symptoms that social phobics fear. For example, trying to hide underarm sweating by wearing a jacket or keeping one's arms close to one's sides, produces more sweating. Similarly, memorizing what one has been saying makes it difficult to keep track of a conversation, triggering the thought "other people will think I'm boring/stupid".

Fourth, most safety behaviours have the consequence of increasing self-focused attention and self-monitoring, thus further enhancing the salience of one's negative self-image and reducing attention to others' behaviour.

Fifth, some safety behaviours can draw other people's attention to the patient. For example, a secretary who covered her face with her arms whenever she felt she was blushing discovered that colleagues in her office were considerably more likely to look at her when she did this than when she simply blushed. Similarly, a patient who intensely disliked being the centre of attention would speak quietly when trying to make a point in a meeting. The consequence of this manoeuvre was that people had difficulty hearing what she was saying and therefore stared at her.

Finally, some safety behaviours influence other people in a way which partly confirms the social phobic's fears. For example, social phobics' tendency to continually monitor what they have said and how they think they have been received

often makes them appear distant and preoccupied. Similarly, their efforts to hide signs of anxiety and not show signs of weakness can make them appear aloof and unfriendly. Other people can interpret such behaviours as a sign that the phobic does not like them and, as a consequence, they respond to the phobic in a less warm and friendly fashion. In an observational study, Stopa and Clark (1993) confirmed that patients with social phobia can appear less outgoing and warm. Traditionally, this has been seen as a result of social skills deficits (Trower, Yardley, Bryant, & Shaw, 1978). In contrast to this point of view, Clark and Wells suggest that most social phobics have an adequate social skills capacity, and their apparent social performance deficits are simply the observable side of their safety-seeking behaviours.

Somatic and Cognitive Symptoms

Social anxiety is accompanied by marked arousal. Patients are particularly concerned about the somatic and cognitive symptoms of anxiety that they think could be observed by others (e.g., sweating, feeling hot in the face, tremor, mental blanks) and interpret them as signs of impending or actual failure to meet their desired standards of social performance. Because of the perceived significance of arousal symptoms, patients are often hypervigilant for such symptoms. This hypervigilance tends to increase the subjective intensity of the somatic and cognitive symptoms. The symptoms can also be enhanced by a variety of safety behaviours (see sweating example above).

Processing of External Social Cues

The model by Clark and Wells places particular emphasis on self-focused attention and the use of internal information to construct a distorted, negative impression of one's observable self. Overall, it is thought that social anxiety is associated with reduced processing of external social cues. However, Clark and Wells also suggest that social phobics' (reduced) processing of the external social situation is likely to be biased in a negative direction. In particular, they may be more likely to notice and remember responses from others that they interpret as signs of disapproval. Given the relative paucity of overt negative reactions in most normal social interactions, many of the cues that are noticed and remembered may be ambiguous cues that can be interpreted negatively. This phenomenon may be particularly evident in public-speaking anxiety. Perhaps as a consequence of misapplying a rule about one to one social interactions ("when listening to another person, people should show that they are following the conversation by smiling/nodding, etc.") to lecturing situations, social phobics tend to interpret the absence of positive responses (no nods, no smiles), and the presence of ambiguous responses (looking down at one's notes, breaking eye contact) in an audience as signs of disapproval, when they could equally well be signs that the presentation is stimulating and thought provoking.

Processing before and after a Social Situation

Many social phobics experience considerable anxiety when anticipating a social event. Prior to the event, they review in detail what they think might happen. As they start to think about the event, they become anxious and their thoughts tend to be dominated by recollections of past failures, by negative images of themselves during the event, and by other predictions of poor performance and rejection. Sometimes these ruminations lead the phobic to avoid the event completely. If this doesn't happen and the phobic participates in the event, he or she is likely to be already in a self-focused processing mode, expect failure, and be less likely to notice any signs of being accepted by other people.

Leaving or escaping from a social event does not necessarily bring to an immediate end the social phobic's negative thoughts and distress. There is no longer an immediate social danger and so anxiety rapidly declines. However, the nature of social interactions is such that the social phobic is unlikely to have received from others unambiguous signs of social approval, and for this reason it is not uncommon for him or her to conduct a "post-mortem" of the event. The interaction is reviewed in detail. During this review, the patient's anxious feelings and negative self-perception are likely to figure particularly prominently as they were processed in detail while the patient was in the situation, and hence would have been strongly encoded in memory. The unfortunate consequence of this is that the patient's review is likely to be dominated by his or her negative self-perception, and the interaction is likely to be seen as much more negative than it really was. This may explain why some social phobics report a sense of shame that persists for a while after the anxiety has subsided. A further aspect of the post-mortem is the retrieval of other instances of perceived social failure. The recent interaction is then added to the list of past failures, with the consequence that an interaction that may have looked entirely neutral from an outside observer's perspective will have strengthened the patient's belief in his or her social inadequacy. Finally, some relatively minor aspects of the interaction can be subsequently appraised in a negative fashion and persistently ruminated about. For example, a patient at a dinner buffet mentioned how much he liked a bread and butter pudding. Later in the evening, he heard his hostess say she disliked bread and butter pudding. Afterwards, he thought his comment revealed he was unsophisticated and worthless.

EMPIRICAL STATUS OF THE COGNITIVE MODEL

The cognitive model outlined above comprises a series of testable hypotheses. Existing studies relevant to several of the key hypotheses are reviewed below. In some instances, the studies have used an analogue design in which high and low socially anxious non-patients are compared, rather than a clinical design in which patients with social phobia are compared with non-patients or with patients with

another anxiety disorder. To avoid confusion, the effects observed in such studies are described as attributable to social anxiety rather than social phobia per se.

Hypotheses

Hypothesis 1: Social phobics interpret external social events in an excessively negative fashion   It has been suggested (Beck, Emery, & Greenberg, 1985; Clark & Beck, 1988; Clark & Wells, 1995) that at least two biases in the interpretation of external social events play a role in social phobia. First, patients with social phobia may have a tendency to interpret ambiguous social events in a negative fashion. Second, they may interpret unambiguous but mildly negative social events (e.g., mild criticism from an acquaintance) in a catastrophic fashion.

Amir, Foa, and Coles (1998) used a modification of a questionnaire originally developed by Butler and Mathews (1983) to assess interpretation of ambiguous events. Patients with generalized social phobia, patients with obsessive-compulsive disorder, and non-patient controls were presented with ambiguous social events (e.g., "someone you are dating says 'hello' to you") and ambiguous non-social events (e.g., "you receive a phone call from a clerk at your bank regarding your loan application"). After each event, three possible interpretations were presented and participants ranked the interpretations with respect their likelihood of coming into one's own mind or the mind of a "typical person" when in a similar situation. The results indicated that social phobia patients were more likely to make a negative interpretation of an ambiguous social event than either patients with obsessive-compulsive disorder or non-patient controls, and this effect only occurred in the self-relevant condition. In addition, the three groups did not differ in their interpretation of ambiguous non-social events.

Stopa and Clark (2000) confirmed and extended Amir et al.'s findings. Patients with generalized social phobia, equally anxious patients with other anxiety disorders, and non-patient controls were compared in terms of their interpretation of hypothetical ambiguous social events and mildly negative social events. For ambiguous events, patients with social phobia were more likely than both control groups to make, and believe, negative interpretations of social events but did not differ from other anxious patients in the likelihood of making, or believing, negative interpretations of non-social events. When presented with unambiguous, mildly negative events patients with social phobia were significantly more likely than both control groups to infer that the events would have catastrophic consequences.

Taken together, the questionnaire studies by Amir et al. (1998) and Stopa and Clark (2000) suggest that social phobia is associated with specific negative biases in the interpretation of self-referent social events. However, neither study assessed on-line interpretations, so it is unclear at this stage whether social phobics make the inferences identified in the studies on-line while observing external events in a social situation or whether they are more indirect inferences based on pre-existing beliefs and the contents of their negative self-impressions

(Stopa & Clark, 1993). A recent study of online processing in a text comprehension task (Hirsch & Mathews, 2000) provided data consistent with the latter possibility as non-patient controls showed a positive on-line inferential bias but social phobics failed to demonstrate positive or negative on-line emotional inferences. Further research is required to clarify this issue.

Hypothesis 2: Social phobics show enhanced self-focused attention when anxious in social situations   The hypothesis that social phobia is associated with heightened self-focused attention has a long lineage and is well supported. Fenigstein, Scheier, and Buss (1975) defined public self-consciousness as attention to aspects of the self that might be observable to others and reported a significant positive correlation between public self-consciousness and social anxiety—a finding that was replicated by Hope and Heimberg (1988). Patients with social phobia have repeatedly been shown to score higher on the public self-consciousness scale than patients with other anxiety disorders and non-patients (Bruch, Heimberg, Berger, & Collins, 1989; Bruch & Heimberg, 1994; Saboonchi, Lundh, & Öst, 1999). Mellings and Alden (2000) studied attentional focus in social situations and found that high socially anxious individuals reported higher levels of self-focused attention than low socially anxious individuals.

Within the Clark and Wells model, self-focused attention increases the social phobic's awareness of interoceptive information that is likely to be taken as a sign that one is about to fail, or has failed, to convey an acceptable impression to others. As a consequence, it increases social anxiety. Woody (1996) provided direct support for the anxiety-inducing effects of self-focused attention by showing that an experimental manipulation of self-focus increased the anxiety levels of patients with generalized social phobia during a speech task.

Hypothesis 3: Social phobics show reduced processing of external social cues when anxious   Mansell, Clark, Ehlers, and Chen (1999) used a modified dot-probe task to assess the hypothesis that social anxiety is associated with reduced processing of external social cues. Individuals scoring high and low on Fear of Negative Evaluation (FNE; Watson & Friend, 1969) were briefly presented with pairs of pictures, consisting of a face and a household object, under conditions of social-evaluative threat or no threat. As predicted, high socially anxious individuals showed an attentional bias away from faces when tested under conditions of social-evaluative threat, but not otherwise. More recently, using the same paradigm, Chen, Ehlers, Clark, and Mansell (2002) have reported that patients with social phobia also show reduced processing of faces.

Several memory studies have also provided results consistent with the diminished attention to external social cues hypothesis. If social phobics fail to attend to aspects of the external social situation, they should show reduced memory for such information. Kimble and Zehr (1982), Daly, Vangelisti, and Lawrence (1989), Hope, Heimberg, and Klein (1990) and Mellings and Alden (2000) all found that, compared to low socially anxious individuals, high socially anxious individuals had a poorer memory for details of a recent social interaction. As one

might expect from the cognitive model, Mellings and Alden (2000) also found that recall of external social information (partner details) was poorest in individuals with the highest levels of self-focused attention during the interaction.

Hypothesis 4: Social phobics generate distorted observer-perspective images of how they think they appear to others when in feared social situations   Hackmann, Surawy, and Clark (1998) used a semistructured interview to assess the frequency and characteristics of spontaneous imagery in social anxiety-provoking situations. Consistent with the hypothesis, the majority (77%) of patients with social phobia reported experiencing negative, observer-perspective images, which they thought were at least partly distorted when they subsequently reflected on them. In contrast, only 10% of non-patient controls reported such images, and their images were in general less negative. In a subsequent interview study, Hackmann, Clark, and McManus (2000) further explored the nature of social phobic imagery. Many images appeared to be recurrent, in the sense that they occurred in similar form in many different social situations. In addition, they often seemed to date back to a time close to the onset of the social phobia and to be linked to memories of criticism, humiliation, bullying and other adverse social events. These findings are consistent with the possibility that a mental image of the patient's observable, social self is laid down after early traumatic social experiences, and the image is reactivated in subsequent social encounters without being markedly updated in the light of subsequent, more positive experience. Lack of updating could partly be a consequence of the social phobic's reduced attention to external social cues.

Hypothesis 5: Social phobics use the internal information made accessible by self-focused attention to make (erroneous) inferences about how they appear to others   Five studies (McEwan & Devins, 1983; Papageorgiou & Wells, 1997; Mansell & Clark, 1999; Mulkens, de Jong, Dobbelaar, & Bögels, 1999; Mellings & Alden, 2000) have provided evidence consistent with the hypothesis that socially anxious individuals use internal information to make excessively negative inferences about how they appear to others. In the first study, McEwan and Devins (1983) found that high socially anxious individuals who reported that they generally experience intense somatic sensations in social situations overestimated how anxious they appeared to their peers. In contrast, low socially anxious individuals and high socially anxious individuals who did not experience intense somatic sensations were accurate in their estimates of anxiety visibility. In an unpublished study, Papageorgiou and Wells (1997) found that high socially anxious individuals who were led to believe their heart rate was increasing just before a social-evaluative conversation later underestimated how well they came across to their conversation partner. Low socially anxious individuals did not show this effect.

Mansell and Clark (1999) required high and low socially anxious individuals to give a speech. Immediately afterwards, participants rated the extent to which they were aware of bodily sensations during the speech and how well they

thought they appeared and performed. An independent assessor also rated participants' appearance and performance. Among high socially anxious individuals, there was a significant positive correlation between perceived bodily sensations and the extent to which the individuals overestimated negative aspects of their appearance (looking anxious, awkward, unconfident, etc.) Low socially anxious individuals did not show this effect.

Mulkens et al. (1999) required high and low fear of blushing individuals to engage in two social tasks that varied in embarrassingness. Objective measures of facial coloration and skin temperature indicated that the more embarrassing task produced more coloration but the two groups did not differ in objective coloration. However, subjective ratings indicated that the high fear of blushing group thought they had blushed more. Mulkens et al. suggest that the difference in subjective ratings between the high and low fearful groups arose because the former are likely to engage in more self-focused attention, which would enhance awareness of facial skin temperature. Finally, Mellings and Alden (2000) required high and low socially anxious individuals to have a conversation with a confederate. Compared to the judgements of an independent assessor, high socially anxious individuals overestimated the visibility of several anxiety-related behaviours and the amount of overestimation was positively correlated with self-focused attention during the interaction.

Hypothesis 6: In-situation safety seeking behaviours and self-focused attention prevent disconfirmation of social phobics' negative beliefs and maintain social phobia Wells et al. (1995) tested the hypothesis that in-situation safety behaviours play a role in maintaining social phobia by comparing one session of exposure to a feared social situation with one session of similar exposure accompanied by the intentional dropping of safety behaviours. Although the two procedures did not differ in patients' credibility ratings, exposure and the dropping of safety behaviours produced significantly greater reductions in anxiety and belief ratings for feared outcomes in a behaviour test administered before and after the intervention. Morgan and Raffle (1999) obtained essentially similar results in a longer term study in which a three-week programme of "standard" group cognitive-behaviour therapy was compared with a three-week programme in which dropping safety behaviours manoeuvres were added to the standard protocol. Patients with social phobia whose treatment included dropping safety behaviours showed significantly greater improvements on the Social Phobia and Anxiety Inventory (Turner, Beidel, Dancu, & Stanley, 1989).

Most of the safety behaviours associated with social phobia have the effect of increasing self-focused attention. Wells and Papageorgiou (1998) assessed whether self-focused attention alone can maintain social anxiety by comparing one session of exposure to a feared social situation with one session of similar exposure accompanied by external focus of attention. Consistent with the hypothesis, exposure with external focus of attention produced significantly greater reductions in patients' anxiety and belief ratings in a subsequent behaviour test.

*Hypothesis 7: In-situation safety behaviours and self-focused attention can conta-
minate social interactions by making social phobics less appealing to others*
Several studies have found that patients with social phobia and other socially
anxious individuals are less liked by conversational partners in first meeting
situations and tend to be viewed as less likeable, less sympathetic or less easy to
talk to by their friends (Alden & Wallace, 1995; Jones & Carpenter, 1986). Clark
and Wells suggest that such effects are the unfortunate and unintended con-
sequence of the safety-seeking behaviours that patients use in an attempt to
prevent feared social catastrophes (e.g., making a fool of myself, seeming stupid).
Examples of such safety behaviours include: rehearsing sentences before speak-
ing, only speaking briefly, memorizing what one has said, self-monitoring, avoid-
ing eye contact, and not talking about oneself. An alternative explanation is that
social phobics are evaluated less positively because they have a general deficit in
social skills development.

If the Clark and Wells hypothesis is correct, individuals' beliefs about whether
other people are evaluating them negatively should have a marked effect on how
they are perceived (because they will be more likely to engage in safety behav-
iours if they think they are being evaluated negatively). An elegant experiment
by Curtis and Miller (1986) demonstrated this point. Students had a conversa-
tion with another person. After the conversation, they were given false feedback,
indicating that the other person either liked or disliked them. They then had a
second conversation with the same person. At the end of this conversation, that
person was asked to rate the student. Students who were led to believe that the
other person disliked them after the first conversation were rated as less warm,
self-disclosing, and friendly after the second conversation and were less well
liked.

Alden and Bieling (1998) provided more direct support for the safety behav-
iours hypothesis in an experiment in which high and low socially anxious indi-
viduals participated in a getting-acquainted task under conditions in which they
were led to believe that the other person was particularly likely to appraise them
positively or negatively. High socially anxious individuals used more safety
behaviours and elicited more negative responses from others in the negative
appraisal condition than in the positive appraisal condition.

*Hypothesis 8: Social phobics' (reduced) processing of external social cues is biased
in favour of detection and recall of cues that could be interpreted as signs of
disapproval from others*   Three studies have reported results consistent with
this hypothesis. Veljaca and Rapee (1998) required high and low socially anxious
individuals to intentionally monitor and detect audience reactions while they
were giving a speech. Compared to low socially anxious individuals, high socially
anxious individuals were better at detecting negative audience behaviours
(yawning, looking at watch, coughing) than positive audience behaviours (leaning
forward, smiling, nodding). Gilboa-Schechtman, Foa, and Amir (1999) presented
patients with social phobia and non-patient controls with a display of 12 faces

and required them to detect the odd one out ("face-in-the-crowd paradigm"). Patients with social phobia were faster at detecting angry faces than happy faces in a neutral crowd. Non-patient controls did not show this effect. Lundh and Öst (1996) required patients with social phobia and non-patient controls to rate photographically presented faces as generally critical or accepting and shortly afterwards presented a surprise recognition test. Patients with social phobia showed a bias in favour of better recognition of faces they had categorized as critical than faces they had categorized as accepting. Non-patient controls did not show this effect.

Hypothesis 9: Social phobics engage in negatively biased anticipatory processing before entering feared social situations   Clark and Wells propose that social phobics engage in a variety of negatively biased cognitive processes in anticipation of feared social situations and that these processes increase anxiety and avoidance. One key process is selective recall of negative information about one's perceived, observable self. Mansell and Clark (1999) investigated recall of such information in an experiment in which high and low socially anxious students encoded positive and negative words in three different encoding conditions: public self-referent ("describes what someone who knows you, or who had just met you, would think of you"), private self-referent ("describes how you think about yourself") and other-referent ("describes your next door neighbour"). After encoding the words, participants were either threatened with giving a speech or not threatened. They were then asked to recall the words. Compared to low socially anxious individuals, high socially anxious individuals recalled fewer positive words and tended to recall more negative words. As predicted, this effect only occurred when individuals were anticipating giving a speech and was restricted to words encoded in terms of how they thought they would appear to other people (public self-referent condition). It therefore appears that a key aspect of anticipatory anxiety is selective retrieval of negative impressions of one's observable self.

Clark and Wells also suggest that social phobics selectively retrieve specific instances of past social failures when anticipating a stressful interaction. Hinrichsen and Clark (2003) reported a semistructured interview study that produced results consistent with this hypothesis. Compared to low socially anxious individuals, high socially anxious individuals were significantly more likely to report recalling and dwelling on past perceived social failures when anticipating a difficult social task. However, Mellings and Alden (2000) failed to observe a similar effect in an experimental study.

Hinrichsen and Clark's (2003) semistructured interview covered a wide range of possible anticipatory processes. As well as being more likely to report recalling past social failures, high socially anxious individuals were also more likely than low socially anxious individuals to: (1) dwell on ways of avoiding, or escaping from, the social situation; (2) catastrophize about what might happen in the situation; (3) engage in anticipatory safety behaviours (plan what they

will say, mentally rehearse conversations, think of ways of putting things right if one makes a fool of oneself); and (4) generate negative, distorted, observer-perspective images about how they might appear in the situation. A second, experimental, study investigated whether the cognitive processes identified in the interview study played a role in maintaining anticipatory anxiety. Prior to giving a speech, individuals either engaged in the identified processes or performed a distraction task. Engaging in the mental processes that have been shown to be characteristic of high socially anxious individuals in the interview study produced more sustained elevations of anticipatory anxiety in both high and low socially anxious individuals, and led to higher levels of peak anxiety during the speech.

Hypothesis 10: Social phobics engage in prolonged, negatively biased, post-event processing   A novel aspect of the Clark and Wells model is the proposal that patients with social phobia engage in detailed post-event processing. No studies have investigated this hypothesis in patients. However, Rachman, Grüter-Andrew, and Shafran (2000) and Mellings and Alden (2000) both reported that high socially anxious individuals engage in more prolonged post-event processing than low socially anxious individuals. Rachman et al. (2000) noted that post-event processing involves recollections of the social event that tend to be recurrent and intrusive, interfering with concentration. Post-event processing was associated with greater subsequent avoidance of similar social situations. Mellings and Alden (2000) found that frequency of post-event rumination predicted recall of negative self-related information in a memory task performed one day after a stressful social interaction. Finally, Wells, Clark, and Ahmad (1998) and Wells and Papageorgiou (1999) investigated perspective taking in imagery recall of past anxiety-provoking situations and found that, compared to low socially anxious individuals, high socially anxious individuals and patients with social phobia were more likely to take an observer perspective in images of past social situations. Unfortunately, neither of these studies assessed the content of the images, so it is not known whether they were predominantly negative and distorted, as suggested by the model.

    Taken together, these four preliminary studies suggest that post-event processing occurs and has several of the characteristics highlighted in the Clark and Wells model.

Conclusions

The studies reviewed above provide encouraging support for most of the hypotheses embedded within the Clark and Wells model. However, for some of the hypotheses only analogue studies have so far been reported, and it will be necessary to confirm their findings in studies with patients. In addition, several key aspects of the hypotheses remain to be assessed and the true causal status of several processes needs to be demonstrated by experimental manipulation of the relevant process.

A THEORY DERIVED COGNITIVE TREATMENT

Historically, some of the most effective cognitive-behavioural treatments for anxiety disorders have been developed by identifying the processes that normally prevent cognitive change and devising efficient procedures for reversing those maintaining processes (see Clark, 1997, 1999). With this in mind, Clark, Wells, and colleagues have devised a specialized cognitive treatment for social phobia which aims to reverse the maintaining processes specified in the model. As the model places particular emphasis on self-focused attention, negative self-processing, and safety behaviours, the treatment particularly emphasizes ways of reversing these features in order to reconfigure social phobics processing strategies in a way which will maximize opportunities for disconfirming negative beliefs by direct observation of the social situation, rather than oneself. A brief overview of the procedures is given below. Further expositions of the treatment can be found in Clark and Wells (1995), Wells and Clark (1997), Clark (1997), and Wells (1997, 1998).

Therapeutic Relationship

Social phobics pose particular problems for the therapeutic relationship. Therapy is itself a social interaction. For this reason, in the early stages of treatment patients may behave in therapy sessions in ways that are similar to how they behave in other feared social situations. First, they may employ fear-driven self-presentation manoeuvres (safety behaviours) that have the consequence of making them appear aloof, uninterested, or dismissive. It is important that therapists do not take offence or personalize these behaviours. Once patients start to make progress in therapy, their self-presentation can change dramatically and more open, relaxed individuals emerge. Second, some common therapist behaviours (leaning forward in one's chair, looking empathetically into patients' eyes when they appear anxious) can increase patients' self-consciousness, exacerbate mental blanks, and enhance their anxiety levels. For this reason, such manoeuvres should be used with caution in early sessions.

Deriving an Idiosyncratic Version of the Model

Therapy invariably starts by reviewing one or more recent, prototypical episodes of social anxiety. Careful questioning is used to develop an idiosyncratic version of the cognitive model. In order to reduce the patient's self-consciousness during questioning, and to help keep therapist and patient focused on the same parts of the episode, the model is usually developed on a white board. An example is shown in Figure 9.2. First, the patient's negative thoughts concerning feared outcomes and their perceived consequences are specified. Once the feared outcomes
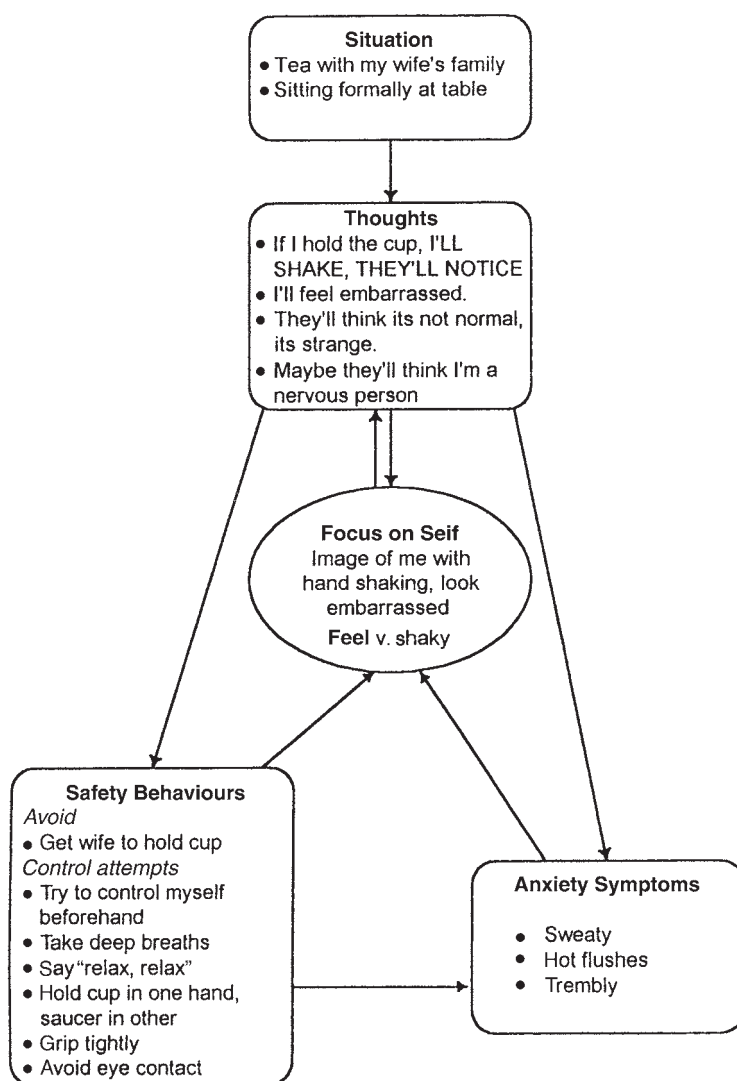
Figure 9.2   An idiosyncratic version of the cognitive model

have been identified, a comprehensive list of safety behaviours that are used to prevent different levels of outcome can be developed. Particularly useful questions include: "When you thought (specify the feared outcome) might/was happening, did you do anything to try to prevent it from happening? Did you do anything to try to prevent people from noticing?" and "Is there anything you do to try to ensure you come across well?". The shift to increased self-focused attention and the contents of patients' self-impressions are also identified. Useful ques-

tions for eliciting the self-impression include: "When you feel self-conscious, what are you aware of?", "Do you have an image of how you think you appear", "How do you feel you come across?". Typically, the self-impression contains one or more of the following elements: an observer-perspective image of how one might appear to others; awareness of anxious feelings that the patient thinks could be observable; and a felt sense of appearing different/deficient. The images often contain visible (or audible) distortions derived from interoceptive cues. For example, a warm forehead and slight sweating sensation can be transformed into a picture of rivulets of sweat running down the forehead. If the image is recurrent and seems to date from a much earlier traumatic social event, it can be helpful to clarify this point with patients in order to allow them to start to entertain the possibility that their self-impression is an excessively negative historical relic that has failed to update.

Manipulation of Self-focused Attention and Safety Behaviours

Once the patient and therapist have agreed on a working version of the cognitive model, key elements of the model are manipulated. We have found that changing focus of attention and safety behaviours is often the best way to start. During a treatment session patients are asked to role-play a feared interaction under two conditions. In one condition, they are asked to focus attention on monitoring themselves and to use all of their normal safety behaviours. In the other condition, they are asked to drop their safety behaviours and focus their attention on the other person(s) in the interaction and on what is being said. After each role-play, patients rate how anxious they felt, how anxious they thought they appeared, and how well they thought they performed. By comparing these ratings several points can be established. First, to patients' considerable surprise, their previously habitual self-focus and safety behaviours seem to be associated with feeling more anxious, not less anxious. Second, ratings of how anxious patients think they appear and how well they think they performed closely follow the ratings of how they felt, indicating that they are using their feelings and other interoceptive information to infer how they appear to others.

Video and Audio Feedback

Once it is established that patients are using interoceptive information to infer how they appear to others, the next step is to obtain realistic information about how they actually appear. We have found video feedback to be a particularly effective way of doing this and routinely show patients the video of the focus of attention/safety behaviours experiment. In principle, video feedback allows patients to see their true, observable self directly. However, in our early explorations of the technique, we noticed that it could sometimes fail with patients continuing to view their video appearance more negatively than an impartial

observer. Questioning indicated that one reason for this was that patients re-experienced feelings they had during the experiment while viewing the video. The feelings then influenced their perception in a negative direction. To resolve this problem, and to maximize perceived discrepancies between patients' self-image and the video, we now ask patients: (1) to visualize how they think they will appear before viewing the video, (2) to operationalize what their negative behaviours will look like ("How much will you shake? Please show me"; "How red is the blush? Please pick out a colour from the colour chart", etc.), and (3) to watch themselves as though they were watching a stranger, only drawing inferences from the visual and auditory information that would be available to any viewer, explicitly ignoring their feelings. With this cognitive preparation, video feedback usually helps patients to discover that they come across better than they think and, as a consequence, that their self-impression is misleading. Of course, they sometimes notice things that seem unsatisfactory as well. However, discussion often reveals that those behaviours are the consequence of a safety-seeking manoeuvre, and hence can be dropped. For example, a patient who was concerned that she would sound dysfluent and incoherent discovered that her speech was highly fluent but very slow. Questioning revealed that the slowness was an intentional strategy that could easily be dropped. Similarly, a patient who was concerned that his hand visibly shook while drinking with friends in a bar tended to turn his back to colleagues before drinking. Video feedback helped him see that the shaking was barely noticeable but the back turning looked strangely furtive.

Shift of Attention and Interrogation of the Social Environment

The next stage in therapy involves encouraging patients to shift to an external focus of attention and to drop their safety behaviours during social interactions in therapy sessions and homework assignments. The explicit rationale for this manoeuvre is that the evidence the patient normally uses to infer how he or she appears to others (i.e., the contents of their self-awareness) is inaccurate and it is necessary to focus more on the interaction and other people's responses in order to obtain a more accurate impression of how one appears.

As in other cognitive-behavioural programmes, patients are encouraged to systematically confront feared and avoided social events and tasks. However, the way exposure is conducted is rather different from the way that it is conducted in at least some of the traditional behavioural approaches. In particular, simple repetition of an exposure assignment is not considered to be helpful in itself. The guiding principle of treatment is not habituation per se, but rather a cognitive change framework in which exposure is explicitly used to test predictions the patient has about the danger in a particular situation.

Table 9.2 shows the way an exposure assignment is set up and afterwards processed in the cognitive treatment. The patient was a teacher who had difficulty joining in conversations with other teachers during coffee breaks. Ques-

Table 9.2 Record sheet for noting behavioural experiments

Date	Situation	Prediction (What exactly did you think would happen? How would you know?) (Rate belief 0–100%)	Experiment (What did you do to test the prediction?)	Outcome (What actually happened? Was the prediction correct?)	What I learned 1. Balanced view? (Rate belief 0–100%) 2. How likely is what you predicted to happen in future (Rate 0–100%)?
Mon 7/8	Coffee break. Sitting with other teachers. Trying to join in the conversation.	If I just say things as they come into my mind, they'll think I'm stupid. 50%.	Say whatever comes into my mind *and* watch them like a hawk. Don't focus on myself. This only gives me misleading information (such as images of myself as the "village idiot"), and means I can't see them.	I did it and I watched the others. One of them showed interest and we talked. She seemed to quite enjoy it.	I am probably more acceptable than I think. 70%

Reproduced from Clark (1999, p. S18).

tioning helped her to articulate the prediction: "If I just say the things that come into my mind, they will think I'm stupid." Normally she would think very carefully about all the clever things she could say and then choose one for the conversation (safety behaviour). The assignment helped her to discover that, contrary to her prediction, she was acceptable even without her frantic attempts at self-presentation.

As many social phobics have excessively high standards for social performance, it can be particularly helpful to encourage patients to behave in ways that they would consider unacceptable (given their rules) and observe others' responses. This exercise, which we have termed "widening the bandwidth" helps patients to discover that there are a wide range of acceptable ways of behaving in social situations. Such knowledge can be remarkably liberating as it means they no longer have to attempt to follow strict, and difficult to observe, rules. In order to maximize the impact of bandwidth-broadening experiments, it is important that patients specify in advance the ways in which other people would respond if the patient's predictions about the unacceptability of a particular behaviour were correct. For example, a patient who was excessively concerned about underarm sweating was encouraged to use water to dampen the armpits of his shirt before going into a shop and revealing his underarm to the shop assistant by pointing to an object on a high shelf. He predicted that the assistant would react with horror and this would be evident either by her being unable to look at his armpits (because she would be too embarrassed) or by her being unable to keep her eyes off them. Neither occurred, indicating that underarm perspiration had less significance to others than the patient had anticipated. Other common examples used to test particular rules include: introducing intentional pauses in mid-sentence or introducing um's and ah's in one's speech; intentionally shaking and spilling a drink; introducing a boring topic into a conversation, and expressing an opinion that you know others disagree with. A particular interesting feature of "widening bandwidth" exercises is that they allow patients to experientially discover many of the complexities of social interaction. For example, a patient who was afraid of boring other people often switched conversation topics. Questioning revealed that he used an internal clock to decide when to change topics. The clock seemed largely influenced by his feelings of discomfort, rather than by others' responses to the topic. As an experiment he was asked to continue with topics until the other person changed them. To his surprise he found that the slightly longer conversations that resulted were more fun and seemed more natural. In addition, he discovered that, in general, topic changing is nobody's specific responsibility. Instead, it has its own rhythm and happens fairly naturally, as long as you do not assume you are 100% responsible for it.

Surveys can be another excellent way of testing the negative predictions about what other people think of behaviours that patients are afraid of showing. For example, a social phobic who stuttered, and was concerned that other people would think she was stupid, was greatly reassured by a survey in which 15 people were asked what they thought of someone who stutters. To her surprise, nobody

thought it was a sign of stupidity and respondents provided a wide range of explanations for why someone might stutter (mind on something else, thinking faster than she can think, a speech impediment, had been criticized as a child, etc.), none of which she considered threatening. Our survey questions tend to progress from general enquiries (i.e., "Why do you think people stutter?") to patients' specific negative predictions about the meaning of particular behaviours (i.e., "Do you think stuttering means someone is stupid?"). Responses to the latter provide the clearest disconfirmation of patients' beliefs. Of course, one cannot guarantee that an isolated individual might not concur with the negative evaluation. In such instances, it is useful to ask questions such as: "Is this person's opinion more valid than everyone else's?", "Does it matter if one person disapproves?", "Is it possible to please everyone all the time?", "If you disapproved of something similar in another person, would that make them deficient or worthless?".

Throughout the interrogation of the environment stage, the standard cognitive therapy discussion techniques (such as pie charts, conditional probability inverted pyramids, and decatastrophizing: see Clark, 2000) are used to help patients to maximize the benefit obtained from the behavioural experiments. Video feedback continues to be used to provide clear information about one's observable self and to try out different ways of behaving. Imagery transformation exercises in which patients access their negative self-images and transform them into more realistic images based on the video feedback, surveys and other experiments are also helpful (Hackmann, 1999).

Dealing with Anticipatory and Post-event Processing

The negatively biased pre- and post-event processing that is so characteristic of social phobia is also targeted in treatment. First, patients are helped to identify particular ways in which they think and behave before and after feared social events. The advantages and disadvantages of their anticipatory and post-event processing are discussed in detail, with the aim of establishing that the disadvantages predominate. The patient is then encouraged to experiment with banning these activities. Of course, sometimes patients indicate that they think preparation before an event is helpful. For formal presentations, this may well be true. However, most patients over-prepare and as a consequence find themselves trying to follow an exceptionally rigid script. To determine whether this is the case, behavioural experiments in which the amount of preparation is substantially reduced are used. Asking patients in a therapy session to speak off the cuff immediately after being given a topic such as "The advantages and disadvantages of the death penalty" or "Has Blair/Clinton been a good prime minister/president?" can be a particularly good way of doing this. For patients who initially find it difficult to ban their "post-mortems", shifting to a field perspective in the post-mortem, specifically focusing on information that may be inconsistent with their negative self-image and imaging themselves as they have appeared on therapy videos can be a helpful intermediate step.

Dealing with Assumptions

Excessively high standards of social behaviour and conditional assumptions about the consequences of behaving/appearing in a particular way are best dealt with by the bandwidth exercises and other behavioural experiments already outlined. Such manoeuvres often also change unconditional assumptions such as "I am weird/unlikeable". However, for some people these assumptions require additional cognitive manoeuvres, many of which were originally devised for the treatment of depression (Beck, Shaw, Rush, & Emery, 1979; Burns, 1980; Beck, 1995) or low self-esteem (Fennell, 1999).

Many negative self-beliefs are vague and poorly defined, and this is one reason why they persist. With this point in mind, it is often useful to start by asking patients to operationalize their negative self-belief before looking for evidence for and against it. For example, when challenging a belief such as, "I am weird" or "I am unlikeable", the therapist would start by asking the patient to list all the observable characteristics that could indicate that someone is unlikeable/weird and the converse. Once a full range of characteristics has been elicited, patients are encouraged to rate themselves and other people they know in terms of the extent to which they have each characteristic. Often, this helps patients see that they are not uniquely worse than others on the negative characteristics and they have many signs of being respected/likeable.

Of course, patients are prone to discount information that contradicts their negative self-beliefs. A particularly good way of circumventing this problem is Christine Padesky's Prejudice Model in which patients are asked to consider their negative beliefs as prejudices against themselves that are maintained by biases that are similar to those involved in the maintenance of other common prejudices (e.g., racial and sexual prejudices). Examples of such biases include: discounting, viewing as an exception, and ignoring evidence that is inconsistent with the prejudice. To help patients overcome such biases with respect to themselves, they are encouraged to keep a positive data log in which any event that *could* be seen as contradicting their negative self-belief is recorded. This technique can lead to a rapid accumulation of contrary data. Identifying early events and images that might explain how a negative self-belief arose can also be helpful, as are continua techniques for breaking down "all or nothing thinking". Finally, it is important for therapists to remember, and help patients to discover, that occasional negative responses from other people may have been triggered by the patient's safety behaviours, rather than being an indication that the other people view the patient as intrinsically unlikeable/unacceptable.

EFFECTIVENESS OF THE COGNITIVE TREATMENT

In order to obtain a preliminary estimate of the effectiveness of our theory-derived cognitive therapy programme, 15 consecutively referred patients with social phobia were given up to 16 sessions of the treatment (Clark, 1999). The

overall improvement was substantial. For example on the Fear of Negative Evaluation Scale (Watson & Friend, 1969), there was a mean improvement of 11 points at post-treatment and 15 points at follow-up, with pre-post effect sizes being 2.7 and 3.7 respectively. Following these initial, promising results a randomised control trial (Clark et al., 2003) compared the cognitive therapy programme with fluoxetine (a selective serotonin reuptake inhibitor) in patients with generalized social phobia. While both treatments were associated with substantial improvement, cognitive therapy was significantly more effective. Pre-post treatment effects were 2.14 for cognitive therapy and 0.92 for fluoxetine. Our cognitive therapy programme was developed as an individual treatment. Many other cognitive-behavioural treatments are delivered in group format. To determine whether group format may be more, or less, helpful, Stangier et al. (2003) developed a group version of the treatment and compared it with individual treatment. On several, but not all, measures of social phobia, individual treatment was more effective. This suggests that group delivery may diminish the effectiveness of the cognitive therapy programme.

Another factor that may influence overall effectiveness is the extent to which the treatment makes extensive use of behavioural experiments to test patients' false beliefs. Behavioural experiments were used extensively throughout therapy in the Clark (1999) and Clark et al. (2003) studies. By contrast, behavioural experiments were mainly confined to the first half of the therapy in the Stangier et al. (2003) trial and the pre-post treatment effect size for individual cognitive therapy is somewhat lower. Therapy experiments have provided further clues to the procedures that might possibly contribute to the effectiveness of the therapy programme. Wells et al. (1995) showed that dropping safety behaviours when in feared situations enhances belief change and subsequent anxiety reduction. Wells and Papageorgiou (1998) showed that shifting to an external focus of attention has a similar effect. Finally, Harvey, Clark, Ehlers and Rapee (2000) found that video feedback is more effective in correcting distorted self-impressions if preceded by the cognitive preparation outlined above.

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Chapter 10

Social Anxiety, Social Phobia, and Avoidant Personality

Thomas A. Widiger

My intention for this chapter is to discuss social anxiousness from the perspective of personality disorder research and theory. I begin with a presentation of the conceptual and empirical support for the general model of personality functioning within which personality disorders will be understood, the Five-Factor Model. I then describe the personality disorder that would be diagnosed in persons with a maladaptive variant of this social anxiousness, the avoidant personality disorder. Following this, I discuss the differentiation of avoidant personality disorder from social phobia, an alternative diagnosis for social anxiousness. Finally, I consider the equally problematic differentiation of normal and abnormal social anxiousness.

FIVE-FACTOR MODEL OF PERSONALITY

Personality is defined traditionally as "the dynamic organization within the individual of those psychophysical systems that determine his characteristic behavior and thought" (Allport, 1961, p. 28). Personality is the way one typically behaves, thinks, and feels. Any particular individual's personality will include a constellation of related and often interacting personality traits. No single term or trait dimension will provide an adequate description of the complex constellation of traits that would fully characterize any particular individual's personality (Widiger, 1993). There are literally thousands of trait terms available within the English language for describing the personalities of oneself and others (Goldberg, 1982).

Faced with this overwhelming complexity, researchers have been devoted to the development of a descriptive taxonomy of personality that would be able to summarize, characterize, and differentiate the most important traits (Digman, 1990). One such model is the Five-Factor Model (FFM) or the Big Five (Costa & McCrae, 1992, 1998; Goldberg, 1990, 1993; Saucier & Goldberg, 1996). The FFM is based on the compelling theory that the most important personality traits will have been encoded within the language (Goldberg, 1982, 1993). Systematic, objective, and comprehensive studies of the encoded language have repeatedly identified five broad domains of personality functioning, identified as neuroticism (ego strength, emotional stability, or negative affectivity), extraversion (surgency or positive affectivity), openness to experience (or unconventionality), agreeableness, and conscientiousness (or constraint) (Digman, 1990). Alternative names for each of these five broad domains are provided parenthetically because, not surprisingly, it is difficult to agree on one word that would adequately represent an entire domain (John & Srivastava, 1999).

Each of the five broad domains can be differentiated into more specific variants or facets. The research of Costa and McCrae (1992, 1995) has been particularly successful in identifying and validating six facets within each domain. For example, the domain of neuroticism can be differentiated into six facets, including anxiousness (e.g., nervous, anxious versus unconcerned, relaxed, cool), angry hostility (e.g., bitter, angry versus even-tempered), depressiveness (e.g., glum, despondent, hopeless, or pessimistic versus optimistic, hopeful), self-consciousness (e.g., timid, embarrassed versus self-assured, glib, shameless), impulsiveness (e.g., tempted, reckless versus controlled, restrained), and vulnerability (e.g., fragile, helpless vs stalwart, brave, fearless).

There is substantial empirical support for the construct validity of the FFM. For example, the five-factor structure has been replicated across a variety of self, peer, and spouse ratings (Costa & McCrae, 1992). Fundamental to the validity of a theory of personality would be a demonstration of temporal stability, and this research has also been compelling (Costa & McCrae, 1994). For example, Costa and McCrae (1988) reported test–retest assessments of the domains of the FFM across a period of years. Six-year test–retest correlations of self-ratings ranged from 0.82 (extraversion) to 0.83 (neuroticism); Seven-year test–retest correla-

tions of peer descriptions ranged from 0.63 to 0.81; and six-year test–retest spouse ratings ranged from 0.77 to 0.80 (Costa & McCrae, 1994). For the individual facets of anxiousness and gregariousness (the facets most relevant to persons described as socially anxious) six-year test–retest correlations of self-ratings were 0.78 and 0.92, respectively, and spouse ratings were 0.75 and 0.73, respectively (Costa & McCrae, 1988). It is also notable that a person's self-rating of anxiousness correlated 0.47 with the spouse's rating of that person's level of anxiousness six years later (0.52 for gregariousness). If one adjusts these correlations for attenuation due to the unreliability of the measure itself (which underestimates the actual temporal stability of anxiousness and gregariousness), stability coefficients usually exceed 0.90 (Costa & McCrae, 1994).

The five fundamental domains of personality have also been identified across the life span, including within children (Halverson, Kohnstamm, & Martin, 1994), adults (Digman, 1990), and the aging (Costa & McCrae, 1994). Fundamental dimensions of personality structure are likely to have a significant degree of heritability, and there has indeed been compelling empirical support for the heritability of the domains and facets of the FFM. The most heavily researched factors have been neuroticism and extraversion (Eaves, Eysenck, & Martin, 1989), the two domains that would be central to an understanding of social anxiety. Using the results of five large twin studies across five different countries (total sample size of 24,000 twin pairs), the average correlations for identical twins and fraternal twins were reported as 0.46 and 0.20 for neuroticism (respectively) and 0.51 and 0.18 for extraversion (respectively) (Loehlin, 1992). The heritability of neuroticism is typically estimated to be approximately 50%; and 60% for extraversion (Plomin & Caspi, 1999). Jang, McCrae, Angleitner, Reimann, and Livesley (1998) examined the heritability of the domains and facets of the FFM using twin data obtained from Germany and Canada. "The results showed that genetic and environmental effects on personality traits were essentially the same in form and magnitude in Germany and Canada" (Jang et al., 1998, p. 1563). Equally important, their findings provided "strong support for hierarchical models of personality that posit a large number of narrow traits as well as a few broader trait factors" (Jang et al., 1998, p. 1563). Anxiousness, as a facet of the broad domain of neuroticism, obtained a correlation between monozygotic twins of 0.32 and 0.46 in the Canadian and German samples, respectively, compared to 0.21 and 0.13 for dizygotic twins. Gregariousness, a facet of extraversion, obtained comparable results of 0.53 and 0.40 for monozygotic twins compared to 0.35 and 0.21 for dizygotic. Heritability estimates for neuroticism and extraversion were 49% and 50%, respectively; for the facets of anxiousness and gregariousness they were 41% and 40%, respectively.

It would not be surprising to find some variation across cultures in the content, emphasis, or structure of trait terms, yet there has been a compelling degree of replication of the FFM across a wide variety of languages, including Dutch, German, Chinese, Czech, Filipino, Hebrew, Hungarian, Italian, Polish, Russian, and Turkish (John & Srivastava, 1999). For example, McCrae and Costa (1997) reported the results of a comparison of the factor structure of the FFM across German, Portuguese, Hebrew, Chinese, Korean, and Japanese languages (*N* =

7,134). The FFM structure was closely reproduced, even at the level of the facets within each domain. "Because the samples studied represented highly diverse cultures with languages from five distinct language families, these data strongly suggest that personality trait structure is universal" (McCrae & Costa, 1997, p. 509). The domain with the weakest replication has been, not surprisingly, openness to experience, as this was the last and smallest domain to be extracted from the analyses of the English language (Goldberg, 1982, 1990). Based on a review of the extensive cross-cultural research, De Raad, Perugini, Hrebickova, and Szarota (1998) concluded that the findings supported "the general contours of the Big Five model as the best working hypothesis of an omnipresent trait structure" (p. 214).

"One of the apparent strengths of the Big Five taxonomy is that it can capture, at a broad level of abstraction, the commonalities among most of the existing systems of personality traits, thus providing an integrative descriptive model for research" (John & Srivastava, 1999, p. 122). Wiggins (1968) stated in his seminal review of personality research some 30 years ago that "if consensus exists within the realm of temperament structure, it does so with respect to the importance of the large, ubiquitous, and almost unavoidable dimensions of extraversion and anxiety (neuroticism)" (p. 309), the two domains of central importance to an understanding of social anxiousness. He concurred again with this conclusion in his more recent review, although adding to this list the additional three domains of agreeableness, openness, and conscientiousness (Wiggins & Pincus, 1992). Costa, McCrae, and their colleagues have been particularly successful in documenting empirically the predominance of neuroticism, extroversion (versus introversion), agreeableness, openness, and conscientiousness in almost every instrument for the assessment of personality. A detailed summary of this extensive research is provided by Costa and McCrae (1992), Digman (1990), and John and Srivastava (1999).

AVOIDANT PERSONALITY DISORDER

"When personality traits are inflexible and maladaptive and cause significant functional impairment or subjective distress . . . they constitute Personality Disorders" (APA, 1994, p. 630). One of the personality disorders included within the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; APA, 1994) is the avoidant personality disorder, the diagnostic criteria for which are provided in Table 10.1.

Avoidant personality disorder is defined in DSM-IV as "a pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation, beginning by early adulthood and present in a variety of contexts" (APA, 1994, p. 164). It occurs with equal frequency in males and females (Corbitt & Widiger, 1995) and is one of the more frequently diagnosed personality disorders, occurring in as many as 20–25% of the patients within some clinical settings (Weissman, 1993). Its prevalence is not particularly surprising, as timidity, shyness, and social insecu-

Table 10.1 DSM-IV criteria for avoidant personality disorder

[Table not available in this electronic edition.]

rity are not uncommon problems, and are often the basis for persons seeking clinical treatment. Less than 2% of the general population, however, is likely to meet the DSM-IV criteria for its diagnosis (Widiger & Sanderson, 1997).

Persons with avoidant personality disorder will be shy, timid, insecure, and anxious as children (Rothbart & Ahadi, 1994). Adolescence will be a particularly difficult time for persons with this disorder, given the importance during this developmental period of interpersonal popularity, attractiveness, and dating (Bernstein, Cohen, & Velez, 1993). Occupational success as an adult may not be significantly impaired, as long as there is little demand on the job for public performance. Persons with an avoidant personality disorder can in fact find considerable gratification and esteem through a job or career that they are unable to find within their relationships. The job may also serve as a distraction from intense feelings of loneliness (Widiger & Sanderson, 1997).

Their long history of avoiding social situations, however, will have impaired their ability to develop adequate social skills, and will further handicap any eventual efforts to develop relationships (Pilkonis, 1984). They will have a strong desire to develop close personal relationships, but they will feel too insecure to approach others, spending much of their time feeling lonely, isolated, and alone (Millon et al., 1996; Widiger & Sanderson, 1997). They may eventually develop an intimate relationship, to which they will cling with intense dependency. Knowing how difficult it was to obtain this relationship, they may hold onto to it with a desperation and intense fear of being alone once again. As parents, they can be very responsible, empathic, and affectionate toward their children, but they may also impart feelings of social anxiousness and serve as a role model for social awkwardness (along with passing on a genetic disposition toward anxiousness and introversion).

Persons with an avoidant personality disorder are also prone to mood and anxiety disorders, particularly depression and social phobia (Widiger &

Sanderson, 1997). They will often seek treatment for an anxiety disorder but are perhaps prone to developing a psychological (if not physiological) dependence on anxiolytics (Millon et al., 1996). The severity of the avoidant symptomatology will diminish as the person becomes older, due in part to a gradual reduction in peripheral sympathetic activity and adrenocortical responsiveness, as well as the repeated corrective environmental (interpersonal) experiences that will typically occur throughout adulthood.

Widiger, Trull, Clarkin, Sanderson, and Costa (1994) provided a description of each of the DSM-III-R personality disorders from the perspective of the FFM. Avoidant personality disorder was among the most readily understood as a maladaptive variant of the fundamental and common personality traits of neuroticism and introversion. Their description is still applicable:

> From the perspective of the five-factor model, avoidant personality disorder involves (a) introversion, particularly the facets of low gregariousness (no close friends, avoids significant interpersonal contact, and unwilling to get involved with others; APA, 1987); low excitement seeking (exaggerates potential dangers, difficulties, or risks in doing anything outside of normal routine); low activity (avoidance of social and occupational activities, and canceling of social plans); and low assertiveness (not represented within in the DSM-III-R criteria but present within the clinical literature; Millon, 1981; Pilkonis, 1984); and (b) neuroticism, particularly the facets of vulnerability, self-consciousness, and anxiety (e.g., easily hurt by criticism and disapproval, reticent in social situations because of fear of saying something foolish, fears being embarrassed, and afraid of not being liked).
>
>   (Widiger et al., 1994, p. 49)

Widiger et al.'s conceptualization of avoidant personality disorder has been examined in 13 independent studies, some of which included multiple tests of the hypotheses. The findings from these studies are summarized in Table 10.2. It is evident from this research that there is compelling empirical support for this personological interpretation of avoidant personality disorder. The research is supportive with respect to both convergent and discriminant validity. Avoidant personality traits, assessed by a variety of methods, are consistently and often highly correlated with the broad domains of personality identified as neuroticism and extraversion, but are rarely correlated with any of the other domains of personality. Similar patterns of findings have been obtained in clinical, community, and college populations, again consistent with the hypothesis that the symptomatology of avoidant personality disorder is a maladaptive variant of common personality traits (Livesley, 1998). There are a few exceptions to the expected findings, but these exceptions are notable precisely because they are so inconsistent with the findings that are usually obtained.

Many of the studies have also conducted multiple regression or canonical variate analyses to assess whether neuroticism and extraversion provide specific contributions to explaining avoidant personality disorder symptomatology, and in each instance the predictions were confirmed (i.e., Coolidge et al., 1994; Ramanaiah & Sharpe, 1998; Trull, Widiger, & Burr, 2001; Wiggins & Pincus, 1989).

Table 10.2 Correlations of avoidant personality disorder with domains of the FFM

Study	Sample	Measures		N	E	O	A	C
		APD	FFM					
Wiggins & Pincus (1989)	550 stdts	MMPI	NEOPI	0.64***	−0.58***	−0.13*	−0.06	−0.13*
Costa & McCrae (1990)	274 comm	MMPI	NEOPI	0.52***	−0.54***	−0.03	−0.02	−0.02
Costa & McCrae (1990)	207 comm	MCMI-I	NEOPI	0.44***	−0.53***	−0.11	0.03	−0.07
Costa & McCrae (1990)	62 comm	MCMI-II	NEOPI	0.36**	−0.32**	−0.11	0.05	0.03
Trull (1992)	54 pts	MMPI	NEOPI	0.55***	−0.63***	−0.27*	−0.16	−0.19
Trull (1992)	54 pts	PDQR	NEOPI	0.36**	−0.39**	−0.20	−0.20	−0.21
Trull (1992)	54 pts	SIDPR	NEOPI	0.25	−0.36**	−0.15	−0.19	0.03
Soldz et al. (1993)	102 pts	MCMI-II	50-BSRS	0.54***	−0.59***	−0.30**	−0.23*	−0.08
Soldz et al. (1993)	102 pts	PDE	50-BSRS	0.23*	−0.57***	−0.39**	−0.17	0.03
West (1993)	457 stdts	MMPI	NEOPI	0.50***	−0.51***	−0.15	−0.12	−0.06
West (1993)	457 stdts	PDQR	NEOPI	0.43***	−0.41***	−0.15	−0.19	0.03
Yeung et al. (1993)	224 comm	SIDP	NEOFFI	0.27***	−0.13	−0.12	0.01	−0.16*
Coolidge et al. (1994)	233 stdts	CATI	NEOPI	0.58***	−0.66***	−0.07	−0.16*	−0.10
Hyer et al. (1994)	80 pts	MCMI-II	NEOPI	0.23*	−0.29**	−0.25*	−0.14	−0.01
Duijsens & Diekstra (1996)	450 comm	VKP	23BB5	0.43***	−0.39***	−0.03	−0.41***	0.02
Duijsens et al. (1995)	210 comm	VKP	5PFT	0.42***	−0.26***	−0.19**	−0.18**	0.03
Ball et al. (1997)	363 pts	SCID-II	NEOFFI	0.45***	−0.33***	0.04	−0.09	−0.20***
Blais (1997)	100 pts	Clinician	Adjectives	0.46***	−0.49***	0.06	0.06	0.13
Dyce & O'Connor (1998)	614 stdts	MCMI-III	NEOPIR	0.63***	−0.48***	−0.12	−0.11	−0.22**
Trull et al. (2001)	232 mixed	PDQR	SIFFM	0.66***	−0.65***	0.14	0.02	−0.26**

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Notes: APD = avoidant personality disorder; FFM = Five-Factor Model; N = neuroticism; E = extraversion; O = openness; A = agreeableness; C = conscientiousness; stdts = students; comm = community; pts = patients; MMPI = Minnesota Multiphasic Personality Inventory; MCMI = Millon Clinical Multiaxial Inventory; PDQR = Personality Diagnostic Questionnaire–Revised; SIDPR = Structured Interview for Personality Disorders–Revised; PDE = Personality Disorder Examination; CATI = Coolidge Axis II Inventory; VKP = Vragenlijst voor Kenmerken van de Persoonlijkheid; SCID-II = Structured Clinical Interview for DSM-IV Personality Disorders; Clinician = ratings by unstructured clinical interviews; NEOPIR = NEO Personality Inventory Revised; 50-BSRS = 50-Bipolar Self-Rating Scale; NEOFFI = NEO Five-Factor Inventory; 23BB5 = 23 Bipolar Big Five Questionnaire; 5PFT = Five Personality Factor Test; SIFFM = Structured Interview for the Five-Factor Model.

Only a couple of the FFM studies have assessed the relationship of avoidant symptomatology with facets of neuroticism and extraversion, but they have confirmed the expectations. For example, Dyce and O'Connor (1998) reported correlations of 0.49, 0.62, and 0.46 (respectively) with the neuroticism facets of anxiousness, self-consciousness, and vulnerability ($p < 0.001$) and correlations of -0.37, -0.29, and -0.24 with the extraversion facets of gregariousness, activity, and excitement-seeking ($p < 0.01$). Trull et al. (2001) reported correlations of 0.43, 0.70, and 0.56 (respectively) with the neuroticism facets of anxiousness, self-consciousness, and vulnerability ($p < 0.001$) and -0.33, -0.45, and -0.40 with the extraversion facets of gregariousness, activity, and excitement-seeking ($p < 0.001$).

In sum, the research on the association of avoidant personality disorder symptomatology with the domains and facets of the FFM support not only the specific predictions of Widiger et al. (1994) but also provide construct validity for the diagnosis of avoidant personality disorder. Avoidant personality disorder is the presence of extreme elevations on neuroticism and extraversion, two of the most heavily researched and well-established domains of personality functioning. All in all, the personality traits of neuroticism and extraversion have compelling convergent and discriminant validity, temporal stability, heritability, and cross-cultural application (Costa & McCrae, 1998; John & Srivastava, 1999), and persons with the highest elevations on neuroticism and introversion will display the symptomatology of an avoidant personality disorder.

BOUNDARIES OF SOCIAL ANXIOUSNESS

"DSM-IV is a categorical classification that divides mental disorders into types based on criterion sets with defining features" (APA, 1994, p. xxii). The boundaries among these diagnostic categories, however, have been difficult to define and demarcate. Two diagnostic boundaries of particular relevance to social anxiousness are the boundary between social phobia and avoidant personality disorder and the boundary of both of these conditions with normal social anxiousness. Each will be discussed in turn.

Social Phobia versus Avoidant Personality Disorder

Social phobia is an anxiety disorder that involves "a marked and persistent fear of social or performance situations in which embarrassment may occur" (APA, 1994, p. 411). The person fears that he or she will act in a way that will be embarrassing or humiliating. Avoidant personality disorder is a "pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation" (APA, 1994, p. 364). These brief descriptions clearly suggest substantial overlap, and it is indeed the case that persons who meet the diagnostic criteria

for one of them will often meet the criteria for the other (Millon et al., 1996; Widiger & Sanderson, 1997).

DSM-III

Avoidant personality disorder and social phobia were both new additions to the third edition of the APA (1980) diagnostic manual. Their original criteria sets were relatively different from one another. For example, consistent with the traditional concept of a phobia (APA, 1994), social phobia was conceptualized as being quite circumscribed in its presentation. Social phobic fears of embarrassment or humiliation arising from interactions with others would be seen in persons with an avoidant personality disorder, but in the case of a social phobia "a specific situation, such as public speaking, is avoided rather than personal relationships" (APA, 1980, p. 324). The four most common situations avoided by persons with a social phobia were specified: "speaking or performing in public, using public lavatories, eating in public, and writing in the presence of others" (APA, 1980, p. 227). In fact, it was noted further that most persons with a social phobia were usually fearful of just one of these four situations: "Generally, an individual has only one Social Phobia" (APA, 1980, p. 227).

DSM-III even excluded the possibility of diagnosing a social phobia if the person met the criteria for an avoidant personality disorder (APA, 1980). This exclusion was consistent with a number of principles guiding the construction of the diagnostic manual (First, Spitzer, & Williams, 1990). "A symptomatically more pervasive disorder preempts the diagnosis of a less pervasive disorder that is based on a symptom that is part of the essential features of the more pervasive disorder" (Spitzer & Williams, 1987, p. 431). In addition, "a diagnosis is not given if its essential features are typically associated features of another disorder whose essential features are also present" (Spitzer & Williams, 1987, p. 431). In the case of social phobia and avoidant personality disorder, it was apparent that avoidant personality disorder is a more pervasive disorder than social phobia and its essential features are readily subsumed by or understood in terms of avoidant personality traits.

DSM-III-R

After the publication of DSM-III, however, it became apparent to anxiety disorder specialists that the phobic behavior of many of their patients failed to be as circumscribed as was required for the diagnosis of social phobia. The statement in DSM-III that "generally an individual has only one Social Phobia" (APA, 1980, p. 227) proved to be quite inaccurate. Many of the persons who sought treatment from anxiety disorder specialists had much more generalized and pervasive patterns of social inhibition (Spitzer & Williams, 1985). Many of them would have met the DSM-III criteria for an avoidant personality disorder, but they would seek treatment from anxiety disorder clinics because their social phobic symptomatology was often their prominent or immediate concern (Frances, 1980).

Anxiety disorder specialists, however, were reluctant to diagnose these patients with an avoidant personality disorder because this diagnosis might imply that they should not be the primary therapists for these patients, and they could provide a treatment that was shown empirically to have a significant effect on the avoidant personality disorder symptomatology (Liebowitz, 1992).

They argued for the inclusion of a new anxiety disorder diagnosis in DSM-III-R that would include the more pervasive symptomatology and would provide a diagnosis consistent with their treatment expertise (Spitzer & Williams, 1985). The authors of DSM-III-R responded to this request by eliminating the avoidant personality disorder exclusion criterion and, more importantly, by including a new subtype to the diagnosis of social phobia, identified as "generalized". Generalized social phobia would be diagnosed "if the phobic situation includes most social situations" (APA, 1987, p. 243).

The inclusion of a generalized subtype, however, complicated the distinction between social phobia and avoidant personality disorder (Widiger, 1992). One potential distinction might have been the age of onset, as personality traits are generally evident since late childhood or early adolescence (APA, 1994; Halverson et al., 1994), but social phobia was also described in DSM-III-R as being chronic and usually beginning "in late childhood or early adolescence" (APA, 1987, p. 242).

As the conceptualization and diagnostic criteria for social phobia were being broadened, the diagnostic criteria for avoidant personality disorder were also being revised in a manner that would effectively subsume more instances of social phobia (Millon, 1996). The DSM-III criteria for avoidant personality disorder were based heavily on the description of the disorder developed by Millon (1981). However, the confinement of the criteria set to Millon's formulation received substantial criticism (e.g., Gunderson, 1983; Kernberg, 1984). Therefore, the DSM-III-R criteria were revised in part to include more of the features of the traditional concept of a "phobic character". "DSM-III-R includes additional features of the psychoanalytic concept of the inhibited phobic character, such as an exaggeration of the risks of everyday life and an inordinate fear of being embarrassed" (Widiger, Frances, Spitzer, & Williams, 1988, p. 790), many of which, however, would be seen in persons diagnosed with a generalized social phobia (Millon, 1996).

DSM-IV

A number of studies were conducted after the publication of DSM-III-R that explored the nature and frequency of the co-occurrence of social phobia with avoidant personality disorder, and the authors of some of these studies attempted to provide a meaningful distinction between these two disorders, such as severity of social skill deficits, level of anxiety, or degree of personal feelings of insecurity (e.g., Herbert, Hope, & Bellack, 1992; Holt, Heimberg, & Hope, 1992; Turner, Beidel, & Townsley, 1992). However, all of these distinctions have been more quantitative than qualitative. If there was any distinction, it appeared to

reflect a severity of dysfunction rather than a fundamental difference between an anxiety disorder and a personality disorder (Widiger, 1992).

An effort, however, was made during the process of developing DSM-IV to revise the criteria set for avoidant personality disorder to provide meaningful distinctions. Millon (1996) suggested that "avoidant personality disorder is essentially a problem of relating to persons; social phobia has been formulated largely as a problem of performance situations" (p. 760). More specifically, "persons with social phobia may have a multitude of satisfying social/personal relationships with others; the individual with avoidant personality disorder is socially withdrawn, has few close relationships, and desires close relationships but does not trust others sufficiently to relate closely without assurances of acceptance" (Millon, 1996, p. 760).

Millon's hypotheses, however, do appear to be based largely on expectations that were more appropriate for the description of DSM-III social phobia than for the description of DSM-III-R or DSM-IV generalized social phobia. In addition, there does not appear to be much empirical support for this distinction. Nevertheless, Millon (1991, 1996), as the primary author of the DSM-IV criteria set for avoidant personality disorder, implemented a number of revisions that were intended to facilitate a differentiation from generalized social phobia. For example, the DSM-III-R diagnostic criterion "is reticent in social situations because of a fear of saying something inappropriate or foolish, or of being unable to answer a question" (APA, 1987, p. 353) was revised to "is inhibited in new interpersonal situations because of feelings of inadequacy" (APA, 1994, p. 665). The new DSM-IV criterion is more indicative of a personality trait as it is more general in its description (e.g., inhibited rather than simply reticent; feelings of inadequacy rather than a specific fear of saying something foolish). In addition, many of the revisions emphasized a person's self-image of being inadequate, inept, unappealing, or inferior rather than referring to feelings of anxiety or fear within social situations. For example, the DSM-III-R diagnostic criterion, "fears being embarrassed by blushing, crying, or showing signs of anxiety in front of other people" (APA, 1987, p. 353) was replaced by "views self as socially inept, personally unappealing, or inferior to others" (APA, 1994, p. 665).

It is possible that these revisions will reduce the overlap and diagnostic cooccurrence with generalized social phobia, but the revisions may still fail to identify a distinct diagnostic category (Livesley, 1998). Many of the avoidant diagnostic criteria continue to refer to symptomatology that will be seen in persons with a generalized social phobia (e.g., "avoids occupational activities that involve significant interpersonal contact, because of fears of criticism, disapproval or rejection", APA, 1994, p. 664). In addition, social phobia was revised for DSM-IV in a manner that would contribute to more overlap rather than to improved differentiation. For example, added to the description of its associated features were references to most of the features that have been suggested in prior studies for differentiating avoidant personality disorder from social phobia or had been added to the DSM-IV criteria set for avoidant personality disorder to differentiate it from generalized social phobia, including "low self-esteem or feelings of

inferiority" and "poor social skills" (APA, 1994, p. 413). "In more severe cases, individuals may . . . have no friends or cling to unfulfilling relationships [and] completely refrain from dating" (APA, 1994, p. 413). The description of its course is again consistent with the description of a characteristic personality trait: "social phobia typically has an onset in the mid-teens, sometimes emerging out of a child-hood history of social inhibition or shyness . . . Duration is frequently lifelong" (APA, 1994, p. 414).

DSM-V

The diagnosis of avoidant personality disorder excluded the diagnosis of social phobia in DSM-III; some now argue that the diagnosis of generalized social phobia should exclude avoidant personality disorder in DSM-V: "We believe that the more extensive evidence for syndromal validity of social phobia, including pharmacological and cognitive-behavioral treatment efficacy, make it the more useful designation in cases of overlap with avoidant personality" (Liebowitz et al., 1998, p. 1060). The primary basis for this argument is the responsivity of persons diagnosed with avoidant personality disorder to pharmacologic treat-ments. "One may have to rethink what the personality disorder concept means in an instance where 6 weeks of phenelzine therapy begins to reverse long-standing interpersonal hypersensitivity as well as discomfort in socializing" (Liebowitz, 1992, p. 251).

Specific treatment responsivity is a compelling basis for making distinctions among diagnostic categories, but pharmacologic responsivity is not as specific as is suggested by Liebowitz (1992). The benefits of phenelzine are not in fact spe-cific to anxiety disorders, as it is itself a relatively nonspecific antidepressant (Gorman & Kent, 1999; Stahl, 1998). In addition, as Liebowitz acknowledged elsewhere, "all patients with psychiatric illness experience pathologic anxiety" (Gorman, Liebowitz, & Shear, 1992, p. 1) that will often benefit from anxiolytic treatments. It is in particular a false assumption that personality disorders are unresponsive to pharmacologic interventions (Sanislow & McGlashan, 1998). Neurochemical processes are as important in the presence and expression of per-sonality and personality disorders as they are in the presence and expression of anxiety disorders (Siever & Davis, 1991). It is not at all inconsistent with the concept of a personality trait to "begin to reverse" in the presence of sustained alterations to neurochemical functioning. Personality disorders (and, as indicated below, even normal personality traits) can be affected significantly by sustained alterations to neurochemical functioning.

Liebowitz (1992), however, fears that most clinicians do not recognize the lack of specificity of pharmacotherapy, and may in fact have false expectations regard-ing the treatment of personality disorders that will contribute to inadequate treatment decisions. "The danger . . . is that, in my experience, practitioners tend to regard [personality disorders] as amenable to psychoanalytic psychotherapy rather than pharmacotherapy or behavioral approaches" (Liebowitz, 1992, p. 251). One will indeed observe a mistaken assumption that a personality disorder

implies the presence of a psychosocial rather than a biogenetic etiology, and an intervention using an insight-oriented psychotherapy rather than a pharmacotherapy (Gunderson & Pollack, 1985). However, this inaccurate and misbegotten expectation is itself being expressed and endorsed by Liebowitz (1992), rather than by any particular practitioner. False distinctions should be discouraged and corrected, rather than endorsed, encouraged, or reified by revising the nomenclature to be consistent with them.

A more important question is whether the central or fundamental pathology of the patient being diagnosed with a generalized social phobia or an avoidant personality disorder is best understood as a disorder of anxiety or of personality, and the answer to this question is unclear. There is currently no presentation in DSM-IV to indicate what is meant by or would qualify as an anxiety disorder (an extensive discussion of what is meant by a personality disorder is provided: APA, 1994, pp. 629–634). One potential definition or requirement for classification as an anxiety disorder might be that the underlying pathology is confined largely to or is predominated by a dyscontrol or dysregulation of anxiety, the presumptive focus of the pharmacologic treatment for an anxiety disorder. If this is indeed the case, then an argument could be made for focusing or confining treatment largely on improvements in the control, moderation, or regulation of anxiety.

However, the pathology of persons with a generalized social phobia or an avoidant personality disorder might not be confined to a dysregulation in the neurochemical mechanisms of anxiety. Altering this neurochemistry to help control or minimize feelings of anxiety will be helpful to persons with an avoidant personality disorder (as the facet of anxiousness will indeed be an important component; Widiger et al., 1994), but a treatment confined to the symptoms of anxiety may not resolve or even address the full or primary source for a person's shyness, self-consciousness, social isolation, insecurity, and feelings of vulnerability (Millon et al., 1996; Widiger & Sanderson, 1997). This is perhaps why pharmacologic treatment of generalized social phobia is rarely complete or comprehensive in its effects and must often be sustained to maintain its effects (Gorman et al., 1992).

Curing persons of their social behavior after only six weeks of pharmacotherapy might be inconsistent with the concept of a personality disorder, or at least would be consistent with the presence of a specific neurochemical pathology that was treated successfully by the medication, analogous to the treatment of an infection by penicillin or a virus by an antibiotic. Once a curative medication has effectively destroyed, removed, or otherwise treated the pathology, the treatment may no longer be needed. Pharmacotherapies for mental disorders, however, are rarely effective in this manner (Gorman et al., 1992), due perhaps to the presence of a more extensive and pervasive psychopathology. Many of the features of a generalized social phobia and an avoidant personality disorder (e.g., shyness, insecurity, and inhibition) may not even reflect the neurochemical mechanisms of anxiety. Liebowitz (1992) is correct that optimal treatment of an avoidant personality disorder will often include a pharmacologic intervention,

but confining the treatment to this approach could be as (if not more) inadequate and ineffective as failing to include any pharmacotherapy.

In sum, the pathology of persons with a generalized social phobia or an avoidant personality disorder is probably more pervasive than simply a dysfunction or dysregulation of anxiety. There are prototypic cases of social phobia and avoidant personality disorder that will be easily distinguished and may even require distinct approaches to treatment. However, the boundary between social phobia and avoidant personality disorder is, at best, diffuse, particularly for the generalized variant. The treatment of generalized social phobia and avoidant personality disorder should then be informed by the models of pathology and treatment developed for both anxiety and personality disorders. Encouraging clinicians to consider a generalized social phobia or an avoidant personality disorder to represent simply a dysregulation in the control or expression of anxiousness will likely fail to give adequate recognition to the contribution of other components of personality functioning, including (but not limited to) self-consciousness, self-image, and feelings of inhibition and vulnerability (Millon et al., 1996; Pilkonis, 1984).

Normal versus Abnormal Social Anxiety

The second boundary controversy is the one with normal social anxiousness. The primary diagnostic label for the anxiety disorder that involves "a marked and persistent fear of social or performance situations in which embarrassment may occur" (APA, 1994, p. 411) is social phobia, but an alternative title is provided parenthetically as "social anxiety disorder" (APA, 1994, p. 411). A rationale for the alternative title is that the broadening of the diagnosis of social phobia into a generalized variant that begins in childhood, is characteristic of everyday functioning, is pervasive in its effects, and continues throughout adulthood, is inconsistent with the concept of a phobia, defined in DSM-IV as an "irrational fear of a *specific* object, activity, or situation" (APA, 1994, p. 770, my emphasis). A phobia is by definition specific, yet it is now also subtyped as generalized. The DSM-IV Anxiety Disorders Work Group therefore proposed changing the name from social phobia disorder to social anxiety disorder (Liebowitz, 1992).

The title change was also encouraged by the pharmaceutical industry in order to facilitate a wider consideration of anxiolytics by the general public. Many persons will experience themselves as having significant feelings of social anxiety, but few of them would go so far as describing themselves as being socially phobic. Altering the name of the disorder from social phobia to social anxiety would facilitate a broader application of the diagnosis, and may indeed be more consistent with how the diagnosis is in fact used in general clinical practice.

On the other hand, broadening the diagnosis of social phobia does underscore the question of how to distinguish the boundary between normal versus abnormal social anxiety. Two issues that have been considered in making this distinc-

tion are responsivity to treatment and level of impairment. The merits of using each of these as a criterion of demarcation will be discussed.

Responsivity to Treatment

The apparent responsivity of anxiety symptomatology to pharmacologic treatment does indicate that persons with any level of social anxiousness can benefit from clinical treatment. However, responsivity to treatment does not necessarily indicate the presence of psychopathology. Responsivity to pharmacologic agents has often been used as an indicator for the presence of a neurochemical pathology (e.g., Klein, 1999; Liebowitz, 1992) but this assumption can be mistaken.

As noted earlier, the neurochemical mechanisms of actions of pharmacologic interventions are often diverse and nonspecific (Gorman & Kent, 1999; Stahl, 1998) and are unlikely to be confined to a specific or even identifiable neurochemical pathology. Antidepressants and anxiolytics may at times be effective simply by impairing, inhibiting, blocking, or otherwise altering normal (rather than dysregulated or dyscontrolled) neurochemical mechanisms of anxiousness or sadness (Widiger & Sankis, 2000). They are helpful but they may not be curing, removing, or altering an underlying neurochemical pathology; they may instead be effective by simply diminishing a person's experience of anxiousness.

For example, Knutson et al. (1998) "examined the effects of a serotonergic reuptake blockade on personality and social behavior in a double-blind protocol by randomly assigning 51 medically and psychiatrically healthy volunteers to treatment with a selective serotonin reuptake inhibitor (SSRI), paroxetine . . . (N = 25), or placebo (N = 26)" (p. 374). Volunteers were recruited through local newspapers. None of them met currently, or throughout their lifetime, the DSM-IV diagnostic criteria for any mental disorder, as assessed with a semistructured interview. None of them had ever received a psychotropic medication, had ever abused drugs, or had ever been in treatment for a mental disorder, nor were any of them currently seeking or desiring treatment for a mental disorder (including social phobia). They were in many respects above normal in psychological functioning. The paroxetine (and placebo) treatment continued for four weeks. Knutson et al. reported that the SSRI administration (relative to placebo) reduced significantly their scores on a self-report inventory measure of neuroticism (or negative affectivity) and increased scores on a laboratory measure of social affiliation (i.e., a cooperative, dyadic puzzle-solving task that was observed and coded by raters blind to personality measures and treatment condition). The magnitude of changes on the self-report and laboratory measures of negative affectivity and social affiliation were even correlated with plasma levels of SSRI within the SSRI treatment group. As concluded by Knutson et al. (1998), this was a clear "empirical demonstration that chronic administration of a selective serotonin reuptake blockade can have significant personality and behavioral effects in normal humans in the absence of baseline depression or other psychopathology" (p. 378).

Clinically Significant Impairment or Distress

"For most people, some degree of social anxiety is more the rule than the exception" (Frances, First, & Pincus, 1995, p. 246). The average person experiences some degree of anxiousness, self-consciousness, and feelings of vulnerability in response to stress (Costa & McCrae, 1992). As Liebowitz and colleagues have acknowledged, "anxiety reactions are ubiquitous phenomena of normal human life" (Gorman et al., 1992, p. 1). Currently, most theorists, clinicians, and researchers would not classify the level of social anxiousness experienced by the average person in normal life as indicating the presence of a mental illness.

"Very few people are completely free of anxiety when giving a speech or having to mingle with strangers at a party" (Frances et al., 1995, p. 246). This level of social anxiousness is considered to be normal, and may even be helpful and adaptive to functioning (e.g., contributing to a motivation to be appropriately concerned about the acceptance of one's behavior, speech, or appearance by others; Rothbart & Ahadi, 1994). Normal social anxiousness can be painful, bothersome, and even troubling to experience, but it is useful in alerting persons to signs of social (and physical) threat (Buss, 1996).

The absence of normal levels of social anxiousness is in fact considered by some to be central to the pathology of another mental disorder, psychopathy (Patrick, 1994). Lykken (1995) suggests that most persons lack the glib social charm of the psychopath because most persons are by nature "a little shy, a bit self-conscious, afraid to say the wrong thing, afraid to alienate, a little tongue-tied, inclined to get a bit rattled when it is your turn to say something" (p. 136). The prototypic psychopath lacks the capacity to feel this normal level of social anxiety and will be very comfortable, relaxed, and at ease with others. "The psychopath is nearly always free from minor reactions popularly regarded as "neurotic" or as constituting 'nervousness' " (Cleckley, 1941, p. 206). "It is highly typical for him not only to escape the abnormal anxiety and tension . . . but also to show a relative immunity from such anxiety and worry as might be judged normal or appropriate" (Cleckley, 1941, p. 206).

"Social anxiety does not mean that an individual has the clinical diagnosis of social phobia" (Frances et al., 1995, p. 246). The diagnosis should only be given if the social avoidance results in a clinically significant level of impairment or distress (APA, 1994). "In DSM-IV, each of the mental disorders is conceptualized as a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and is associated with present distress (e.g., a painful symptom) or disability (i.e., impairment in one or more important areas of functioning)" (APA, 1994, p. xxi). "The diagnosis [of social phobia] is reserved for those individuals whose social anxiety is so severe as to be significantly impairing" (Frances et al., 1995, p. 246). The clinically significant impairment criterion "helps establish the threshold for the diagnosis of a disorder in those situations in which the symptomatic presentation by itself (particularly in its milder forms) is not inherently pathological and may be encountered in individuals for whom a diagnosis of 'mental disorder' would be inappropriate" (APA, 1994, p. 7).

The threshold for clinical significance used by most persons is the presence of sufficiently distressing symptomatology (Widiger & Corbitt, 1994). Distress is a fallible but useful indicator for determining clinical significance, as it can indicate the presence of the fundamental components of a mental disorder: the presence of a harmful impairment in psychological functioning and an absence of adequate volitional capacity to simply do (or feel) otherwise (Frances, Widiger, & Sabshin, 1991; Widiger & Sankis, 2000). Mental disorders can be understood as dyscontrolled organismic impairments in psychological functioning (Klein, 1999; Widiger & Trull, 1991). "Involuntary impairment remains the key inference" (Klein, 1999, p. 424). Distress is a fallible but valid indicator because it suggests that the person lacks the ability to simply change (alter, adjust, or remove) the problematic symptom (Frances et al., 1991). Persons seek professional intervention in large part to obtain the insights, techniques, skills, or other tools (e.g., medications) that increase their ability to better control their mood, thoughts, or behavior (Bergner, 1997).

In sum, responsivity to pharmacologic interventions does not itself indicate the presence of psychopathology. Psychopathology is better understood as the presence of a dyscontrolled maladaptivity, or an impairment to psychological functioning that cannot be corrected by simply choosing or deciding to think, feel, or do otherwise (Widiger & Sankis, 2000). Responsivity to or presence within treatment are not adequate operational definitions for psychopathology, as persons without psychopathology can benefit from treatment. Psychopathology, however, will imply a need for treatment, given the presence of dyscontrol and a clinically significant maladaptivity, and this treatment, even for instances of personality disorder, may indeed be highly effective (Perry, Banon, & Ianni, 1999; Sanislow & McGlashan, 1998).

CONCLUSIONS

Social anxiety is a common experience of everyday life. At what point it should be classified as indicating the presence of a mental disorder and, if so, which one, has been and will likely continue to be problematic and controversial. Much of the difficulty in determining the optimal classification is perhaps due in large part to the requirement that mental disorders be classified as distinct diagnostic categories (Widiger, 1997; Widiger & Costa, 1994). If there is no qualitative distinction between normal and abnormal social anxiousness, and no qualitative distinction between an anxiety and a personality disorder, it is not surprising to find that the effort to make a categorical distinction has been highly problematic.

The absence of a discrete point of demarcation among diagnostic categories, however, does not necessarily suggest that no meaningful or valid distinction can be made (Wakefield, 1999; Widiger, 1997). There is perhaps little doubt that persons at the highest levels of neuroticism and introversion would be appropriately and validly diagnosed as having an avoidant personality disorder; there

will be many persons who are clearly more appropriately and validly diagnosed with a social phobia rather than an avoidant personality disorder; and there will be many persons with only minor feelings of social anxiousness that do not warrant any diagnosis of a mental disorder. But, when social anxiousness is assessed and distributed across all persons, when the full range of social anxiousness is considered, precise points of demarcation between normal social anxiety, social phobia, and avoidant personality disorder can be difficult to demarcate.

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Chapter 11

Social Anxiety and Depression

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Depression is a problem that afflicts millions of individuals. In its clinical forms, depression evidences a diverse range of symptoms and is associated with significant impairment that cuts across all aspects of an individual's functioning. At its most serious level, depression is widely recognized as a precipitant of suicide (Ingram, Miranda, & Segal, 1998). Social anxiety may lack some of the most severe and grave clinical implications of depression, but it is also a widespread and extremely troubling condition. Like depression, social anxiety is linked to a wide variety of behaviors and clinical features that range from "ordinary" shyness to the psychiatric condition of social phobia that significantly impairs people's ability to function effectively.

As common and as troubling as each of these conditions can be, social anxiety and depression frequently overlap. In fact, of all the psychiatric conditions that may be associated with social anxiety, depression is among the most common. This is hardly surprising in that the high incidence of comorbidity between depression and anxiety conditions is generally well known. Such comorbidity presents significant conceptual as well as methodological issues for researchers who attempt to study the causes, correlates, and consequences of these conditions, both in isolation and in combination. As such, one important consideration in understanding social anxiety is to understand how it is related to depression.

In this chapter we examine the relationship between social anxiety and depression. In particular, we address some of the possible reasons for the overlap between these two conditions, and explore some of the distinctions that separate these psychological problems as well as the commonalities that unite them. To set the stage for understanding these issues, we start with an epidemiological exploration of the occurrence, and co-occurrence, of depression and social anxiety that focuses on the prevalence of these problems as well as some of the descriptive features of each disorder. No cultural group is immune from depression or social anxiety, and we thus next address cross-cultural data on these psychological problems. We conclude with an examination of the behavioral, cognitive, and affective similarities and distinctions between depression and social anxiety.

MORBIDITY AND COMORBIDITY: THE EPIDEMIOLOGY OF DEPRESSION AND SOCIAL ANXIETY

As we have noted, although depression and social anxiety can occur in isolation, they also frequently co-occur. We thus turn to an exploration of the comorbidity of these two conditions, and then examine data on age of onset, clinical course, and the temporal relationship between depression and social anxiety. In doing so, we use both the terms *social anxiety* and *social phobia*. Although these terms tend to be used interchangeably, and are frequently used to describe the same condition, we use social phobia when the data pertain to the diagnosable condition of social phobia rather than to the more general condition of anxiety in social situations.

Epidemiology of Depression and Social Anxiety

Two large-scale epidemiological studies addressed comorbidity between social phobia and depression. The first of these, the Epidemiologic Catchment Area study (ECA: see Robins & Regier, 1991), used the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980) to assess the prevalence rates of a number of psychiatric conditions in Baltimore, Durham, New Haven, Los Angeles, and St. Louis—cities that were chosen to represent a broad cross-section of American communities. With the exception of New Haven, diagnoses of depression and social phobia were examined in each of these cities, resulting in a sample of 14,263 persons ages 18 and over. Among the 2.4% of persons diagnosed with social phobia at any point during their lives, 16.6% also met criteria for lifetime major depression (see Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Rates of comorbidity between social phobia and major depression were similarly high when one-year prevalence rates were examined; among the 4.2% of persons with a social phobia diagnosis during the course of a year, 23.7% also had a diagnosis of major depression (Regier, Rae, Narrow, Kaelber, & Schatzberg, 1998). Indeed, major depression represented one of the most prevalent comorbid diagnoses among persons with social phobia (Regier et al., 1998; Schneier et al., 1992).

In a follow-up to the ECA study, the National Comorbidity Survey (NCS; Kessler et al., 1994), also employed DSM-defined criteria to derive diagnoses among more than 8,000 persons with ages ranging from 15 to 54. Despite some methodological differences between the NCS and the ECA study, comorbidity rates between social phobia and depression for this survey were again quite high. Among the 13.3% of persons with a lifetime diagnosis of social phobia, 37.2% also had a lifetime diagnosis of major depression. Indeed, in the NCS, major depression represented the second most prevalent diagnosis among persons with social phobia, falling behind only simple phobia (Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996).

Impairment

Although the high rates of comorbidity between social phobia and depression found in the NCS and the ECA studies raise questions about the level of impairment that might be associated with social anxiety that is comorbid with depression, few studies have examined such impairment. However, findings of impairment in persons with social phobia and other comorbid diagnosis might be informative about the added level of impairment that accompanies depression. Compared to those with social phobia alone, both the NCS and ECA samples have revealed increased impairment in persons with comorbid social phobia. For example, individuals whose social phobia is comorbid with other disorders report increased rates of treatment seeking, role impairment (i.e., participants reported that social phobia interfered "a lot" with their lives), and

suicidality (including thinking about death and suicide as well as actual suicide attempts).

If prognosis can be defined as one element of impairment, then there is some evidence that comorbidity itself is associated with more impairment. For instance, the presence of psychiatric comorbidity has been found to be associated with a poorer prognosis in social phobia (Davidson, Hughes, George, & Blazer, 1993). Additionally, Keller (1992) found that depressed patients with anxiety disorders had slower recovery time than depressed patients without comorbid anxiety. However, comorbidity does not appear to be related to some other indices of impairment such as rates of financial need as indicated by the receipt of welfare or disability payments (Magee et al., 1996; Schneier et al., 1992).

Age of Onset

Epidemiological and patient sample studies tend to suggest that the mean age of onset for social phobia is in the mid-teens to the early 20s, with onsets after age 25 being relatively uncommon (Magee et al., 1996; Schneier et al., 1992), although at least one study found a mean onset age of as early as 11.5 years (Regier et al., 1998). Age of onset differences among social phobia subtypes have also been suggested. For instance, treatment studies tend to find that patients with the generalized subtype (fear of "most" social situations) have a younger age of onset than those with nongeneralized, or circumscribed, subtypes (Heimberg, Hope, Dodge, & Becker, 1990). Examination of epidemiologically derived rather than treatment subtypes, however, suggests a somewhat different pattern of onset for different social phobia subtypes. For instance, using latent class analyses of the NCS data, Kessler, Stein, and Berglund (1998) found two social phobia groups: individuals *with fears limited to public speaking* and persons with *other social fears*. These groups appear to parallel nongeneralized and generalized social phobia. In contrast to previous findings, Kessler et al. found that the age of onset did not differ between these two subtypes, with both showing the same rise in the mid-teens that has been reported for social phobia in general.

The mean and median ages of onset for depression tend to be much later and more variable than those associated with social phobia. According to ECA findings, the mean age of onset is 27 years old and individuals between the ages of 18 and 44 are at highest risk (Klerman & Weissman, 1989). Although previous data had shown the mean age of onset to be in the mid 30s, throughout the 1970s, studies began to show higher rates of depression at younger ages; more specifically, it appeared that higher lifetime risks for depression were associated with cohorts born after World War II (Klerman & Weissman, 1989). Interestingly, while a similar age of onset decrease has been found in Edmonton, Canada and New Zealand (Bland, Newman, & Orn, 1988; Joyce, Oakley-Browne, Wells, Bushnell, & Hornblow, 1990; Wells, Bushnell, Hornblow, Joyce, & Oakley-Browne, 1989), this finding has not been replicated in Korea, Puerto Rico, or for Mexican Americans living in Los Angeles (Burnam, Hough, Escobar, & Karno, 1987; Karno et al., 1987).

Course

Although social phobia has a relatively unremitting course, in general, according to NCS epidemiological data (Kessler et al., 1998), some social phobia subgroups are distinguishable in terms of their probability of recovery over time. Given sufficient time, most people with *speaking-only* social phobia recover, with a cumulative recovery rate reaching a plateau of about 90%, approximately 30 years after onset. By contrast, the cumulative recovery rate in social phobia that is *not* linked to speaking is about 50 to 55% and takes longer to reach (about 40 years). Thus, this latter form of social phobia is not only more severe in that more social domains are affected, it is also longer-lasting than speaking-only social phobia and in many cases seems to be a lifetime problem.

As with age of onset, the course for major depression is more variable than that for social phobia. According to the NIMH Collaborative Study of the Psychobiology of Depression, major depression is a chronic and recurrent disorder. For example, longitudinal data reported by Keller et al. (1992) found that a significant percentage of patients continued to suffer from depressive symptomatology at each assessment point. More specifically, Keller et al. found that the recovery rate during the first six months of the depressive episode was 54%; thereafter the probability of recovery was 70% within 1 year, 81% within 2 years, 87% within 4 years, and 88% within 5 years. Given its more episodic nature than social anxiety, individuals with depression thus tend to recover more quickly, but they also face a high risk for *relapse* (Keller, Lavori, Lewis, & Klerman, 1983). Comorbidity with anxiety and other disorders also increases the risk for depression relapse (Keller, Lavori, Rice, Coryell, & Hirschfeld, 1986; Keller et al., 1992).

Temporal Relationships

Although studies of the age of onset and course of depression and anxiety typically focus on each of these conditions separately, research on temporal relationships between the two conditions must, by definition, focus simultaneously on depression and social phobia. In general, studies investigating the temporality of comorbid conditions have found that social phobia precedes mood, substance use, and eating disorders (Alpert, Maddocks, Rosenbaum, & Fava, 1994; Brewerton, Lydiard, Ballenger, & Herzog, 1993; Wittchen & Vossen, 1995). For example, the International World Health Organization/U.S. Alcohol, Drug Abuse and Mental Health Administration Composite International Diagnostic Interview Field Trial (Lepine et al., 1993), found that among individuals who had a lifetime comorbid disorder of social phobia and major depression, social phobia preceded depression in 70.8% of the cases. In another study of individuals with primary social phobia and comorbid major depression, 91% experienced social phobia that preceded the onset of major depression by an average of 13.2 years

(Stein, Tancer, Gelernter, Vittone, & Uhde, 1990). Using the ECA data to assess the comorbidity of anxiety and mood disorders, Regier et al. (1998) found that the mean age of onset of anxiety (15 years old) in depressed patients with comorbid simple or social phobia was younger than that of their major depression onset (25 years old). In patients with comorbid major depression and panic disorder, however, the mean age of onset was 20 years old for panic disorder and 21 years old for their major depression. Furthermore, the percentage of patients who had an onset of major depression before age 14 was small (7%) relative to onset of social phobia before age 14 (93%). Particularly striking in this study were the odds ratios for depression and comorbid social phobia; the odds were more than five times greater that anxiety would precede the onset of major depression than depression would precede the onset of anxiety. Specifically, 72% of the patients had social phobia first while 5% had depression first.

It is worth noting that some patients with primary depression develop a true fear of embarrassment in social situations, which occurs only during episodes of major depression and also remits along with the depression (Dilsaver, Qamar, & Del Medico, 1992). In this case social phobia is considered secondary, and a true social phobia diagnosis can only be made if the individuals had social phobia symptoms during a time when he or she was not depressed.

CROSS-CULTURAL ISSUES IN DEPRESSION AND SOCIAL ANXIETY

Empirical findings on cultural differences in psychopathology are often inconsistent, and correspondingly, understanding how specific ethnic variables influence the manifestation of psychological disorders has been a daunting task. In specific regard to affective conditions, research investigating the relationship between ethnicity and depression is abundant in comparison to the published data on ethnicity and social anxiety. Although the focus of earlier studies has been to assess differences in prevalence rates across ethnic groups, more recent studies have begun to examine why such differences between groups exist. Indeed, even though the majority of available research involves comparisons between groups, many researchers contend that the future of ethnic minority mental health lies in the exploration of within group processes. Nevertheless, given the data available, we now turn to an examination of cross-cultural issues in depression and social anxiety, and will comment on the differences and similarities across these two conditions.

Cultural Issues in Depression

According to studies in both the United States and other countries, depressive disorders exist across cultures, although prevalence rates and how these dis-

orders are conceptualized frequently vary. To review, within the United States, the ECA did not find consistent differences between African Americans and Caucasians (Somervell, Leaf, Weissman, Blazer, & Bruce, 1989). In contrast, the National Comorbidity Study (NCS) found lower rates of affective disorders in African Americans when compared to Caucasians that was not explained by controlling income or education. Cross-cultural comparisons between Hispanics and Caucasians have also been inconsistent. According to ECA data from the Los Angeles site, the lifetime prevalence rate of major depression was lower among Hispanics when compared to Caucasians (Burnam et al., 1987), although Hispanics had a higher incidence than Caucasians (Horwath, Johnson, Klerman, & Weissman, 1992). Conflicting findings were also present when the ECA data were compared to the NCS, which found higher prevalence rates of affective disorders in Hispanics when compared to Caucasians (Kessler et al., 1998). Cross-national studies of other Hispanic ethnic groups, namely Puerto Ricans, find prevalence rates that are similar to those of the ECA sites (Canino et al., 1987). An overview of rates among Asian countries find particularly low rates in Taiwan, and, in Korea, similar rates as those presented in the ECA. Despite these variations in prevalence rates, higher rates of major depression in women are fairly consistent across cultures (Paykel, 1992). In most countries, except Taiwan, there is almost a 2:1 ratio of women to men who experience major depression.

Relative to other psychological disorders, a fair amount has been written about the culture specific expression of depression. International studies suggest that depression in non-European cultures (e.g., India, China, Iraq, Indonesia, Nigeria, Philippines) is more likely to be characterized by somatic aspects rather than by psychological features (Bazzoui, 1970; Kleinman, 1982). More specifically, the World Health Organization compared patients from Canada, India, Iran, Japan, and Switzerland (World Health Organization, 1983; Sartorius, Jablensky, Gulbinat, & Ernberg, 1980) and found that cognitive and affective symptoms such as depressed mood, guilt, low-self-esteem, suicidal ideation, and feelings of worthlessness were less frequent among non-European populations (e.g., Iran, Japan, and India) while somatic symptoms were more common. For example, guilt feelings were present in 69% of the Swiss sample but only in 32% of the Iranian sample; and suicidal ideation was present in 70% of the Canadian sample but only in 40% of the Japanese sample. Within the United States, findings are inconsistent regarding differences in levels of depression across cultural groups, however the trend toward greater endorsement of somatic symptoms among Asian Americans has been replicated (Farooq, Gahir, Okyere, Sheikh, & Oyebode, 1995; Kuo, 1984; Ying, 1988).

Cultural beliefs are likely to influence the perception and expression of depression. For example, guilt may not be frequently endorsed in cultures that encourage the externalization of blame (El-Islam, 1969), while low self-esteem may be less likely in cultures that sanction humility and self-debasement (Marsella, Walker, & Johnson, 1973; Yanagida & Marsella, 1978). In addition, in Eastern cultures that adhere to Buddhist beliefs, suffering is seen as a natural state, therefore an individual from this culture is less likely to seek treatment for

existential crises or depressed mood. For similar reasons, a clinician from this culture is also likely to minimize the significance of such complaints (Xu, 1987). Furthermore, in countries such as China, depressed emotions are traditionally regarded as shameful to self and family and may therefore not be disclosed outside of the family (Kleinman, 1980). Kleinman (1986) also argues that countries such as China have agrarian roots, and therefore that physical complaints are most important because they may affect an individual's ability to contribute to the group.

Within the United States, the acculturation level of the individual is an important variable to consider when trying to understand depressive symptoms. For at least two reasons, the process of acculturation, where an individual from one culture adopts the beliefs and behaviors of a host culture, is hypothesized to have both a direct and indirect relationship to depression. First, the process in and of itself may cause distress and, second, it is likely to influence the values, beliefs, and world-views of an individual. Presently, however, findings addressing the relationship between depression and acculturation are inconsistent. Low acculturation in some ethnic groups has been seen as a risk factor for depression (Golding & Burnam, 1990; Neff & Hoppe, 1993; Zamanian, Thackrey, Starrett, & Brown, 1992); it may be that those who maintain ties with their culture of origin are at greater risk for feelings of alienation, lack of acceptance, and thwarted aspirations. Opposing studies suggest that higher levels of acculturation negatively impact mental health (Arroyo & Zigler, 1995; Kaplan & Marks, 1990; Nguyen & Peterson, 1993; Sorenson & Golding, 1988). More specifically, it has been argued that behaviors which distance ethnic minorities from their culture of origin may result in the internalization of damaging stereotypes, feelings of worthlessness, and loss of culture. Although data are inconsistent, it is likely that these ethnic-experience variables have a significant influence on various cognitive processes that, in turn, are likely to affect the expression of depressive symptomatology.

Cultural Issues in Social Anxiety

Research on the association between social anxiety, ethnicity, and culture is scarce when compared to the depression literature. According to the NCS, comparable prevalence rates were found among Caucasians, African Americans, and Hispanics (Magee et al., 1996). Cross-national studies find the prevalence rate in Puerto Rico to be similar to that of the five ECA sites while, interestingly, particularly low prevalence rates of social phobia are found in Asian countries. With regard to gender differences, higher prevalence rates of lifetime social phobia have been found among women from the ECA sites, Korea and urban Taiwan; the gender ratio is more skewed in Asian countries where prevalence rates are as low as 0% for Korean males. The predominance of social phobia in women is consistent with other epidemiological findings (Kessler et al., 1994), however it is inconsistent with U.S. treatment studies which frequently find

equal or slightly higher rates of social phobia in men (Manuzza, Fyer, Liebowitz, & Klein, 1990).

The low rates of social phobia in East Asian countries are perplexing in light of research that has documented the presence of taijin-kyofu-sho (TKS), a syndrome resembling social phobia, in Japan and Korea (Aune & Aune, 1996; Murphy, 1982). TKS has been described as an East Asian cultural pattern of social anxiety (Chang, 1997), but studies suggest that there is significant overlap with the symptoms and characteristics of both social phobia and avoidant personality disorder (Kleinknecht, Dinnel, Kleinknecht, Hiruma, & Harada, 1997; Ono et al., 1996). Unlike social phobia, which involves the fear of humiliating the self, TKS is the fear of offending others by embarrassing them or by making them uncomfortable by a personal flaw or shortcoming. Manifestations of this condition may involve a fear of blushing, fear of emitting an unpleasant body odor, or a fear of exposing an unsightly body part.

The low rates of social anxiety in Asian countries are also inconsistent with a framework of cultural behavior which proposes that cultures which foster an interdependent sense of self, such as that purported to be present in Asian countries, are more vulnerable to social anxiety. According to this model, cultures with an interdependent self-construal (Asian, Latin American, and some southern European countries) emphasize the importance of relationships, conformity, agreeableness, and modesty; in contrast, cultures with an independent self-construal are governed by autonomy, personal abilities, desires, and attributes. Recent findings tend to support these hypotheses (Kleinknecht et al., 1997; Okazaki, 1997). In a study of college students, Asians scored higher on a measure of interdependent self-construal and lower on independent self-construal than Caucasians. Furthermore, they also scored higher on measures of social anxiety and depression scores than Caucasians. However, when the covariance between depression and social anxiety was controlled in hierarchical regression analyses, ethnicity and self-construal variables were predictors of social anxiety but not depression (Okazaki, 1997). Further analyses suggested that those Asian Americans who were less acculturated to mainstream American culture were more likely to report higher avoidance and distress in social situations.

Other research has also suggested that ethnic-experience variables (e.g., ethnic identity, perceived discrimination, social affiliation) might be important when investigating social anxiety. Stephan and Stephan (1989) found that Asians expressed more social anxiety about interacting with Caucasians than did Hispanics and had fewer positive interactions and attitudes toward Caucasians than did Hispanics. For Asians, negative relations with Caucasians and stronger ingroup affiliation was associated with high levels of intergroup anxiety. For Hispanics, lower relative status and perceptions of stereotyping were associated with high levels of intergroup anxiety. Diagnostically, this cultural finding poses a challenge as an individual may not report symptoms of social anxiety when they are among members of their own ethnic group; the current version of the *Diagnostic and Statistical Manual* (DSM-IV) does not present specific guidelines on how to address this issue.

These findings exemplify the importance of considering cultural variables when assessing, treating, or investigating depression and social anxiety. However, for depression it would appear that cultural variables affect how the disorder is expressed whereas for social anxiety/phobia, cultural factors may serve as a vulnerability to distress. It is also important to note that, for depression and social anxiety alike, various methodological explanations can be offered to explain cross-cultural differences or the absence of expected findings. First, the use of interview schedules which were developed in English and translated to other languages may affect the sensitivity of the instrument in non-English-speaking countries. Second, it may be that East Asian cultures are less willing to disclose information in the structured interviews used by epidemiological studies. Also, these instruments, with their Western psychiatric focus, may not be sensitive to patterns of symptomatology found in other countries (Chapman, Mannuzza, & Fyer, 1995; Guarnaccia, Rubio-Stipec, & Canino, 1989). Continued research in the area is necessary to further delineate true cultural variations from methodological flaws.

PSYCHOLOGICAL VARIABLES IN DEPRESSION AND SOCIAL ANXIETY: BEHAVIOR, COGNITION, AND AFFECT

Having described the characteristics of depression and social anxiety as they pertain to epidemiology and culture, we now turn to an examination of psychological variables. Although we discuss these variables as falling into separate categories of behavior, cognition, and affect, we note that these are merely convenient distinctions, and acknowledge that such variables interact in the expression of depression and social anxiety.

Behavioral Characteristics of Social Anxiety and Depression

Depression and social anxiety share several behavioral characteristics, as well as evidence a number of distinctions. For example, avoidance of social situations is a core feature of social anxiety and frequently occurs in depression, yet individuals with social anxiety tend to be characterized by arousal-linked behaviors in social situations (e.g., blushing, fidgeting), while depressed individuals without co-existing anxiety do not typically exhibit evidence of such arousal.

One way to view behavior is through the lens of the current diagnostic system, which attempts as much as possible to promulgate diagnostic criteria that are based on observable behaviors. For the most part, a review of the DSM-IV criteria for social phobia and major depression suggests very little overlap between the behaviors that characterize these two disorders. The cardinal criteria for major depression are sad mood or a lack of interest in activities in which one

usually takes pleasure; these symptoms are accompanied by several additional difficulties such as appetite, sleep and libido disturbances, impaired concentration, fatigue, observable slowed or increased movement, feelings of guilt or worthlessness, and suicidal ideation. In contrast, the cardinal feature of social phobia is a persistent fear of situations where one may be scrutinized by others, and thus where one might experience humiliation or embarrassment. Exposure to such situations typically results in anxiety and arousal linked behavior, and sometimes includes panic attacks. As a result, these situations are often avoided. Thus, the criteria for major depression emphasize affective symptoms of sadness and anhedonia while the criteria for social phobia emphasize affective symptoms of fear and anxiety as well as avoidance. Except for behaviors characteristic of social withdrawal, the behavioral features of depression and social phobia appear more characterized by distinctions rather than similarities.

Another aspect of behavioral functioning can be seen in the situational context in which a behavior is exhibited. In particular, situational specificity clearly differentiates depression from social anxiety. Although, given the ubiquity of situations in which people must interact with others, socially anxious individuals might be impaired in a number of situations, by definition, anxiety is only aroused in *social* situations. Depression, on the other hand, is seen as more chronic and is evidenced throughout virtually all situational contexts. Thus, specificity versus chronicity can be characterized as a behavioral variable that differentiates social anxiety from depression.

Cognition in Social Anxiety and Depression

Relative to the paucity of data on the behavioral features of depression and social anxiety, there are a wealth of data on cognitive functioning in depression and social anxiety. From a theoretical perspective, Beck's schema model suggests that anxiety and depression are each characterized by mood-congruent biases that operate throughout all aspects of cognitive processing, such as attention, reasoning, and memory (Beck, 1976; Beck & Clark, 1988). Broadly defined, anxiety is characterized by maladaptive schemas involving threat, whereas depressive schemas involve themes of deprivation and loss. Thus, each disorder is presumed to differ with respect to cognitive content, although potentially similar cognitive processes may operate in both disorders. Even though the model proposed by Beck was the first cognitive model to address both depression and anxiety, as a variety of experimental techniques have been adapted to the investigation of cognition in psychopathology in the last two decades, and data have begun to accumulate, several additional theoretical models on the relationship between depression and anxiety have emerged (e.g., Clark & Watson, 1991; Ingram & Kendall, 1986; MacLeod & Mathews, 1991; Williams & Oaksford, 1992). We will review the empirical findings on cognitive variables in depression and social anxiety and then interpret the conclusions in terms of a conceptual framework developed by Ingram and Kendall (1986). These empirical findings

can be organized according to thought content, attentional processes, memory biases, and judgement biases.

Thought Content

The empirical findings from studies on depressive and anxious thought content present a relatively clear picture (see Kendall & Ingram, 1989, for a review). Depressive affect seems most closely associated with self-referent, definite, and past-oriented cognitions of sadness, failure, degradation, and loss. Anxiety, on the other hand, appears most closely associated with future-oriented and "questioning" cognitions of broadly defined danger and harm. In the specific case of social anxiety, individuals with social phobia tend to hold the view that social and performance situations are particularly threatening, and they have an excessive concern about how they are perceived and evaluated by others (Rapee & Heimberg, 1997).

Attentional Processes

Dichotic listening, visual dot-probe detection, lexical decision tasks, and emotionally modified Stroop tasks have been the primary tools used for studying attentional biases. The general conclusion from research in this area is that individuals with social anxiety show an attentional bias for socially menacing information, while the evidence for attentional bias for negative information in depression is more mixed (see Mathews & MacLeod, 1994; Mineka & Sutton, 1992, for reviews). Most of the studies on social anxiety have used the Stroop paradigm, which tests attentional interference by measuring the latencies for naming the color of emotionally valenced versus neutral words (e.g., Holle, Neely, & Heimberg, 1997; Maidenberg, Chen, Craske, Bohn, & Bystritsky, 1996; Mattia, Heimberg, & Hope, 1993; McNeil et al., 1995). The results indicate that individuals with social phobia are slower to name the color of social threat words than non-threat words, suggesting a difficulty in ignoring the content of social threat words. Asmundson and Stein (1994) found that individuals with social phobia devoted disproportional attentional resources to social threat words but not to physical threat or neutral words in a dot-probe task, which has been hypothesized to be a more direct measure of attentional allocation than the Stroop task (MacLeod, Mathews, & Tata, 1986). Many researchers believe that this attentional bias for threat may play a role in the maintenance of anxious states.

The empirical evidence for an attentional bias toward negative stimuli in depressed individuals is somewhat less clear. Although some studies have not been able to detect any differences in depressed individuals' attentional processing of negatively valenced stimuli (Hill & Knowles, 1991; MacLeod et al., 1986; Mogg, Bradley, Williams, & Mathews, 1993), a number of studies have found evidence for attentional interference or vigilance in depressed individuals (e.g., Gotlib & Cane, 1987; Gotlib & McCann, 1984; Lemelin et al., 1996; Mogg, Bradley, & Williams, 1995) or in those vulnerable to depression (e.g., Ingram,

Bernet, & McLaughlin, 1994). The fact that several of these studies did not assess anxious symptoms in the depressed individuals may be part of the reason for these mixed results. However, in a study that did compare depression and anxiety (Mogg et al., 1995), depressed individuals surprisingly showed greater vigilance for supraliminally presented (i.e., words displayed for 1,000 msec) anxiety words than the anxious participants. The authors suggested that other factors, such as age differences and level of severity of psychiatric disorder, may also explain some of the equivocal aspects identified in the empirical literature on attentional biases among depressed individuals. In summary, attentional biases appear to be present in both social phobia and depression, although the evidence is somewhat stronger for attentional interference in individuals with social phobia.

Memory Processes

Most studies on mood-congruency effects in memory have employed either (a) explicit memory tests (i.e., cued recall and recognition) using depth-of-processing tasks like self-referent encoding or incidental recall paradigms, or (b) implicit memory tests in which participants are not explicitly directed to search their memory for previously learned material (e.g., lexical decision and word stem completion tasks). In general, studies on anxiety and depression (e.g., Greenberg & Alloy, 1989; Ingram, Kendall, Smith, Donnell, & Ronan, 1987) support the content-specificity hypothesis proposed by Beck (1976), which argues that individuals with particular disorders are more likely to process information consistent with their disorders, which in turn helps to maintain the disorder. The findings are particularly strong in the area of depression (e.g., Bradley, Mogg, & Millar 1996; Ingram et al., 1987; Matt, Vázquez, & Campbell, 1992; Watkins, Vache, Verney, Muller, & Mathews, 1996) but there are some inconsistencies in terms of memory biases in individuals with social phobia. For example, Cloitre, Cancienne, Heimberg, Holt, and Liebowitz (1995) failed to find differences between social phobic and control participants, as both groups showed greater recall and recognition for threat and positive words than for neutral words. Similarly, a study by Lundh and Öst (1997) failed to find any differences between socially phobic individuals and controls on explicit and implicit memory for positive, neutral, social and physical threat words, but a small subgroup of patients with nongeneralized social phobia showed an implicit bias for threat words. Thus, depressed and anxious individuals generally both evidence memory biases specific to their vulnerabilities, although it should be noted that there are some inconsistencies regarding the extent to which individuals with social phobia share this memory disposition.

Judgement Processes

The majority of studies in this domain has been conducted with subclinical populations and has attempted to assess the influence of affective states on the interpretation of ambiguous information. Moreover, the preponderance of these

studies have investigated the effect of anxiety on interpretation and judgement rather than the effect of depression on these variables. Tasks include interpretation of ambiguous situations and sentences, text comprehension studies, categorization, impression formation, and causal attributions. As with memory biases, results from studies on judgemental biases generally demonstrate mood-congruent effects of emotional states on judgement processes, suggesting that negative emotional states increase judgements concerning the probability of negative and threatening events, as well as the likelihood of negative interpretation of ambiguous stimuli. For example, Amir, Foa, and Coles (1998) found that socially phobic individuals interpreted ambiguous social situations as more negative than either non-anxious controls or those with obsessive-compulsive disorder. Moreover, this effect occurred only for self-relevant scenarios. When individuals with social phobia were asked to choose possible interpretations of ambiguous situations from the perspective of a "typical person", the negative interpretation was not seen.

Several studies have found that individuals with social phobia are more critical of their own performance on anxiety-producing tasks than are non-anxious controls (e.g., Alden & Wallace, 1995; Rapee & Lim, 1992; Wallace & Alden, 1997). For example, after giving a brief speech, Rapee and Lim (1992) found that participants with social phobia rated their performance as worse than did observers. Similarly, Wallace and Alden (1997) reported that, for patients with generalized social phobia, social success led to self-protective social goals, negative emotional states and perceptions that others would expect more in future interaction. These results suggest that positive social events may not contribute to a revision of negative self- and social judgements in patients with social phobia.

Some studies have directly compared anxious and depressed individuals on various interpretation and judgement processes. MacLeod and Byrne (1996) compared anxious and depressed individuals on their anticipation of future positive and future negative experiences. They reported that anxious individuals showed greater anticipation of future negative experiences than control participants, whereas depressed individuals, who also had elevated anxiety levels, showed both greater anticipation of negative experiences and reduced anticipation of positive experiences. Ingram et al. (1987) used a measure designed to assess attributions in depression, the Attributional Style Questionnaire (ASQ; Seligman, Abramson, Semmel, & von Baeyer, 1979) in a study with depressed and test anxious individuals and found that only the depressed participants displayed attributional deficits that both minimized positive experiences and maximized negative experiences. These data are consistent with those of Heimberg, Vermilyea, Dodge, Becker, and Barlow (1987), who found a similar pattern of attributional tendencies when comparing dysthymic and anxious patients, particularly for negative outcomes. More specifically, Heimberg et al. found that the dysthymic participants showed a self-debasing attributional pattern for negative outcomes, but participants with anxiety did so only if they were also depressed. Although these latter studies did not assess social anxiety per se, and must there-

fore be regarded cautiously, they are noted because they did explicitly compare anxious states with depressed states. To the extent that anxiety processes functions similarly in all anxiety states, these results may suggest conclusions about the similarity or distinctiveness of judgement processes in depression and social anxiety; namely that judgement processes appear to be consistent with the affective dimensions of the particular disorder.

An Organizational Framework

Clearly, a number of different cognitive variables have been studied by depression and anxiety researchers. Ingram and Kendall (1986) and Ingram et al. (1998) have described a framework for organizing the variables examined in cognitive psychopathology research. This framework is based on the conceptual and empirical distinctions between cognitive structures and processes that have been proposed by researchers such as Goldfried and Robins (1983), Hollon and Kriss (1984), and Kihlstrom and Nasby (1981).

According to this framework, cognition can be viewed as consisting of conceptually distinct components that include cognitive structures, cognitive propositions, cognitive operations, and cognitive products. Structure is seen as the associations and linkages among internally stored information. Propositions, or cognitive content, constitute the stored information. Together, cognitive structures and propositions are usually defined as schemas. Operations, in the most general sense, are viewed as the processes that encode and manipulate incoming information and assess and retrieve previously stored information, while products are conceptualized as the cognitions, thoughts, decisions, and images that result from the interaction of incoming information with internal structures and propositions.

A second aspect of the conceptual framework proposed by Kendall and Ingram (1989) and Ingram et al. (1998) focuses on partitioning the various components that comprise psychopathological functioning. They argued that a useful conceptual metaphor for understanding the relationship between different variables and different disorders is to employ a model that views the variance in psychopathology analogously to variance in experimental research. Specifically, the variance in psychopathology can be conceptually "partitioned" in much the same way that experimental variance is partitioned by an ANOVA or virtually any other statistical procedure. In any experimental outcome, for example, several presumably identifiable sources of variance converge to contribute to a score on a given measure; variance uniquely due to an experimental manipulation or treatment (main effects) and variance that is common to more than one experimental procedure (an interaction).[1] Similarly, the ultimate symptomatic expression of a particular disorder can be conceptualized as the convergence of what has been referred to as unique or *critical* psychopathological features and *common* psy-

[1] This model also incorporates error variance, which is not discussed because it is not directly relevant to this topic.

chopathological features. Critical features thus reflect variance that is uniquely characteristic of a particular disorder and are defined as those features that not only differentiate disorder from nondisorder, but that also differentiate one disorder from another. In contrast to critical psychopathological features, common features are generally characteristic of more than one disorder and are conceptualized as common or shared psychopathological variance. Although these features do not differentiate between particular disorders, they do differentiate disorder from nondisorder. That is, while common features are not unique to a given disorder, they are "unique" to psychopathology in general and thus broadly separate adaptive from maladaptive functioning.

   Applying this framework to our review of cognitive variables, we might conclude that depressed and socially anxious individuals seem to differ on some specific components and thus evidence some critical features. Additionally, they may also be similar in other areas and thus evidence some common features. In general, the specific propositions contained in the active structures appear to be different for depressed and socially anxious individuals (e.g., self-schemas related to threatening information for individuals with social phobia versus negative information related to loss, failure, and so forth for depressed individuals). These schemas may, in turn, lead to differential sensitivity to particular kinds of environmental stimuli and potentially produce different attentional and memory tendencies. On the other hand, these cognitive operations may not be dissimilar in their underlying and recurring processing of dysfunctional information per se, but because different information is processed and accessed from memory, their resultant cognitive products seem to be reasonably distinct. For example, although products such as attributions and the nature of thoughts about the self and the situation appear to be different for depressed versus socially anxious individuals, there is not enough information to conclude that the attentional and memory information-processing mechanisms are different between the two disorders. According to the framework we have described, then, schematic structures appear to be critical variables, while the operational variables, which represent common features, may nevertheless result in cognitive products that are different for depression and social anxiety.

Affective Processes in Social Anxiety and Depression

Affective variables are at the core of socially anxious and depressive processes. Aside from the obvious differences in the predominant affect in each of these conditions, questions have arisen as to how similar or distinct such conditions may be. For example, although DSM-IV criteria indicate that persons with social phobia and those with depression differ substantially in their clinical presentations, the epidemiological data we have previously reviewed suggest, at least is some cases, considerable overlap in these states. Research that is not epidemiological in nature also shows significant overlap between depressive and anxious states. For example, in an extensive review of both self- and clinician-rated

anxiety and depression, Clark and Watson (1991) found a great deal of overlap between ratings of anxiety and ratings of depression.

Such comorbidity may result from several sources (Ingram et al., 1998). Among these factors are (a) when high prevalence rates for each disorder lead to the co-occurrence of two disorders by chance or sampling bias, (b) when imprecise diagnostic criteria include overlapping symptoms for more than one disorder, (c) when one disorder encompasses or leads to another disorder, (d) when the coexistence of disorders actually represents another discrete disorder or represent different aspects of the same disorder, or (e) when the disorders are a function of correlated causal processes (Klein & Riso, 1993). Apparent comorbidity can also result from assessment artifacts such as overlap in items on measures of "different" disorders (Frances, Widiger, & Fryer, 1990).

The Tripartite Model of Depression and Anxiety

Assuming that at least some of the comorbidity seen in social anxiety and depression stems from causal overlap in the underlying affective states, how can such similarities (and where they exist, differences) be conceptualized? Clark and Watson (1991) and Watson and Clark (1984) have proposed a tripartite model of depression and anxiety that attempts to account for both the similarities and differences among these affective states. They suggest that anxiety and depression can be conceptualized on three dimensions: (1) negative affect (NA), encompassing states such as nervousness, tension, worry, sadness, anger, guilt, and disgust, (2) positive affect (PA), characterized by interest, enthusiasm, and an overall zest for life, and (3) physiological arousal, such as a racing heart, sweating, and trembling.

In terms of similarities or common factors, the tripartite model proposes that both depression and anxiety are characterized by high levels of negative affect. Unlike anxiety, however, depression is also characterized by low levels of positive affect (anxious individuals can, in theory, experience both high negative and positive affect). Another distinguishing or critical feature is that anxiety, but not depression, evidences high physiological arousal (Clark & Watson, 1991). The tripartite model of anxiety and depression provides an interesting and useful framework for investigating affective and symptom specificity, and overlap between social phobia and depression.

Several recent studies have examined the hypothesized structure of the tripartite model (e.g., Joiner, 1996) or combined diagnostic groups (e.g., Watson et al., 1995a, b) and two studies have examined aspects of the tripartite model specifically in persons with social phobia and major depression. In the first of these studies, negative and positive affect were examined in persons with DSM-III diagnoses of several anxious and depressive disorders, including social phobia and major depression. Diagnoses of social phobia and major depression were both related to increased levels of negative affect and decreased levels of positive affect, although these relationships were stronger for major depression diagnoses (Watson, Clark, & Carey, 1988). In the second study, each factor of the

tripartite model was examined in persons with DSM-IV diagnoses of anxious and depressive disorders, again including both major depression and social phobia. As in the previous study, diagnoses of major depression and social phobia were both related to increased levels of negative affect and decreased levels of positive affect; moreover, while the relationship between negative affect and depression was again much stronger than the relationship between negative affect and social phobia, these disorders' relationships with positive affect were equally strong. Additionally, both diagnoses were unrelated to the physiological arousal factor of the tripartite model (Brown, Chorpita, & Barlow, 1998).

Although strong conclusions based on these studies with depression and social phobia would be premature, two observations are warranted. First, major depression and social phobia appear to have a number of features in common; both these disorders evidence relationships with positive and negative affect (e.g., nervousness, worry, sadness, anger, anhedonia). Indeed, when examined in the context of the tripartite model, major depression and social phobia appear to have symptoms that are more common than unique. Second, although social phobia was unrelated to physiological arousal in the study by Brown et al. (1998), this factor deserves further investigation as a symptom cluster differentiating social phobia from major depression; certainly, the risk of situationally-induced panic attacks among persons with social phobia suggests that physiological arousal may be an important component of social phobia for many affected persons.

Additionally, it should be noted that the tripartite model was developed to account for unique and common factors in depression and generalized anxious affective states, and may not be as relevant for social anxiety. Moreover, the model may better account for critical and common factors when these affective states are in their milder ranges. Thus, it may be the case that when these affective states reach clinical proportions, the differences that might have existed at more subclinical levels become diminished; for example, when social anxiety reaches the point at which it becomes a diagnosable disorder, positive affect may decrease significantly. Nevertheless, despite the fact that research has not uniformly supported all predictions, the tripartite model remains an important means of providing a structure for conceptualizing and testing the similarities and differences between depressive and anxious states.

SUMMARY

In this chapter we have attempted to examine some of the similarities and distinctions between social anxiety and depression. We started with a discussion of the epidemiology of these problems, both in their independent and their comorbid forms. We then turned to an assessment of the research that has examined the cultural and ethnic variance in depression and social anxiety. We also examined the behavioral, cognitive, and affective features of these two psychological conditions. As is evident from our review, depression and anxiety clearly show

some areas of strong overlap, and some areas of clear distinctiveness. Appreciation of these similarities and differences should not only inform efforts to more completely understand the etiology and correlates of depression and social anxiety, but should also serve to advise therapists that these variables may have important implications for the kinds of treatment employed as well as for the efficacy expected from the treatment.

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Chapter 12

Cognitive-Behavioral Group Treatment for Social Phobia

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Cognitive-Behavioral Group Therapy (CBGT; Heimberg & Becker, 2002) was the first manualized treatment developed specifically for social phobia. Following the introduction of CBGT in a case series (Heimberg, Becker, Goldfinger, & Vermilyea, 1985), numerous controlled trials conducted in laboratories around the world have supported the clinical utility of CBGT and similar cognitive-behavioral protocols. This chapter begins with a presentation of a cognitive-behavioral model of social phobia and information on the assessment of patients

with social phobia. We then present the basic techniques of CBGT for social phobia and examine the empirical support for its efficacy. This is followed by a discussion of factors that may affect the efficacy of cognitive-behavioral interventions for social phobia. We share our reflections on lessons learned from more than two decades of work with patients with social phobia and guidelines for clinicians based on this experience. Finally, future directions are discussed.

A COGNITIVE-BEHAVIORAL MODEL OF SOCIAL PHOBIA

Rapee and Heimberg's (1997) model is the most recent of the cognitive-behavioral models of social phobia, although other similar models exist (e.g., Clark & Wells, 1995, see David M. Clark, this volume, *Chapter 9*). Based on empirical research as well as clinical experience, Rapee and Heimberg (1997; see also Turk, Lerner, Heimberg, & Rapee, 2001) provide a broad explanatory framework for the etiology and maintenance of social phobia. In their model, people with social phobia may begin life with overprotective or overintrusive parents who reinforce the message that one is not competent to meet the social challenges of life. Parents may also convey the message that the evaluation of other people is important and model anxiety about how one is being evaluated. Such people thereby develop two major assumptions about themselves and others. The first assumption is that people tend to evaluate others in a critical and negative manner. The second is that it is extremely important to be appraised positively by others.

When approaching a social situation, the person with social phobia forms a mental representation of him- or herself as perceived by others. The mental representation comprises input from long-term memory, internal cues such as somatic sensations, and external cues such as others' facial expressions or tone of voice. Because the person with social phobia believes that the evaluation of others is so important, he or she attempts to predict the standards the other person(s) (the "audience") hold for him or her in the situation. The person with social phobia then attempts to determine if he or she is meeting those standards (i.e., attempts to determine whether the mental representation of him- or herself as perceived by others matches the predicted standards of the audience). However, this is a task doomed to failure because the mental representation of oneself as seen by others is negatively biased. Predicted failure to meet expected standards, as is common in social phobia, leads to expectations of negative evaluation by others and the prediction that negative (or even disastrous) social consequences will ensue. Negative expectations elicit further anxiety. Anxiety and negatively biased mental self-representations thereby reinforce each other in a vicious cycle.

The belief that the evaluation of others is extremely important and the negatively biased mental representation of the self as seen by others motivate hypervigilance for (i.e., preferential allocation of attention to) social threats and cues

about potentially negative social outcomes. Preferential allocation of attention leads to the division of attentional resources among external social threats, threat-eliciting cues about one's behavior or appearance, and the demands of performing the current social task (e.g., having a conversation with an attractive other). Consequently, the individual may suffer from perceived or actual performance deficits, especially during tasks that require greater devotion of attentional resources. The socially anxious individual may also exhibit performance deficits because of subtle avoidance (e.g., avoiding eye contact or standing on the periphery of a group) and overt avoidance (not attending social gatherings). While avoidance behaviors are intended to decrease the potential of negative evaluation by others, these behaviors also inhibit social performance ("safety behaviors"; Wells et al., 1995). Performance deficits are interpreted as confirmation of predictions of failure, thus creating a self-fulfilling prophecy and maintenance of social anxiety.

CBGT aims to break the cognitive-affective-behavioral cycle of social phobia via two main techniques: exposure to feared situations (both in the group session and in the natural environment) and cognitive restructuring. Exposure to feared situations and cognitive restructuring provide a wide variety of opportunities for the patient, including (1) the opportunity to overcome avoidance and safety behaviors, (2) the opportunity for habituation to previously avoided situations or situations in which negative cognitions have previously over-ridden natural conditioning processes, (3) opportunities to improve the quality of one's behavior in avoided situations without the load of negative cognition, (4) opportunities to adjust mental representations of self as perceived by others, and (5) opportunities to gather information that may offer alternatives to negative predictions or beliefs about self and others in social situations. Cognitive-behavioral treatments also direct attention away from negative cues and toward the task at hand through the use of cognitive restructuring and goal-setting in association with exposures. The group format of CBGT may increase the potential for altering mental representations by providing additional sources of feedback about one's performance and by allowing more opportunities for positive and non-critical social interaction. The specific procedures of CBGT will be described in greater detail in a later section.

Assessment of Social Phobia

Formal assessment is an ongoing and essential part of CBGT for social phobia. Assessments provide valuable information as to the nature of each patient's concerns, assist the clinician in formulating exposures and cognitive-restructuring activities, and allow the clinician to observe changes in the patient's symptoms before, during, and after treatment. While the use of empirically validated assessment devices to examine the presence and severity of the symptoms of social phobia (e.g., diagnostic interviews, self-report measures, clinician-administered inventories) is critically important for the understanding and conceptualization of the individual patient and to index change across time in outcome research,

space considerations prohibit a thorough examination of these instruments. In our clinic, we utilize the Anxiety Disorders Interview Schedule for DSM-IV: Lifetime Version (DiNardo, Brown, & Barlow, 1994) for diagnosis of social phobia and comorbid disorders. Other devices we employ include the self-report Social Interaction Anxiety Scale and Social Phobia Scale (Mattick & Clarke, 1998) and the clinician-administered Liebowitz Social Anxiety Scale (Heimberg et al., 1999; Liebowitz, 1987). The reader is referred to recent papers by Hart, Jack, Turk, and Heimberg (1999) and McNeil, Ries, and Turk (1995) for reviews of these and other social phobia assessment devices. Here we discuss the clinical use of assessment strategies that specifically inform CBGT therapists about potential treatment targets.

Behavioral and cognitive assessment methods provide valuable information about patients' experience of anxiety and avoidance in feared situations as they begin treatment and throughout the treatment process. Behavioral assessments before and after CBGT in our clinic have consisted of either standardized or individualized role-plays. Standardized role-plays, in which all patients respond to the same stimuli (e.g., talking to a stranger or giving speech to a small audience), allow for the observation of differences across patients on each task. The information derived from these assessments helps the clinician to gauge the quality of the patient's performance in comparison to other patients, the degree of disruption of performance by anxiety or negative cognitions, and the potential need for remediation of deficits in social skills. However, individualized role-plays (i.e., the staging of situations specifically selected for relevance to the individual patient) may have greater external validity (Chiauzzi, Heimberg, Becker, & Gansler, 1985). The idiosyncratic fears of the individual patient may be incorporated into the role-play so that their impact on the patient's behavior can be determined. Thus, the relevance of the assessment situation to the patient may be maximized. Further, Coles and Heimberg (2000) suggest that the specific patterns of anxiety demonstrated during individualized behavioral assessments may be related to severity of social anxiety, independent of depressive symptoms, and that patients with different patterns of anxiety during pre-treatment behavioral assessment tasks may show differential response to CBGT.

Clinicians using CBGT may also benefit from the use of cognitive assessment tasks. Often used before and after role-plays, cognitive assessment tasks are helpful in identifying adaptive and maladaptive cognitions in feared situations. One of the most commonly used cognitive assessments is the thought-listing technique, which requires patients to record all of the thoughts that they can recall having had during a particular period of time (Cacioppo, Glass, & Merluzzi, 1979; Elting & Hope, 1995). Thought listing assessments allow clinicians to begin treatment armed with data on the thought content (i.e., the focus of specific negative cognitions) and thought processes (i.e., how one thought flows into another: does one negative thought lead to another, to another, etc., in an increasing spiral of negativity?) of each patient in an effort to maximize treatment relevance and impact.

Beyond the start of treatment, assessments continue to be an ongoing and essential part of CBGT. For example, patients are engaged in thought-listing exercises before each in-session exposure, and their degree of belief in specific negative cognitions is repeatedly assessed during cognitive-restructuring exercises. Subjective Units of Discomfort Scale ratings are collected during in-session exposures to provide information about patients' level of anxiety and responses to potential stressors (e.g., a pause in the conversation). Furthermore, the use of written homework assignments provides therapists with the opportunity to assess homework compliance as well as the adequacy of self-administered cognitive-restructuring skills.

BASICS OF COGNITIVE-BEHAVIORAL GROUP THERAPY FOR SOCIAL PHOBIA

CBGT is a multicomponent treatment that involves presentation of a cognitive-behavioral model of social phobia, training in cognitive-restructuring skills, repeated exposures to anxiety-provoking situations in sessions, and homework assignments for in-vivo exposures accompanied by self-administered cognitive-restructuring activities. CBGT is conducted in groups of six patients with two therapists. Sessions are typically held for approximately 2.5 hours weekly over a period of 12 weeks (lengthier periods of treatment appear to result in greater maintenance of gains for some patients and may increase the total number of responding patients). In this section, we provide an overview of CBGT procedure and refer the reader to Turk, Coles, and Heimberg (2002), Turk, Heimberg, and Hope (2001) or Heimberg and Becker (2002) for a more thorough presentation of this topic. CBGT can be loosely divided into four parts: (1) an initial treatment orientation interview, (2) sessions 1 and 2, (3) sessions 3 through 11, and (4) the final (12th) session.

Before initiation of treatment, all patients participate in a treatment orientation interview. This interview has five goals. First, it allows the patient to become acquainted with one of the therapists, thereby serving to provide a familiar face at the first meeting of the group. Second, the therapist describes what will happen in treatment and answers any of the patient's questions. Third, the patient is introduced to the Subjective Units of Discomfort Scale (0 = no anxiety to 100 = the most anxiety ever experienced), which will be used throughout the treatment to quantify the patient's anxiety experience. Fourth, the therapist assists the patient in developing a fear and avoidance hierarchy that represents situations to be targeted in therapy. Fifth and finally, the treatment orientation interview allows for development of explicit treatment goals.

Following completion of the treatment orientation interview for each patient, group sessions begin. The first two sessions of CBGT are devoted to setting the stage for the remaining sessions and providing basic training in cognitive restruc-

turing. During these sessions, the therapists take responsibility for the majority of the activity, allowing the group members time to become increasingly comfortable in the group setting. The first session includes six activities: (1) introductions of group members and therapists, (2) discussion of the group's ground rules (e.g., confidentiality), (3) sharing of individual social fears and treatment goals, (4) presentation of the cognitive-behavioral model of social phobia and the treatment rationale, (5) initial training in cognitive restructuring, focusing on identifying automatic thoughts, and (6) assignment of homework to record automatic thoughts during the following week. The second session continues where the first ended and emphasizes the development of basic skills needed for cognitive restructuring. Homework from the preceding week is reviewed, and automatic thoughts recorded for homework are used for further training in cognitive restructuring. Therapists use these thoughts (e.g., "I will not know what to say") to introduce the concept of thinking errors and to highlight thinking errors common in persons with social phobia (e.g., "fortune telling"). Therapists also introduce patients to the process of disputing their automatic thoughts (e.g., "Do I have a crystal ball that shows me that I will not know what to say?") and developing rational responses (i.e., a statement summarizing the disputation of the patient's automatic thoughts (e.g., "I have done fine in conversations in the past. I'll just try my best"). The second session ends with the assignment of homework to label and dispute thinking errors in identified automatic thoughts.

Sessions 3 through 11 provide patients with repeated exposure to anxiety-provoking situations in which they can practice and hone their new cognitive-restructuring skills. After an initial homework review, patients take turns participating in exposures in session. Choice of exposure situations is guided by the fear and avoidance hierarchies developed during the treatment orientation interview and by additional clinical information collected during treatment. Initial exposures are typically chosen to elicit a Subjective Units of Discomfort Scale rating of approximately 50 (if the situation were to be experienced in real life). Efforts should be made to make exposures as realistic as possible through techniques such as the utilization of props, rearranging furniture, instructing role-players to behave in particular ways, and above all, by taking the time to specify which particular aspects of a situation elicit the patient's anxiety. Another critical ingredient of CBGT is the coordination of exposures and cognitive restructuring. Once a patient is chosen to participate in an exposure, automatic thoughts regarding the situation are elicited, and thinking errors are labeled and disputed. This work is then summarized into a rational response for the patient to utilize during the exposure. Finally, observable, behavioral goals are set for the exposure. Patients may need help with setting goals and should be discouraged from setting unrealistic goals (e.g., "I won't be nervous"), goals that are difficult to quantify (e.g., "I'll make a good impression"), or goals that are dependent on the behavior of another person (e.g., "She'll accept my invitation to see a movie together"). Throughout the exposure, therapists prompt the patient each minute for his or her Subjective Units of Discomfort Scale ratings, which play an important part in later cognitive-restructuring activities. Repetition of rational

responses at these times helps the patient to focus their attention and apply cognitive-coping skills during anxiety-provoking situations. Each exposure continues until the patient's anxiety begins to decrease or level off and behavioral goals are met (typically about 10 minutes). Debriefing following the exposure is comprised of five main components: (1) review of goal attainment and effective use of rational response(s), (2) review and disputation of any new automatic thoughts that occurred during or after the exposure, (3) review of the pattern of Subjective Units of Discomfort Scale ratings (i.e., how variations in experienced anxiety relates to events and/or thoughts during the exposure), (4) feedback from therapists and group members, and (5) reinforcement of the patient for facing a feared situation. During sessions 3 through 11, personalized homework assignments are developed for each patient. The therapists and patients work together to develop assignments that will allow the patient to confront situations similar to those practiced in the group. As in session, each patient is strongly encouraged to utilize cognitive-restructuring skills before, during, and after their homework exposures.

The final session is devoted to reviewing each patient's progress over the course of treatment. Therapists also work with patients in identifying situations that may still be problematic and rational responses that may be useful in these situations and setting goals for continued work after the termination of formal treatment.

Treatment procedures are defined in step-by-step fashion for ease of administration of CBGT. Obviously, a firm understanding of these procedures is essential for the successful conduct of CBGT. Therapists interested in conducting CBGT will also greatly benefit from familiarity with social phobia, facility with cognitive-behavioral theory and case formulation, and experience in the administration of techniques of cognitive-behavior therapy, group treatment, and manualized treatments. A workbook (Hope, Heimberg, Juster, & Turk, 2000) is now utilized to make this easier for both clients and therapists. It is important to keep in mind that this (and any) manualized treatment is not to be administered inflexibly but rather serves to keep the therapists on track and engaged in productive clinical activities and to support their attempts to work creatively within the bounds of the protocol. The reader is referred to an article by Kendall, Chu, Gifford, Hayes, and Nauta (1998) on the creative application of manualized treatments. Typical problems that may be encountered during CBGT and suggestions for remedying these situations will be considered later in this chapter.

EFFICACY OF COGNITIVE-BEHAVIORAL GROUP THERAPY

Since the introduction of social phobia in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980) there has been a surge of research addressing how to best treat this

debilitating disorder. Within the domain of psychosocial treatments, efforts have been largely focused on cognitive-behavioral methods. These cognitive-behavioral methods typically combine systematic exposure to feared situations, behavioral experiments, and cognitive restructuring. Mounting evidence suggests that such interventions are effective at reducing social anxiety and related avoidance. Further, some studies suggest that treatment gains are maintained over time. Researchers have also begun to examine the factors that influence response to cognitive-behavioral interventions in an effort to increase efficacy of these procedures.

In the section to follow, we review the empirical evidence in support of the efficacy of CBGT. A comprehensive review of the efficacy of all cognitive-behavioral methods for the treatment of social phobia is beyond the scope of this chapter (see Turk et al., 2002). In focusing our attention on CBGT, we do not imply that CBGT is in any way superior to other similar cognitive-behavioral protocols developed by other investigators and clinicians. In fact, no study has yet to directly compare CBGT to another cognitive-behavioral approach, and meta-analyses (e.g., Feske & Chambless, 1995) do not suggest greater efficacy of CBGT.

Empirical Investigations of the Efficacy of Cognitive-Behavioral Group Therapy for Social Phobia

The clinical utility of CBGT was first demonstrated in a case series presented by Heimberg et al. (1985). The first controlled study was conducted by Heimberg et al. (1990), who examined the efficacy of CBGT in comparison to an attention-control treatment (educational-supportive group therapy; ES) in a sample of 49 patients who met DSM-III criteria for social phobia. Groups of patients were assigned to treatment conditions (CBGT or ES) as they appeared at the clinic, based on a predetermined random order. Each treatment was administered in 12 weekly 2-hour sessions. ES combined educational presentations about topics of relevance to social phobia and therapist-facilitated supportive group psychotherapy. Outcome expectancies and ratings of treatment credibility did not differ between CBGT and ES.

At post-treatment and six-month follow-up, both groups demonstrated significant reductions in clinician-rated phobic severity. However, those patients who had received CBGT were rated as significantly less severe. Both treatments also resulted in significant reductions in self-reported severity of social phobia from pre-treatment to post-treatment. However, only the CBGT group showed significant reductions from pre-treatment to six-month follow-up. At post-treatment, patients who had received CBGT reported less anxiety during both anticipatory and performance phases of a behavioral assessment than ES patients. Finally, Heimberg et al. (1990) calculated an index of the number of patients who manifested clinically significant improvement at post-treatment and

follow-up. At post-treatment, 75% of CBGT patients, but only 40% of ES patients, were improved; at six-month follow-up, 81% of CBGT patients, but only 47% of ES patients, were improved.

After an interval of 4.5 to 6.25 years, 19 patients who had participated in the Heimberg et al. (1990) study completed a long-term follow-up assessment (Heimberg, Salzman, Holt, & Blendell, 1993). Comparison of patients who did and did not participate in the long-term follow up revealed that those who participated were less severely impaired at both pre-treatment and six-month follow-up and had rated the treatment they received as more credible at both assessment points. However, of those who did participate, pre-treatment differences were not evident between those who received CBGT and those who received ES. At the long-term follow-up assessment, both groups continued to demonstrate significant reductions in clinician-rated phobic severity from pre-treatment. Those who had received CBGT were rated as significantly less severe. As in Heimberg et al. (1990), an index of the number of patients who manifested clinically significant improvement was calculated and revealed that 89% of CBGT patients, but only 44% of ES patients, were improved at long-term follow-up assessment. The CBGT group was rated by independent assessors as barely symptomatic, while the mean for the ES group was above the clinical threshold for social phobia. CBGT patients continued to report significantly less severe symptoms than ES patients on numerous measures of social anxiety and tended to report lower levels of depressive symptoms. Finally, CBGT patients were rated as less anxious and more skilled during a behavioral assessment than ES patients at this long-term follow-up assessment.

CBGT has also been compared to cognitive-behavioral therapy based on identical procedures but delivered in individual sessions (ICBT). Lucas and Telch (1993) compared traditional CBGT, ICBT, and ES in a sample of 66 patients who met DSM-III-R (American Psychiatric Association, 1987) criteria for social phobia. CBGT and ICBT were both shown to be more effective than ES at reducing social anxiety. An index of cost-effectiveness was also calculated based on the number of patients in each condition who achieved reliable change per total therapist time per patient. This index suggested that CBGT was approximately 3 times more cost effective than ICBT and 2.5 times more cost effective than ES. While group cognitive-behavioral therapy is more cost effective, ICBT also has its own strengths, which include the initiation of treatment as soon as an individual patient is ready and allowing therapists to treat patients who may be unwilling to accept participation in a group because of their social anxiety. While Lucas and Telch (1993; see also Öst, Sedvall, Breitholz, Hellstrøm, & Lindwall, 1995) showed equivalent clinical response to CBGT and ICBT, recent research (Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003; Zaider, Heimberg, Roth, Hope, & Turk, 2003) suggests that individual cognitive-behavioral therapy may be more effective than group cognitive-behavioral therapy in some circumstances.

In a recent multisite controlled trial, Heimberg et al. (1998) compared the efficacy of CBGT to that of the monoamine oxidase inhibitor phenelzine sulfate in

133 patients who met DSM-III-R criteria for social phobia. Groups of six patients were randomly assigned to one of four treatment conditions: CBGT, phenelzine, ES, and pill placebo. Heimberg et al. (1998) examined the efficacy of these four conditions over a 12-week period. At post-treatment (week 12), independent assessors classified a higher proportion of those receiving phenelzine (77%) or CBGT (75%) as treatment responders (either markedly or moderately improved) relative to those who had received ES (35%) or pill placebo (41%). Phenelzine patients surpassed CBGT patients on a subset of measures, but patients who had received either CBGT or phenelzine generally outperformed patients in the control groups on a number of self-report and behavior test measures.

In order to examine the effects of maintenance treatment and durability of gains after termination of treatment, Liebowitz et al. (1999) followed the responders to either phenelzine or CBGT from the Heimberg et al. (1998) study for an additional 12 months. After week 12, these patients were entered into a six-month maintenance phase, and those who continued to respond throughout this period were entered into a six-month treatment-free follow-up phase. Patients who had received phenelzine in the first 12 weeks were somewhat less symptomatic at the onset of the maintenance phase of the study. Phenelzine patients who did not relapse maintained their superior gains throughout the maintenance and treatment-free phases. However, across the entire long-term follow-up (maintenance and follow-up phases), there was a trend toward greater relapse in the phenelzine group. Relapse rates were significantly worse for patients with generalized social phobia who had received phenelzine than patients with generalized social phobia who had received CBGT. The results of Heimberg et al. (1998) and Liebowitz et al. (1999) combine to suggest that while phenelzine may be associated with more rapid reductions in social anxiety, CBGT may produce more durable gains that are better maintained after treatment is withdrawn. While their long-term effects have not been studied, other medications have also been shown to produce similar symptom reductions at post-treatment. For example, Otto et al. (2000) compared clonazepam vs. CBGT for social phobia in 45 patients with DSM-III-R social phobia. Their results showed similar improvement across measures for both treatments at weeks 4, 8, and 12, although clonazepam patients were more improved on three self-report measures at week 12. See Hood and Nutt, this volume, *Chapter 13*, for more thorough coverage of pharmacological treatments for social phobia.

FACTORS AFFECTING THE EFFICACY OF COGNITIVE-BEHAVIORAL INTERVENTIONS

While effective psychosocial treatments for social phobia have been devised, not all patients are willing to enter treatment, complete treatment, or show adequate response. For instance, while Heimberg et al. (1998) showed that 75% of patients

who completed a 12-week trial of CBGT were rated as responders, many had residual symptoms and many more failed to enter or complete treatment. While investigators have not devoted much attention to who enters treatment for social phobia (but see Coles, Turk, Jindra, and Heimberg, in press, and Juster, Heimberg, & Engelberg, 1995), several studies have examined predictors of response to cognitive-behavioral treatment among entering patients (e.g., Brown, Heimberg, & Juster, 1995; Chambless, Tran, & Glass, 1997; Hope, Herbert, & White, 1995; Scholing & Emmelkamp, 1999). A number of these studies focused specifically on CBGT.

Several of these studies have failed to identify strong predictors of outcome. In general, demographic characteristics have added little to the prediction of outcome of CBGT (Holt, Heimberg, & Hope, 1990; Juster, Heimberg, & Mattia, 1993). Some support for a predictive role of clinical characteristics in treatment outcome was reported by Holt et al. (1990), who found that patients with less severe symptoms, later onset, and shorter duration of symptoms were more likely to improve with CBGT. However, Juster et al. (1993) found no relationship between pre-treatment locus of control, or levels of social anxiety, general anxiety, or depression and response to CBGT. Studies examining social phobia subtype and comorbid avoidant personality disorder (APD) as potential predictors of treatment outcome (e.g., Brown et al., 1995; Hope et al., 1995; Turner, Beidel, Wolff, Spaulding, & Jacob, 1996) suggest that the generalized subtype and comorbid APD both predict lower end-state functioning, but these outcomes appear to be primarily related to higher levels of pre-treatment severity. Finally, an investigation of the effects of comorbid anxiety and depressive disorders in individuals with social phobia failed to show a significant moderating effect of comorbidity on outcome after 12 weeks of CBGT (Erwin, Heimberg, Juster, & Mindlin, 2002). In general, individuals with comorbid depressive disorders were more severely symptomatic than individals with no comorbid diagnoses or with only comorbid anxiety disorders both before and after treatment, while individuals with comorbid anxiety disorders were remarkably similar to individuals with social phobia alone. Chambless et al. (1997) found initial levels of depression to be the most consistent predictor of change between pre-test and post-test. Similarly, Scholing and Emmelkamp (1999) found that initial levels of depression significantly predicted the magnitude of improvement.

Another recent study (Erwin, Heimberg, Schneier, & Liebowitz, 2003) examined the impact of patients' experience of anger on the outcome of CBGT for socially anxious patients. Patients who experienced anger more frequently, were more quick-tempered, and were more likely to perceive unfair treatment by others were less likely to complete 12 sessions of CBGT. Among treatment completers, those who experienced more extreme anger and who managed their anger by suppressing its expression (possibly for fear of negative evaluation by group therapists and other group members) responded less favorably to CBGT.

Process factors like expectancies for treatment outcome and compliance with CBGT homework assignments have proved to be strong predictors of treatment outcome. Two studies found patient expectancy to be a unique predictor of out-

come, even when other important variables such as pre-treatment severity were controlled (Chambless et al., 1997; Safren, Heimberg, & Juster, 1997). Homework compliance has also been shown to be associated with outcomes, with better compliance related to more positive outcome at both post-treatment (Leung & Heimberg, 1996) and six-month follow-up (Edelman & Chambless, 1995).

In conclusion, studies examining predictors of response to cognitive-behavioral interventions have identified factors that do and do not appear to be related to treatment outcome. Efforts to maximize factors related to positive gains may improve our treatment interventions. For example, techniques for modifying negative expectancies, increasing homework compliance, decreasing depression, or increasing anger-management skills, may lead to better response. These studies further suggest that patients with particular profiles, such as patients with generalized social phobia or comorbid APD, may require longer or more intensive treatment.

LESSONS LEARNED FROM CLINICAL EXPERIENCE WITH COGNITIVE-BEHAVIORAL GROUP

While the CBGT manual clearly specifies the steps necessary for the conduct of sessions, years of clinical experience conducting CBGT have revealed common difficulties encountered in its implementation. This section addresses five types of problems that may arise in the conduct of CBGT: (1) difficulties during cognitive restructuring, (2) difficulties during exposure, (3) difficulties with homework assignments, (4) difficulties with interpersonal dynamics, and (5) difficulties with the demographic composition of groups. Our intention is to increase attention to these possible difficulties and provide suggestions for addressing these issues.

Difficulties during Cognitive Restructuring

Problems in the conduct of cognitive restructuring can arise on the part of both patients and therapists. Common problems presented by patients include a failure to report automatic thoughts, an inability or unwillingness to recognize thoughts as irrational or distorted, or a failure to grasp the central concepts of cognitive restructuring (e.g., an apparent inability to label thinking errors). When patients are unable to report automatic thoughts in the presence of high anxiety, it can be helpful to realize that the patient may be labeling his or her thoughts as feelings or reactions instead of thoughts. Prompts such as "what are you worried about?" or "what do you think might happen?" can often be helpful. Once automatic thoughts are elicited, some patients may be unable or unwilling

to recognize these thoughts as distorted. Instead of arguing with the patient about whether thoughts are distorted or not, therapists may find it more useful to focus on whether the thoughts are adaptive and helpful in reaching the patient's goals. Finally, a small subset of patients are simply unable to master the central concepts of cognitive restructuring, and, in this case, we suggest that therapists try to reduce the complexity of the cognitive restructuring for these patients (e.g., by placing greater emphasis on self-statement substitution) and/or place a greater emphasis on repeated exposures.

While it is important to know how to address typical problems presented by patients, it is also useful for therapists to be aware of difficulties to which they may contribute. Some suggestions for the successful conduct of cognitive restructuring are as follows. First, therapists should avoid permitting patients to recount long and detailed stories about their anxious experiences as this may be an attempt to avoid potentially anxiety-provoking in-session exposure exercises. Second, therapists should focus on categorization and disputation of a representative sample of automatic thoughts, instead of trying to individually address each item from an exhaustive list. Attempts to address an exhaustive list of thoughts will generate more information than patients can retain, and patients will often find it difficult to keep their attention focused on cognitive-restructuring activities for the extended period required to address all thoughts. We have often observed that patients who experience significant anticipatory anxiety may experience a profound escalation in their anxiety as they focus on upcoming exposures more and cognitive-restructuring activities less. Therefore, it is far better to focus on a smaller sample of automatic thoughts and do a thorough job with them. Third, therapists should recognize that an exposure can begin before all cognitive-restructuring work is done. Therapists should guide the patient through the prescribed steps of cognitive restructuring before the in-session exposure, but it is unnecessary for the patient to thoroughly believe the alternatives to all his or her automatic thoughts before the exposure is begun. In-session exposures are often the most effective cognitive-restructuring tool. Fourth, therapists should address thoughts about specific negative consequences, rather than immediately confronting core maladaptive beliefs. For example, it is unlikely to be productive to challenge thoughts like "I'll be anxious" in the beginning stages of treatment. Although these thoughts may be quite exaggerated, thoughts about specific negative consequences of anxiety or poor performance may be more open for modification, and successful change in these beliefs may undermine the reasons that the patient predicts anxiety. Finally, above all, therapists should be patient and supportive of the patient's efforts at each stage of cognitive restructuring, avoiding telling the patient the "correct" answer or providing a rational response. Patients who do most of their own work will best develop and refine the skills necessary for enduring change. Lastly, therapists should be mindful of needlessly repeating what other therapists or patients have already said or of longwinded interventions that allow patients to become distracted or daydream while not the focus of attention.

Difficulties during In-Session Exposures

Problems can also arise in the conduct of in-session exposures. Patients may fail to report anxiety, role-players may perform in a less than desirable manner, or patients may fail to achieve goals. Therapists can successfully address each of these potential problems. If a patient fails to report anxiety during an exposure, therapists should: (1) assess whether the key anxiety-evoking aspects of the situation were incorporated, (2) assess whether the patient is experiencing anxiety but unwilling to report it, and (3) assess whether the patient engaged in disqualification of the exposure experience. Assessing these domains should reveal the source of the apparent discrepancy and allow for necessary modifications. To avoid less than desirable performance by role-players, the therapists should carefully select these individuals (particularly when using other group members) and provide them with detailed instructions as to what is expected of them. Finally, to avoid situations where the patient's worst fears do come true, it is best to take a graduated approach to exposures, having the patient attempt less difficult situations before more difficult ones.

Difficulties with Homework Assignments

As discussed earlier, homework compliance is related to better outcomes in CBGT (Edelman & Chambless, 1995; Leung & Heimberg, 1996). Therefore, addressing problems with homework completion is integral to the success of CBGT. Therapists should put serious thought into the development of appropriate homework assignments. This may be challenging in the case of more severely anxious or impaired patients who may have few opportunities for social interaction because of chronic avoidance of anxiety-provoking situations. For such patients, initial assignments may focus on the creation of future homework opportunities (e.g., join a social organization, enroll in a class, etc.). As a temporary solution, patients may also use visualization techniques to "engage" in their feared situations and complete cognitive restructuring around the visualized situation. Therapists should also be careful not to assign homework that the patient perceives as too difficult, as social fears may inhibit some patients from expressing disagreement with an assignment. To avoid this situation, therapists should actively involve patients in homework selection and should not consider a specific task as assigned until it is agreed to by the patient. Secondly, patients may fail to complete assignments. Procrastination arising from anxiety about the assigned task can result in failure to complete assignments. Therapists can circumvent patient procrastination if they assign: (1) cognitive restructuring homework in which the patient assesses the true dangerousness of the homework task, (2) another group member to serve as a homework "buddy" who will provide support and encouragement before the assignment is attempted, or (3) a situation that is less difficult or time-consuming. It is also important to keep in mind that, although completing homework assignments is an important step, completion does not

ensure success. Patients can complete assignments in ways that are problematic or produce bad outcomes. Patients should be strongly encouraged to invest time and effort into preparatory cognitive restructuring, as failure to complete adequate cognitive restructuring may increase the probability of an unsatisfactory outcome. Patients should also be encouraged to set specific behavioral goals and to beware of disqualifying positive outcomes after completing assignments. Finally, patients occasionally may attempt a homework assignment and fail to achieve their goals. In these instances, it is important to help the patient adopt a problem-solving attitude about the failure and use it as a learning experience.

Difficulties with Interpersonal Dynamics

While difficulties can arise in the implementation of various components of CBGT, more general difficulties can also arise as a result of interpersonal dynamics between therapists and patients, among patients, or between therapists. Before the start of treatment, therapists should assess whether patients are appropriate for treatment in a group format. A patient who is overly verbose or insensitive to the concerns of other patients may inhibit the progress of the group. If this behavior is extreme, a referral for individual treatment may be preferable. If a patient who is verbose, or who attempts to dominate the attention of others, is enrolled in a group, therapists may wish to address these problems by suggesting behavioral goals for in-session exposures that will help the patient in interpersonal situations. For example, an exposure for a verbose man may include the goal of asking the role-player at least three open-ended questions and ask follow-up questions rather than talking about himself. Therapists may also wish to provide feedback as to how patients' behavior may be related to their anxiety in stressful situations. Further, some patients may have difficulty interacting with others based on their social fears. For example, a female patient with fears of talking to men may have difficulty interacting with male patients or therapists. Other patients with fears of authority figures may have difficulty interacting with the therapists. In these cases such interactions may become the focus of in-session exposures.

Difficulties with the Demographic Composition of Groups

Additional difficulties can arise if therapists are not cognizant of the demographic composition of each group. Some patients may feel uneasy about participating in a group entirely comprised of patients and therapists of a different ethnic, cultural, or religious background (e.g., an African American patient in a group of otherwise exclusively Caucasian American patients and therapists). Similarly, patients may feel uncomfortable being the only man or only woman in the group. This may be especially important if the person of the minority gender is in treat-

ment for fear of heterosexual interactions. In order to address these potential problems, we recommend making efforts to include patients from a variety of backgrounds and balancing the number of men and women in CBGT groups whenever possible. Further, clinicians should be careful not to assume that all patients in a group are heterosexual. CBGT therapists should therefore avoid asking questions that assume heterosexuality, such as asking a single woman with dating anxiety to "tell the group about your previous dates with men" before the patient has announced the gender of her dating partners.

In some instances patients will attempt to hide personal information (e.g., sexual orientation) or feel uncomfortable discussing concerns regarding potentially volatile topics (e.g., racial discomfort). In many cases, patients may be afraid to reveal their personal information or concerns specifically because of their social phobia. In these cases, we believe that these issues need to become a target of intervention as soon as possible. Support for the need to incorporate racial concerns into treatment plans is provided in a case study presented by Fink, Turner, and Beidel (1996). In this case, a 39-year-old African American woman reported fear of interacting with colleagues in the medical field. However, therapists later learned that her fears focused on interactions with Caucasian Americans and incorporated these concerns into her treatment exercises. Fink et al. (1996) argued that it is unlikely that the long-term success realized by their patient would have been observed if her core concerns regarding cultural factors had not been addressed.

Beyond the need to develop appropriate treatment exercises, failure to disclose important information may also damage group cohesiveness. For example, imagine a situation in which a gay man masquerades as a straight man while saying he wants to develop dating relationships. If the "secret" is ultimately revealed after several weeks of treatment, other group members may feel betrayed, greatly impairing group cohesiveness. If therapists believe that a particular patient may be holding back, the therapists should meet privately with the patient and discuss the need to be open and honest in order to maximize treatment gains.

FUTURE DIRECTIONS

As stated above, CBGT has been shown to be an efficacious treatment for those suffering from social phobia. However, several issues in the implementation of CBGT have not yet received adequate empirical attention. Among these are (1) demonstration of CBGT effectiveness (as opposed to efficacy), (2) use of CBGT in private practice and hospital settings, (3) initiation of CBGT versus medication treatment, (4) use of medication in combination with CBGT, (5) use of CBGT versus ICBT, and (6) tailoring the length of treatment to the needs of different patients.

While CBGT has been shown to be efficacious in empirical trials, it is worthwhile to consider the distinction between efficacy and effectiveness. Efficacy typically refers to treatment outcomes obtained in controlled psychotherapy

studies conducted within the confines of a laboratory, whereas effectiveness refers to treatment outcomes obtained in real-world clinic settings (Kazdin, 1998). Future studies need to assess the effectiveness of CBGT in non-research settings. Furthermore, although CBGT has been shown to decrease levels of symptom severity, future studies should examine whether CBGT returns patients to levels of functioning comparable to the general population (see Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999). Finally, the ability of CBGT to improve general quality of life (e.g., job satisfaction, relationship satisfaction, health, etc.) should be further assessed. Safren, Heimberg, Brown, and Holle (1997) took a step in this direction and studied quality of life before and after CBGT in individuals with social phobia. Before treatment, individuals with social phobia judged their quality of life to be significantly poorer than normative samples. Although CBGT was shown to result in significant increases in patients' self-reported quality of life, the mean for the clinical sample was still lower than typical ratings for normative samples. Eng, Coles, Heimberg, and Safren (2001) examined quality of life after treatment with CBGT and again at six-month follow-up. Like Safren, Heimberg, Brown, and Holle (1997), they demonstrated improved quality of life immediately after treatment and these gains were maintained at follow-up. Nevertheless, mean ratings remained below the norm. More research is needed to assess the ability of CBGT to return patients to levels of functioning consistent with normative samples in a variety of domains.

It also remains to be seen how effective CBGT will be in private practice and/or hospital settings. Many therapists may not have access to the predominantly academic settings where much of CBGT training for therapists occurs. While we hope that chapters such as this will be of service to those wishing to treat people with social phobia, greater efforts should be made in making CBGT training (or cognitive-behavioral training for many disorders, for that matter) more broadly accessible. For example, trained therapists may wish to consider setting up training workshops combined with multi-media long-distance training materials (e.g., videotape and computer-based media) and long-distance supervision of therapists who live too far away for face-to-face supervision. We hope that such efforts will be accompanied by research documenting the transportability of treatment using these and other training methods.

Clinicians should carefully weigh the benefits and drawbacks of using CBGT versus medication. While CBGT has the benefits of a lower relapse rate than at least one medication for social phobia (Liebowitz et al., 1999) and is not associated with side-effects such as dry mouth or sexual dysfunction, medication treatments may also have advantages. Medications are easier to administer than CBGT, and there are more clinicians able to administer medications than clinicians trained as cognitive-behavior therapists. Patients in rural areas may have difficulty locating a CBGT therapist and may prefer to go instead to a family physician for pharmacotherapy. Patients in rural and other areas in which no CBGT therapists are available may benefit from medications in tandem with self-help solutions (e.g., patient workbooks or computer programs) based on cognitive-behavioral principles. However, research is needed to demonstrate the efficacy of medications combined with self-help programs.

Further, we are interested in learning more about how to best combine medications with CBGT. We predict that the success of a combined medication–CBGT treatment would be maximized by the use of a team-based approach between physicians and therapists, whereby clinicians would actively communicate with each other about patient difficulties and progress in each treatment modality. In addition, we are curious as to the benefits of a staggered treatment plan whereby medication would begin before the commencement of CBGT and would terminate before the end of CBGT (Heimberg, 2002). Administration of medication before CBGT may increase the effectiveness of CBGT by reducing avoidance of feared situations (although this is likely to differ from medication to medication; e.g., there is evidence to suggest that exposure treatment for agoraphobia is compromised by the concurrent use of benzodiazepines; see Sartory, 1983). This staggered treatment would also allow the patient to have several weeks of treatment without medication to explore whether treatment-related reductions in anxiety and avoidance are attributable solely to the medication or to a combination of the medication and the patient's own personal efforts. CBGT may also be useful as relapse prevention after termination of medication.

Individual cognitive-behavioral treatment may also be used as an adjunct or instead of CBGT in the treatment of social phobia. Individual treatment as an adjunct to CBGT allows the therapist to spend more time on the patient's broader treatment goals and to address other issues that arise over the course of treatment (e.g., depression, anxiety problems not directly related to social phobia, relationship issues). As mentioned above, CBGT has been successfully adapted for individual treatment (ICBT; Hope et al., 2000). ICBT obviates the need to wait until a group is assembled and allows for more scheduling flexibility. However, ICBT removes the automatic group social situation inherent in CBGT. ICBT also decreases the number of available role-players for exposures and eliminates opportunities for the patient to hear schema-discordant feedback from other group members about his or her performance.

Whether conducting therapy in a group or individual format, therapists may wish to consider issues regarding the length of treatment. The length of CBGT sessions as defined in the manual ($2^1/_2$ hours) may be difficult to fit into many therapists' or patients' schedules. Although the length of sessions can be decreased, therapists may then need to consider increasing the total number of sessions. However, this may need to be balanced with limitations on the overall number of sessions covered by each patient's health insurance. Therapists may also wish to consider tailoring the number of sessions depending on the clinical characteristics of the individual patient or patients. For example, patients with specific fears of public speaking will likely need fewer sessions than patients with more generalized concerns, and moderately impaired patients will likely need fewer sessions than severely impaired patients. Likewise, patients with comorbid depression tend to have more severe social anxiety (Erwin et al., 2002) and may therefore benefit from more extended treatments relative to those with uncomplicated social phobia. When conducting group therapy instead of focusing on a time-limited

treatment plan, therapists may also consider using openended groups that allow patients to terminate therapy as they reach their treatment goals.

CONCLUSIONS

This chapter highlights the progress that has been made in cognitive-behavioral interventions for social phobia. During the past two decades a treatment specifically designed for social phobia, CBGT, has been developed and refined. Further, numerous trials have supported the efficacy of CBGT and identified predictors of response to CBGT. This chapter presented a cognitive-behavioral model of social phobia, discussed recommendations for the assessment of patients with social phobia, and presented basic steps for the conduct of CBGT. Further, we presented potential difficulties in the conduct of CBGT and discussed methods for circumventing, or addressing, such difficulties. We hope that this chapter will not only aid clinicians in the treatment of social phobia, but will also serve as an impetus for further research on how to maximize treatment gains in a wide variety of clinical settings.

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Chapter 13

Psychopharmacological Treatments: An Overview

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Social phobia (social anxiety disorder) has not customarily been viewed as a condition responsive to pharmacological treatment. In its generalized form it is often considered to be a type of extreme shyness or variant of avoidant personality disorder and thus enduring and resistant to change. The discrete subtype has been seen as akin to simple phobia and potentially responsive to behavioural therapies. The development of nosological systems, recognition of its high frequency and untreated morbidity, and the publication of promising case reports led to the intensive examination of drug treatments of social phobia. This chapter critically evaluates the pharmacological regimens that have been used to treat social phobia.

MONOAMINE OXIDASE INHIBITORS

Introduction

Monoamine oxidase inhibitors (MAOIs) have been used in the treatment of depression since the 1960s, and by the mid 1980s researchers such as Liebowitz noted that atypical depressives with interpersonal hypersensitivity responded particularly well to phenelzine (Liebowitz et al., 1985). Open and controlled trials followed, which have confirmed the efficacy of MAOIs in the treatment of social phobia. Subsequently, reversible inhibitors of monoamine oxidase subtype A (RIMAs) that do not require a special diet have been developed, such as moclobemide (Fulton & Benfield, 1996) and brofaromine.

Irreversible MAOIs

Phenelzine

Following a promising open trial (Liebowitz et al., 1986), Liebowitz's group (Liebowitz et al., 1992) conducted a randomized controlled trial (RCT) compar-

ing phenelzine and the beta-blocker atenolol in 74 completing DSM-III social phobics. Outcome measures included Clinical Global Improvement (CGI) and the Liebowitz Social Anxiety Scale (LSAS), as well as self-rating scales. Phenelzine was significantly more effective than both placebo and atenolol from week 8 onward according to observer ratings, although this did not reach significance on self-rating scales. Drug responders, as measured by CGI (very much or much improved), were then entered into an 8-week maintenance phase. There was little clinical change in this period, and numbers were small. A final discontinuation phase of 4 weeks lacked statistical power.

A second, rather complex double-blind study was undertaken in 65 DSM-III-R social phobic patients (Gelernter et al., 1991). All subjects received self-exposure therapy, and were randomized to phenelzine, alprazolam, cognitive and behavioural group therapy (CBGT) and placebo. Although those subjects treated with phenelzine or CBGT tended to maintain treatment gains for 2 months after therapy, there were no statistically significant differences between the four groups in the percentage of unequivocal responders or in other primary outcome measures.

There are a number of possible explanations for the lack of significance. First, the authors chose an exceptionally conservative response criterion—subjects were retrospectively classed as responding if they fell below the mean for the general population on the social phobia subscale of the Fear Questionnaire (FQ). Second, blind physician ratings were only completed for the medication groups, possibly confounding the results. Third, the pill placebo plus exposure therapy control group may not be a truly inactive comparison group. Fourth, the small sample size lacked adequate statistical power.

A double-blind, parallel group, flexible dose, placebo-controlled study of phenelzine and moclobemide was performed with 78 subjects with DSM-III-R social phobia (Versiani et al., 1992). Stringent exclusion criteria were used to minimize comorbidity, apart from avoidant personality disorder as measured on the Structured Clinical Interview for DSM-III-R (SCID) Axis II. Phenelzine was superior to moclobemide on some measures by week 4, although the former suffered from more severe, frequent, and intractable side-effects. At the end of the 8-week treatment phase, both phenelzine and moclobemide were significantly more effective than placebo on the LSAS, CGI and the Social Avoidance and Distress Scale (SADS). The difference in onset between the active drugs may reflect the lower starting dose of moclobemide (200 mg/day until day 4, then 400 mg/day until end of week 4), as when this trial was performed the effective dose of moclobemide, generally 600 mg/day had not been established. Both drugs were still effective at week 16, although relapse was usual 8 weeks after stopping treatment. Avoidant personality disorder was common in all three groups at baseline (43/78 subjects), however by week 8 only 3 subjects on active drug (all moclobemide) still met the criteria, whereas 14 out of 16 in the placebo group continued to meet the SCID-II criteria.

An important trial addressed the comparative efficacy of drug and psychosocial treatments for social phobia (Heimberg et al., 1998). A four-cell

design compared phenelzine, tablet placebo, CBGT and educational supportive group therapy (a credible psychosocial control (Heimberg et al., 1990)) in 133 patients from 2 sites over 12 weeks. One site was well known for pharmacological treatment (Liebowitz), the other for cognitive behavioural treatment (Heimberg) of anxiety disorders. A rationale for this design is discussed elsewhere (Liebowitz & Heimberg, 1996).

Phenelzine therapy and CBGT were superior to both placebo treatments across most measures after 12 weeks. Phenelzine response was more evident by 6 weeks, when 52% were classed as responders in contrast to 28% of patients undergoing CBGT. Overall, the magnitude of response effect was greater for phenelzine by 12 weeks, independent of site. There was a trend for reduction in the avoidant personality scores in *all* treatment groups. In the 6-month treatment-free follow up study (Liebowitz et al., 1999), 50% of subjects who had previously responded to phenelzine relapsed, compared with only 17% of CBGT subjects. Phenelzine non-relapsers continued to be more improved than CBGT non-relapsers throughout the study. Relapse on discontinuation was pronounced for patients with generalised social phobia. Thus, although phenelzine may have more immediate efficacy and potentially greater long-term effect, CBGT may confer greater protection against relapse.

Phenelzine has also been a successful treatment of selective mutism, a related condition, in reports of four children aged $5^{1}/_{2}$ to 7 years (Golwyn & Weinstock, 1990; Golwyn & Sevlie, 1999). One of these children had previously shown only minimal response to fluoxetine 16 mg/day.

Tranylcypromine

There have been no controlled trials of tranylcypromine in social phobia. An open trial of 32 patients with DSM-III social phobia looked at the effects of tranylcypromine over one year (Versiani, Mundim, Nardi, & Liebowitz, 1988). Improvement was measured according to discomfort in phobic situations and persistence in avoidant behaviour. At endpoint, 62% were markedly improved, 17% moderately so. Side-effects were common, but only 4 patients ($12^{1}/_{2}$%) dropped out. This group also reported an 8-week open trial with 81 social phobic patients (Versiani, Nardi, & Mundim, 1989). Outcome measures included CGI, which improved significantly, and LSAS, which improved substantially, during this treatment. It is not clear if some patients participated in both trials.

RIMAs

Reversible inhibitors of monoamine oxidase subtype A (RIMAs) held much promise, potentially providing the efficacy of phenelzine without the restrictive dietary requirements needed to avoid tyramine hypertensive crises. Moclobemide is the prototype RIMA, and brofaromine is an experimental drug that combines RIMA action with serotonin reuptake inhibition. Befloxatone, another RIMA, is a potential treatment of the future, having reached phase III trials in Europe and phase II in the USA for anxiety disorders.

Brofaromine

The first double-blind, placebo-controlled trial of brofaromine in social phobia studied 21 females and 9 males over 12 weeks, with an additional 12-week continuation phase for responders (van Vliet, den Boer, & Westenberg, 1992). Brofaromine was more effective than placebo from week 8 onwards on the LSAS and Hamilton Anxiety Rating Scale (HAM-A). Gains were maintained in the maintenance phase, and the drug was well tolerated, although middle insomnia was reported in 73%.

The above report was the Dutch part of a two-country independent trial of brofaromine. The Swedish part ($n = 77$) was presented in 1995 (Fahlen, Nilsson, Borg, Humble, & Pauli, 1995). The primary efficacy results were similar in both studies, with 78% of brofaromine patients compared to 23% of placebo patients scoring much or very much improved on the CGI at 12 weeks. Sleep disturbance was again a prominent side-effect, although this led to withdrawal from the study in only one subject. The brofaromine responders ($n = 22$) continued to improve during the 9-month, single-blind follow-up phase, whereas 6 of the 10 (60%) placebo responders relapsed.

The diagnosis of DSM-III-R avoidant personality disorder was examined in a subgroup of 57 patients compared with 58 controls (Fahlen, 1995). Although about 60% of both groups met diagnostic criteria before treatment, by 12 weeks this had significantly dropped to 20% in the brofaromine group in contrast to 44% in the control group.

A 12-week, 10-centre, placebo-controlled trial of brofaromine was undertaken in 102 outpatients with a primary DSM-III-R diagnosis of social phobia (Lott et al., 1997). Brofaromine-treated patients showed a significant although moderate reduction in LSAS, given that the mean endpoint score of 62.6 is still in the clinical range. Insomnia was noted in 7 of the 11 brofaromine patients who discontinued.

Moclobemide

A controlled trial comparing moclobemide and phenelzine with placebo (Versiani et al., 1992) is discussed above. Moclobemide showed similar but delayed efficacy in comparison to phenelzine, with better tolerability. Avoidant personality symptoms decreased with both active treatments.

A large ($n = 578$) multicentre, placebo-controlled, parallel group study set out to examine the efficacy and safety of moclobemide at doses of 300 and 600 mg/day over 12 weeks (Katschnig, Stein, & Buller, 1997). There were 445 completers, and attrition rates were similar among the three treatment groups. Moclobemide at 600 mg/day was significantly superior to placebo on primary and secondary efficacy measures. Moclobemide at 300 mg/day showed a trend towards efficacy on all outcome measures but achieved significance on about half of them. The magnitude of the response to moclobemide in this study was moderate; for instance, the LSAS total score dropped from 80.2 to 50.9 in the 600 mg/day group. Insomnia and headache were common adverse events, especially at the 600 mg/day

dose. Post-hoc analyses showed that patients taking moclobemide 600 mg/day had a similar response regardless of the diagnosis of avoidant personality disorder, the duration of the illness, or the level of severity. Subjects with avoidant personality disorder responded less often to placebo.

In order to determine the efficacy and safety of different doses of moclobemide in the treatment of social phobia, a large ($n = 532$) 12-week fixed-dose study using 75, 150, 300 and 900 mg/day was undertaken in the United States (Noyes et al., 1997). At the end of the trial, the response to moclobemide was indistinguishable from placebo. There was a trend towards greater efficacy of higher doses at week 8, which was not seen at week 12. The reason for this discrepant finding is not clear. It has been suggested that the study lacked sufficient statistical power once the dropout rate increased to over 30% between weeks 8 and 12 (Nutt & Montgomery, 1996); that using a categorical rather than dimensional primary outcome variable to measure responders would show a moderate effect (Blanco & Liebowitz, 1998); and the study authors commented on the high rate of placebo responders.

An open, naturalistic, 4–6-year study of moclobemide in DSM-III-R social phobia sought data on efficacy of long-term treatment and relapse, as well as identifying predictors of response (Versiani, Amrein, & Montgomery, 1997). All of the treatment phase completers (63.4%) responded, half improving by 8 weeks and two-thirds by 6 months. Absolute decreases in LSAS were greater in persons with generalized social phobia than circumscribed social phobia; however, the relative reduction was similar (about 4% per month). Success was highest in patients without concomitant avoidant personality disorder and lowest in persons with concomitant alcohol abuse. During the no-treatment period, 88% relapsed. There was no difference between gradual and abrupt withdrawal in terms of relapse. At post-study interview, 63.2% were almost asymptomatic or better.

A subsequent single-centre, flexible dose study has confirmed the tolerability of moclobemide in social phobia but shown only limited clinical efficacy (Schneier et al., 1998). Seventy-seven non-placebo responders with DSM-III-R social phobia were randomized to moclobemide or placebo for 8 weeks of treatment, with CGI responders having the option to continue for an additional 8 weeks. Response rates at week 8 were modest. Moclobemide was superior to placebo on only 2 of 10 primary outcome measures (LSAS subscales). Neither group showed significant changes on any continuous outcome measure from weeks 8 to 16. Despite a published criticism (Duffett, 1998), this article is notable for a balanced discussion of the differences in moclobemide efficacy between studies.

Conclusions

Irreversible MAOIs are the most thoroughly evaluated drug treatments for social phobia. Phenelzine's efficacy is unsurpassed to date in comparison with beta-blockers, benzodiazepines, RIMAs, and CBGT—at least in the short term (8–12

weeks). Long-term treatment may be needed, as relapse on discontinuation may be substantially higher than that seen with CBGT. The dietary restrictions required by this class, toxicity in overdose, and interaction with other drugs unfortunately limit the usefulness of these drugs in many settings.

The RIMAs brofaromine and moclobemide have failed to live up to their initial promise. Despite substantial efficacy in short-term trials, sleep disturbance was a persistent problem with brofaromine, and it has been withdrawn for reasons unrelated to its effectiveness in social phobia. Moclobemide may not be a highly efficacious treatment for social phobia, although the clinical evidence is contradictory. A long-term study was more promising; however, as this medication does not have a marketing indication in the United States, its future seems bleak.

BENZODIAZEPINES

Introduction

Benzodiazepines augment the action of GABA, the major inhibitory neurotransmitter in the brain. Their rapid onset of action, favourable side-effect profile, and low risk for overdose fatality compared with the barbiturates has made them popular treatments. There is much concern, particularly in the lay press, of misuse and withdrawal problems with benzodiazepines although this is often exaggerated (Uhlenhuth, Balter, Ban, & Yang, 1995). Benzodiazepines are very effective, fast-acting anxiolytics, and the use of an anxiolytic to treat social phobia makes intuitive sense.

Alprazolam

An early case study described 4 patients who responded well to alprazolam (Lydiard, Laraia, Howell, & Ballenger, 1988). Another group examined 14 patients with DSM-III social phobia (Reich & Yates, 1988). Although 10 rated very much improved and four much improved by CGI, by one week after discontinuation all rating scales had returned to baseline. The comparative, randomized study of phenelzine, alprazolam, placebo and CBGT discussed above did not show any significant difference between treatments, although there are methodological concerns (Gelernter et al., 1991). There was, however, a trend for alprazolam relapse after discontinuation and for superior efficacy of phenelzine.

Clonazepam

Clonazepam has been more extensively investigated as a treatment of social phobia. Versiani et al. treated 40 patients who achieved significant improvement in LSAS (81.6 to 31.6) and CGI (5.0 to 2.1) after 8 weeks (Versiani et al., 1989). In a series of 5 patients, clonazepam was well tolerated and effective in all by CGI at week 8, with one patient remaining symptom free for 12 months after dis-

continuation (Ontiveros & Fontaine, 1990). Nine of 11 patients with generalized and specific social phobic variants responded to clonazepam in another report (Reiter, Pollack, Rosenbaum, & Cohen, 1990).

A placebo-controlled trial of clonazepam in 23 DSM-III-R social phobic subjects showed a significant benefit in the treatment group by week 8 on the LSAS, SAD, and FNE (Munjack, Baltazar, Bohn, Cabe, & Appleton, 1990). Initial sedation was usual in subjects receiving clonazepam, although it usually resolved spontaneously or with dose reduction.

Longer term data were reported in a 1- to 20-month open trial of clonazepam in 26 patients with social phobia (Davidson, Ford, Smith, & Potts, 1991). Only 15% failed to improve. Sedation, memory impairment and sexual dysfunction were the most frequently reported side-effects, however these were well tolerated with dose reduction. This study was followed by a randomized, controlled trial of clonazepam 0.5–3 mg/day in 75 patients with DSM-III-R social phobia (Davidson et al., 1993). Significant benefit was shown for clonazepam from as early as week 1 by CGI, with progressive and large magnitude reductions across most scales. At week 10, the response rate for clonazepam by CGI was 78.3% in contrast to 20.0% for placebo; LSAS dropped from 78.3 to 38.1. Side-effects were common but well tolerated. Unsteadiness and dizziness were particularly frequent and persistent. A general maintenance of gains was found in 56 of these patients, who were questioned two years after this trial (Sutherland, Tupler, Colket, & Davidson, 1996).

A controlled investigation of clonazepam discontinuation in 37 CGI responders to 6 months' open treatment compared continuation treatment with a gradual cessation (Connor et al., 1998). Slow discontinuation (0.25 mg/2 weeks) of clonazepam after 6 months' successful treatment of social phobia was well tolerated, although clinical response was modestly better in the group that took clonazepam for 11 months. Subjects randomised to continuation treatment underwent a rapid withdrawal over 3 weeks, which was not associated with significant change in clinical efficacy. However, post-hoc analysis showed more evidence of withdrawal symptoms than with the slow taper method. Despite this finding, no major withdrawal problems were seen with either regimen.

Bromazepam

There is one open trial of 10 patients who were treated for 8 weeks with bromazepam (Versiani et al., 1989). Significant improvement by CGI, LSAS, and Sheehan Disability Score (SDS) was seen, with LSAS decreasing from a mean of 69.3 to 15.8 by week 8. Somnolence was reported in all subjects.

Conclusions

Alprazolam and bromazepam have been investigated as treatments for social phobia; however the data for clonazepam are both more promising and complete.

Clonazepam is a well-tolerated treatment, although side-effects such as unsteadiness and dizziness may be particularly persistent. Significant improvement after as little as one week is seen in some studies, and long-term gains of up to two years post-treatment have been shown. Major withdrawal problems are uncommon and may be minimized by a slow taper. Benzodiazepines may also be used on an as-required basis to aid confrontation of phobic situations. Long-term continuation treatment may be an effective strategy as there is a trend for loss of effect after stopping treatment. The potential for interaction with often comorbid alcoholism and the lack of antidepressant action should be carefully considered when choosing benzodiazepines.

SPECIFIC SEROTONIN REUPTAKE INHIBITORS

Introduction

Since the introduction of fluoxetine in the United States in 1988, specific serotonin reuptake inhibitor (SSRI) drugs have been widely prescribed as effective, well-tolerated and safe antidepressants. The nomenclature of these agents as "antidepressants" is increasingly outdated, as SSRIs have proven efficacy in a wide range of psychiatric conditions, including bulimia nervosa, obsessive-compulsive disorder (OCD), borderline personality disorder and dysthymia. Most recently, some SSRIs have obtained US Food and Drug Administration (FDA) approval for treatment of panic disorder (see Hood, Argyropoulos, & Nutt, 1999) and social phobia.

Fluvoxamine

In the first study of SSRI's in social phobia, fluvoxamine was shown to be superior to placebo in a small randomized-controlled trial (van Vliet, den Boer, & Westenberg, 1994; den Boer, van Vliet, & Westenberg, 1994). Thirty outpatients were treated with fluvoxamine. At week 12 (measured by a 50% drop in LSAS anxiety subscale), fluvoxamine was significantly more effective (47%) than placebo (8%). Despite a gradual dose titration from 50 mg/day, anxiety was common (8/15) in the first few weeks of fluvoxamine treatment, as were nausea and sleep disturbance.

A subsequent multi-centre, double-blind, placebo-controlled trial investigated the effect of fluvoxamine (mean dose 202 mg/day) in 92 patients with DSM-IV social phobia (Stein et al., 1999a). Depressed patients were not explicitly excluded, although most scored less than 10 on the HAM-D at onset. Fluvoxamine was superior to placebo on all social phobia rating scales from week 8 onwards. At week 12, there were significantly more CGI responders in the fluvoxamine group (42.9%) than in the placebo group (22.7%). Side-effects, especially nausea and insomnia, led to discontinuation in one quarter on fluvoxamine, although sexual dysfunction in males was notably infrequent (11.4%).

Sertraline

The same group conducted an early open trial of sertraline in 22 patients with DSM-III-R social phobia over 8 weeks (Van Ameringen, Mancini, & Streiner, 1994). An 80% success rate by CGI was reported in 20 completers, although a high rate of comorbid depression may have inflated this figure. Subsequently, 11 social phobics without comorbid depression, substance abuse, or other anxiety disorders were enrolled in a 12-week open trial of sertraline (Munjack, Flowers, & Eagan, 1994). Five of seven completers responded significantly by week 6. A similar open trial ($n = 24$) that excluded comorbid social phobics found that 11 of 19 completers (58%) responded significantly in six weeks across primary and secondary outcome variables (Martins et al., 1994). Side-effects were common especially early in treatment, but no serious side-effects were seen. Finally, an open review of 11 patients treated with sertraline for at least 4 weeks showed that 63% were rated as much or very much improved by CGI (Czepowicz et al., 1995).

A double-blind, placebo-controlled, cross-over trial of sertraline in DSM-III-R social phobia was undertaken in 12 outpatients using flexible dosing (Katzelnick et al., 1995). Each arm lasted for 10 weeks with an intermediate 2-week taper. Half of the subjects receiving placebo were rated as either moderately or markedly improved in contrast to one patient (9%) taking placebo ($p < 0.03$). The mean reduction in LSAS during sertraline treatment was a substantial 22.0 in contrast to 5.5 in those taking placebo. Subjects taking sertraline first showed a non-significant tendency not to return to pretreatment levels while subsequently taking placebo.

Recently, 206 outpatients with generalized social phobia were randomized to 20 weeks' treatment of sertraline or placebo (Van Ameringen, Swinson, Walker, & Lane, 1999). Sertraline-treated patients showed significant improvement on all primary and secondary outcome measures, with 53% receiving sertraline versus 29% taking placebo responding by CGI.

A case series of seven children and adolescents with DSM-IV social phobia as a primary diagnosis included a 17-year-old girl who responded dramatically to sertraline 175 mg/day (Mancini, Van Ameringen, Oakman, & Farvolden, 1999).

Paroxetine

The earliest data were those of Ringold, who reported two cases of patients with social phobia who appeared to show a preferential response to paroxetine 20 mg/day over fluoxetine and sertraline (Ringold, 1994).

Stein and colleagues undertook an 11-week open study of paroxetine (mean dose 47.9 mg/day) in 36 patients with DSM-IV generalized social phobia (Stein et al., 1996a). Although 79% also met criteria for avoidant personality disorder in this study, it is not stated if this diagnosis affected outcome. Substantial improvement was seen in 77% of 30 completers, rating much to very much improved on CGI. Mean LSAS score declined substantially from 75.1 to 37.2 at week 11. In a second phase of this study, 16 responders were randomized in a

double-blind fashion to withdraw using paroxetine or placebo. There was a trend for placebo-substituted patients to fare worse, suggesting that early discontinuation of paroxetine results in high relapse rates.

The first published RCT of paroxetine in generalized DSM-IV social phobia assessed 187 patients across 14 North American centres over 12 weeks of treatment (Stein et al., 1998). The paroxetine group had significantly more dropouts than placebo (34% versus 23%, $p < 0.03$), largely due to dose-related adverse effects, including delayed ejaculation (36% of males), headache, somnolence and nausea. Paroxetine was significantly superior to placebo on 5 of 6 efficacy measures, with a trend to improvement on the sixth. Mean LSAS scores declined from 78.0 to 47.5 in the active group, significantly favouring paroxetine. By CGI, 55.0% of persons taking paroxetine improved in contrast to 23.9% of those receiving placebo. A post-hoc analysis of this study to assess the relative efficacy of paroxetine in severe (LSAS > 82) or moderate (LSAS = 51–81) social phobia showed that while moderate social phobia responds well, severe social phobia responds even better (Montgomery, 1998). It has recently been reported that 90 completers from this study entered into a 24-week open phase with paroxetine followed by a one-week, double-blind, randomization phase with paroxetine or placebo (Kumar, Pitts, & Carpenter, 1999). The number of CGI responders increased from 44% to 89% at the end of week 24 (63% taking note of 26 dropouts), with continuing improvement in LSAS. The re-randomization showed significant benefits for paroxetine by SADS and SDS work and family life items. Thus, 9 months of paroxetine treatment produced continuing symptomatic improvement.

A randomized, double-blind, placebo-controlled trial was undertaken in 290 patients with DSM-IV social phobia in South Africa (Stein et al., 1999b) and Europe over 12 weeks (Baldwin, Bobes, Stein, & Scharwachter, 1999). A one-week, single-blind, placebo phase excluded placebo responders and depressed patients (HAM-D ≥ 15). Thereafter, subjects were randomized to flexible dosage paroxetine or placebo. In contrast to the previous trial, there was no overall difference in withdrawal rates between paroxetine (25%) and placebo (28%). Paroxetine-taking subjects had a significantly greater reduction in LSAS (87.6 to 58.2) and more CGI responders (65.7% versus 32.4%) than the placebo group from week 4 onwards. A statistically significant lessening of disability severity from moderate/marked to mild on SDS was also seen in the paroxetine group. Another RCT (Allgulander, 1999) examined the efficacy of paroxetine in 92 previously untreated patients with generalised social anxiety disorder over 12 weeks. The total LSAS score and response by CGI-I were primary outcome measures. The proportion of responders taking paroxetine (70.5%) was remarkably higher than the proportion taking placebo (8.3%). The reduction in LSAS in subjects taking paroxetine (70.4 to 37.0) was also significantly greater than in the placebo group. Paroxetine separated from placebo by week 4. All of the secondary outcome measures, including patient-rated visual analogue scores, significantly supported paroxetine by the end of the study. The comparatively high paroxetine and low placebo response rates are notable.

A large (n = 384) unpublished multicentre, dose-finding RCT (Liebowitz,

Stein, Tancer et al., 1999) showed that paroxetine was equally and significantly effective at doses of 20, 40 and 60 mg/day, as measured by CGI responders and decrease in LSAS.

The case series of children and adolescents with social phobia mentioned earlier included four girls (aged 11,16,17,18) and one boy (aged 7) who responded markedly to paroxetine treatment over 4–9 weeks (Mancini et al., 1999). Although doses ranged from 5 to 80 mg/day, only one subject reported any side-effect (somnolence).

Fluoxetine

The first report of the successful use of fluoxetine in social phobia described two patients with significant clinical improvement at doses of 20–40 mg/day (Sternbach, 1990). An open study of 12 patients with social phobia treated with fluoxetine led to improvement lasting 6 weeks to 5 months in 67% by CGI (Schneier et al., 1992). Fluoxetine was also prescribed in an open study of 14 patients with generalized social phobia for up to 40 weeks (Black, Uhde, & Tancer, 1992). Seventy per cent taking fluoxetine alone responded. An additional case report of two co-incidental responses to fluoxetine in patients with primary depression and bulimia has been published (Berk, 1995). There is also a single case report of a response to fluoxetine 60 mg/day where paroxetine 40 mg/day and sertraline 200 mg/day had been ineffective (Taylor, 1997).

A 12-week open clinical trial of 16 patients with DSM-III-R social phobia examined the response to fluoxetine 20–60 mg/day (Van Ameringen, Mancini, & Streiner, 1993). An 11-point CGI rating scale was used rather than the standard 7-point scale, making comparisons difficult. Using this scale, 10 of 13 (76.9%) were responders—most had responded by seven weeks of treatment. Another open trial of 32 subjects treated with fluoxetine for 16 weeks showed 90% (26/29) of completers improved by CGI (Koponen, Lepola, & Juhani, 1995). An Italian study of 20 DSM-III-R social phobics with minimal comorbidity showed that 13 of 19 patients responded by CGI over 12 weeks of fluoxetine treatment (Perugi et al., 1994). Response was irrespective of a diagnosis of avoidant personality disorder, however, significantly more women (7/7) responded than men (6/13).

A number of studies involving children and adolescents with social anxiety deserve mention. An open study of 21 youths with treatment-resistant over-anxious disorder, social phobia, or separation anxiety disorder showed that 81% improved significantly by CGI at a mean fluoxetine dose of 25.7 mg/day (Birmaher et al., 1994). Subsequently, an open 9-week clinical trial of fluoxetine was undertaken in 16 children, 12 of whom had social phobia and were aged 10–17 (Fairbanks et al., 1997). Seven of 10 non-placebo-responding patients with social phobia were rated as much improved and one as very much improved after fluoxetine. Fifty per cent of children with social anxiety no longer met DSM-III-R criteria. No patient worsened during fluoxetine treatment, and the drug was well tolerated. A schedule of 5 mg/day initially, increasing by 5 mg daily each

week, was used, although a dose of at least 20 mg/day was needed before any improvement was seen.

There are at least two reports of adolescent girls with fragile X syndrome and selective mutism in which a substantial improvement in severe shyness was noted with fluoxetine treatment (Hagerman et al., 1999; Linden et al., 1999). A 12-week double-blind, controlled study of 15 placebo non-responding children with selective mutism who also met criteria for social phobia showed significant improvement in social anxiety by observer rating scales.

In an interesting study (Pallanti, Quercioli, Rossi, & Pazzagli, 1999), 12 schizophrenic patients with clozapine-induced social anxiety symptoms were subsequently treated with fluoxetine at doses of 20–50 mg/day. In 8 of these cases there was a significant reduction in LSAS total scores. The mean LSAS total score dropped from 83 to 60 with fluoxetine treatment.

Citalopram

There have been no RCT of citalopram in social phobia to date. A case report of 3 patients with social phobia first suggested that citalopram is an effective treatment (Lepola, Koponen, & Leinonen, 1994). These patients were resistant to other treatments and appeared to have had a sustained improvement for at least 12 months. Citalopram was generally well tolerated (one patient developed retarded ejaculation), although benzodiazepines were used initially to minimize jitteriness.

An open, naturalistic trial of citalopram 40 mg/day was performed in 22 patients who had not responded to another SSRI or moclobemide (Bouwer & Stein, 1998). Comorbidity was high, with only 7 patients not having major depression (10/22) or panic disorder (5/22) at time of recruitment. Nevertheless, 86% of the subjects were classed as responders (CGI ≤ 2) by week 12. All patients completed the study, although side-effects such as insomnia, weight gain and decreased libido/delayed ejaculation were common.

Conclusions

The SSRIs have potential advantages over MAOIs and benzodiazepines in terms of dietary restrictions and dependence, respectively. They are efficacious in frequently comorbid conditions such as major depression or panic disorder, and are well tolerated in the medium to long-term treatment of these ailments.

In general, the effective SSRI dose in social phobia is higher than that used to treat major depression. Interestingly, the dose is often less than that needed in panic disorder (e.g., paroxetine 40 mg/day; Ballenger et al., 1998b). This may reflect differences in the neurobiology of these conditions, which to date have not been discerned. The evidence of the efficacy of SSRIs in social phobia is compromised by the lack of any head-to-head comparisons with established treatments such as MAOIs, benzodiazepines or CBGT. Additionally, many studies

have examined generalized social phobics only, so the effectiveness of SSRIs in non-generalized social phobia is far less clear.

Within-group differences are difficult to discern, and a recent meta-analysis (van der Linden, Stein, & van Balkom, 2000) could find no statistical difference. Nevertheless, from the clinical trials some tentative recommendations can be made. The most substantial evidence exists for paroxetine, even in severe social phobia. Sexual side-effects are seen in up to a third of men and may be more frequent with paroxetine and less frequent with fluvoxamine. Fluoxetine is the most studied SSRI in socially phobic children and adolescents, and has shown good efficacy and tolerability in this group (see also Murphy, Bengston, Tan, Carbonell, & Levin, 2000). A premorbid diagnosis of avoidant personality disorder did not affect the outcome in one study, although the effect of SSRIs on avoidant personality disorder itself in social phobics has not been reported.

BETA BLOCKERS

Beta-adrenergic receptor antagonists, also known as beta-blockers, emerged in the late 1950s. The observation that these drugs are effective at blocking peripheral autonomic symptoms, such as tachycardia, tremor, sweating, blushing, and dry mouth, led to their use as anxiolytics. Beta-blockers are commonly used in the treatment of performance anxiety. Studies generally show them to be effective, although it is impossible to know how many of these subjects actually met criteria for social phobia.

The earliest controlled study of a beta-blocker in social phobia examined 16 subjects treated with propanolol, all of whom also had social skills training (Fallon, Lloyd, & Harpin, 1981). There was no significant difference between groups. Atenolol was subsequently investigated because its poor ability to cross the blood–brain barrier provided a test of the hypothesis of a peripheral mechanism of social phobia, and it was potentially less likely to cause depression, sleep disturbance, or bronchoconstriction. Ten patients with DSM-III social phobia were treated in an open, 6-week trial (Gorman et al., 1985). Five patients showed a marked reduction of social phobic and avoidant symptoms and four a moderate reduction, with no distinction between generalized and non-generalized subtypes. This promising study was not replicated in a comparative, controlled trial ($n = 74$) that confirmed the efficacy of phenelzine but showed that atenolol was no more effective than placebo (Liebowitz et al., 1992). Another placebo-controlled trial compared atenolol with flooding in 72 DSM-III-R social phobics (Turner, Beidel, & Jacob, 1994). Flooding was significantly more effective than atenolol. The latter was no more effective than placebo.

Overall it seems that beta-blockers are not effective in social phobia. A limited role in performance anxiety is indicated; however, one must exclude patients with asthma and many patients with chronic heart failure (Richie, 1995).

OTHER

Tricyclic Antidepressants

Observations that patients with atypical depression responded better to MAOIs than to tricyclic antidepressants (TCADs) led to tricyclics being largely ignored in recent studies of social phobia. Six of the tranylcypromine responders in Versiani et al.'s study had previously failed clomipramine trials of more than three months on doses of 175 to 250 mg/day.

A double-blind, placebo-controlled study of imipramine in 41 DSM-III-R social phobia subjects has been reported (Emmanuel et al., 1997). Response was determined by CGI improvement and a 50% drop in the Duke Social Phobia Scale. Only 21 patients completed 8 weeks of treatment. Endpoint analysis showed no significant efficacy of imipramine. This lack of efficacy was confirmed by an 8-week study in 15 patients (Simpson et al., 1998). Six subjects (40%) dropped out due to adverse effects, and the overall response rate in completers was 22% by CGI with a mean reduction in LSAS of 18%.

Buspirone

Buspirone is a novel drug that is effective in the treatment of generalized anxiety disorder. Unlike the barbiturates and benzodiazepines, it lacks hypnotic, anti-convulsant, and muscle-relaxant properties. Buspirone is a full agonist at soma-todendritic 5HT1A autoreceptors, a partial postsynaptic 5HT1A agonist, it binds modestly to dopamine receptors but not to the benzodiazepine–GABA binding site. A major metabolite has α2-andrenoceptor antagonistic properties.

A double-blind, placebo-controlled study of 34 musicians with performance anxiety and DSM-III-R social phobia compared buspirone with cognitive therapy over 6 weeks (Clark & Agras, 1991). Cognitive therapy was superior to buspirone, and there was no significant benefit from combination treatment.

Subsequent open trials suggested that buspirone may have modest efficacy in social phobia. In one study, 17 non-placebo responders completed 2–12 weeks of open treatment (Schneier et al., 1993). At week 12, 47% had improved by CGI, with 67% of those tolerating a dose of at least 45 mg/day improving. Non-specific improvement was noted in an 8-week open trial of buspirone in 17 patients (Munjack, Bruns, & Baltazar, 1991). There is also a case report of a 16-year-old boy with social phobia and schizotypal personality traits responding well to a course of buspirone (Zwier & Rao, 1994).

The open trial findings were not supported in a 12-week, randomized trial of 30 non-depressed DSM-IV social phobic patients (van Vliet et al., 1997). There were no statistically significant differences between buspirone 15–30 mg/day and placebo as measured by the Social Phobia Scale (SPS). Subscale analysis showed significant buspirone treatment effects for somatization and anxiety, which sug-gests a differential efficacy for generalized anxiety. Although it is possible that higher treatment doses may have improved the efficacy, only 1 of 15 patients treated with buspirone were rated as improved.

Buspirone may be effective in augmenting SSRI effect in social phobia. Van-Ameringen and colleagues found that 7 of 10 partial SSRI responding patients achieved a significant benefit from 8 weeks of buspirone augmentation (Van Ameringen, Mancini, & Wilson, 1996).

Buspirone thus does not have proven efficacy in social phobia, although the augmentation results are promising.

Ondansetron

Ondansetron, a 5HT3 antagonist, is a powerful antiemetic. Animal models suggested that low doses had anxiolytic properties. A 10-week, multi-centre, double-blind, placebo-controlled trial of 275 social phobic patients showed that this drug was well tolerated at a dose of 0.25 mg twice daily and led to a small but significant reduction in the primary outcome measure (Bell & DeVeaugh-Geiss, 1999). Notably, this study was never published at full length in a peer-reviewed journal. Ondansetron is not being further developed for use in social phobia, although another 5HT3 antagonist (zatosetron) is currently in phase III trials for anxiety disorders in the US.

Bupropion

Bupropion is an antidepressant with a diverse mechanism of action, including norepinephrine and dopamine reuptake inhibition. It appears to be free of significant serotonergic activity and has minimal potential for sexual side-effects. There have been concerns about seizures with this agent, although it now seems that the risk is similar to that of the TCADs. There is a single published case report of a 29-year-old woman with a 6-month history of social blushing and avoidance who remitted with bupropion 300 mg/day (Emmanuel, Lydiard, & Ballenger, 1991).

Clonidine

Clonidine, an α2-andrenoceptor agonist, is a powerful antihypertensive agent that is used in the treatment of alcohol and opiate withdrawal, tic disorder and other psychiatric conditions. It is potentially useful in treating blushing in social phobia (Goldstein, 1987), however to date only anecdotal reports of efficacy exist, and this efficacy may be transient (Newcorn et al., 1998).

Nefazodone

Nefazodone is a novel antidepressant drug that has a complex mechanism of action, including the blockade and down regulation of 5HT2A receptors and 5HT-reuptake inhibition. Unlike the SSRI's, it exhibits an ascending dose–response curve, which may lead to greater effectiveness at higher doses. Nefazodone is well tolerated, can improve sleep and anxiety symptoms associated with depression, and has a low incidence of sexual side-effects.

Five patients with DSM-IV generalized social phobia were treated with nefazodone on an open basis over 12 weeks (Worthington et al., 1998). Although two patients discontinued after two months, there was a significant improvement in CGI, LSAS, and brief social phobia scale (BSPS). Another open trial of 23 patients with DSM-IV generalized social phobia examined the efficacy of nefazodone by self-report and clinical scales over 12 weeks (Van Ameringen et al., 1999). Sixteen (69.6%) responded by CGI, with significant improvement on measures of social anxiety, social phobic avoidance, depression, and social functioning by 9 weeks on average. One patient with alcohol dependence showed a substantial decrease in alcohol consumption. No patient withdrew due to side-effects, although two withdrew due to lack of efficacy. One girl, aged 15, was reported to respond substantially in a case series (Mancini et al., 1999); although she reported visual accommodation problems at a dose of 400mg/day this resolved when the dose was reduced to 350mg/day.

Nefazodone thus holds promise as an effective treatment for social phobia, and controlled trials are indicated.

Venlafaxine

Venlafaxine is an antidepressant that inhibits (in decreasing orders of magnitude) serotonin, noradrenaline, and dopamine reuptake. In common with Nefazodone, it exhibits a dose–response curve.

A case series of eight patients with SSRI-resistant social phobia showed substantial improvement with a course of venlafaxine (Kelsey, 1995). Recently, an open study evaluated the response to venlafaxine in 12 social phobic patients with particular reference to comorbid avoidant personality disorder (Altamura et al., 1999). Not only did venlafaxine significantly improve LSAS scores, but it also reduced avoidant personality symptomatology. Venlafaxine was tolerated moderately well, with nausea, headache and anxiety being the most frequent side-effects.

Gabapentin

Gabapentin is an anticonvulsant with a poorly understood mechanism of action. Preclinical work suggested an anxiolytic effect, and clinical studies of patients with epilepsy produced an improvement in mood and well-being. A recent study of gabapentin in panic disorder (Pande et al., 1999a) was disappointing, with a post-hoc evaluation required to show efficacy in a subgroup. A randomized controlled study of 69 patients with non-depressed DSM-IV social phobia over 14 weeks showed significant efficacy of gabapentin across all outcome measures (Pande et al., 1999b). The mean change in LSAS was from 87.4 to 60.3. Withdrawal rates were similar for gabapentin and placebo groups. Although there is no dose–response data for gabapentin in social phobia, 64% of LSAS responders and 62% of CGI responders took 3,600mg/day. Further trials of this drug are warranted.

Pregabalin

Pregabalin, a derivative of the neurotransmitter GABA and a relative of gabapentin, has been effective in preclinical and preliminary clinical studies (Feltner, Pande, Pollack et al., 2000) in the treatment of social phobia. A large, multi-centre, placebo- and comparator-controlled, parallel-group, phase II trial is currently underway.

Neuropeptides

Neuropeptides have only recently begun to be investigated as anxiolytics, and results to date are mixed (Argyropoulos & Nutt, 2000). Cholecystokinin (CCK) is widely distributed in the brain. Administration of its synthetic analogue pentagastrin produces anxiety in social phobia and other conditions (van Vliet et al., 1997). Although CCK antagonists are therefore potentially anxiolytic, trials to date in panic disorder (Cowley et al., 1996) and generalized anxiety disorder (Adams et al., 1995) have been disappointing. Studies in social phobia are lacking. Neuropeptide Y (NPY) has anxiolytic effects, although it has been shown that, under resting conditions, plasma NPY levels do not differ between controls, social phobic and panic-disordered patients (Stein et al., 1996b). Although an adrenocorticotrophic hormone (ACTH) antagonist was found to be ineffective in social phobia (den Boer, van Vliet, & Westenberg, 1995), corticotrophin-releasing factor (CRF) antagonists are currently undergoing evaluation. This is a very active field of research, which has the potential to deliver a new class of social phobia treatments.

Alcohol

There is a complex relationship between alcohol and social phobia (Lepine & Pelissolo, 1998). Alcoholism is common in patients with social phobia—rates of 14–40% have been reported. Conversely, most studies report a prevalence of 10–20% of social phobia in persons with alcohol problems. These rates may be even higher for those with avoidant personality disorder (Stravynski, Lamontagne, & Lavallee, 1986).

   Although alcohol is commonly thought of as a self-treatment for anxiety, few groups have attempted to determine objectively whether alcohol reduces social anxiety. A pilot study used a public-speaking challenge to examine response to alcohol in 18 socially phobic patients (Naftolowitz et al., 1994). The placebo drink contained a small amount of alcohol on the surface so subjects would smell and taste alcohol without actually receiving a significant amount. Alcohol consumption did not significantly decrease public-speaking anxiety in these patients. A recent study has extended this work by examining a larger group of 40 subjects, administering a continuous public-speaking task, and differentiating the belief of receiving alcohol from actually receiving it (Himle et al., 1999). There was no

Table 13.1 Trials of irreversible MAOIs in social phobia

Type	Structure	N	Reference	Treatments	Outcomes
Open	2 wk. washout 1 wk. single blind 8 wk. treatment 8 wk. maintenance 4 wk. withdrawal	11	Liebowitz et al. (1986)	Phenelzine 45–90 mg/day	All responded, 7/11 markedly
RCT		74	Liebowitz et al. (1988, 1990, 1992)	1. Phenelzine 45–90 mg/day 2. Atenolol 50–100 mg/day 3. Placebo	Phenelzine 64% > atenolol 30% = placebo 23%* by week 8
RCT	12 wk. treatment (all subjects also received exposure therapy)	65	Gelernter et al. (1991)	1. Phenelzine 30–90 mg/day 2. Alprazolam 2.1–6.3 mg/day 3. CBGT 4. Placebo	Phenelzine 69%, alprazolam 38%, CBGT 24% and placebo 20% (trend) at wk. 12 Trend: Phenelzine & CBGT gains maintained 2 months after treatment
RCT	8 wk. treatment 8 wk. maintenance 3 wk. placebo crossover	78	Versiani et al. (1992)	1. Moclobemide 400–600 mg/day 2. Phenelzine 60–90 mg/day 3. Placebo	Phenelzine > placebo by week 4 Moclobemide > placebo by week 8 Avoidant PD Dx resolved with active treatments Both drugs still effective at 16 weeks, but relapse usual 8 weeks after stopping treatment
RCT (2 site)	12 wk. treatment (6 month maintenance and 6 month drug-free follow-up phase)	133	Heimberg et al. (1998) Liebowitz et al. (1999)	1. Phenelzine 60–90 mg/day 2. CBGT 3. Tablet Placebo 4. Educational Supportive Group Therapy (psychological placebo)	Phenelzine = CBGT > placebo by week 12 Phenelzine quicker onset and larger magnitude of effect Avoidant PD Sx reduced (trend) with all 4 treatments At 6 month drug-free followup, 50% of phenelzine-responders >17% of CBGT-responders relapsed. Phenelzine non-relapsers continued to exhibit a larger magnitude effect.
Case Report	(4 children aged 5½–7 years with selective mutism)	4	Golwyn et al. (1999, 1990)	Phenelzine 30–60 mg/day	Successful response, well tolerated 1 previous non-responder to fluoxetine 16 mg/day × 10 months
Open	1 year open	32	Versiani et al. (1988)	Tranylcypromine 40–60 mg/day	62% marked, 17% moderate, 21% no improvement over 1 year
Open	8 wk. open	81	Versiani et al. (1989)	Tranylcypromine 40–60 mg/day	Significant reduction in CGI-severity Trend reduction in LSAS

*Comparators indicate significance at $p = 0.05$.

Table 13.2 Trials of reversible MAOIs in social phobia

Type	Structure	Reference	N	Treatments	Outcomes
RCT	12 wk. treatment 12 wk. maintenance	van Vliet et al. (1992) Slaap et al. (1996)	30	1. Brofaromine 150 mg/day 2. Placebo	Brofaromine > placebo by week 8 Continued benefit in maintenance period ↑ blood pressure & heart rate predicted non-response
RCT	12 wk. treatment 12 wk. maintenance 9 month optional single blind follow-up	Fahlen et al. (1995) Fahlen (1995)	77 (57)	1. Brofaromine 150 mg/day 2. Placebo	78% Brofaromine > 23% placebo response by CGI at 12 weeks Brofaromine responders maintained long-term gains, 60% of placebo responders relapsed Reduction (60% → 20%) of DSM-III-R Avoidant Personality Disorder qualifiers in subgroup
RCT	1 wk. placebo washout 10 wk. treatment	Lott et al. (1997)	102	1. Brofaromine 50–150 mg/day 2. Placebo	Significant reduction in LSAS (mean 62.6) in brofaromine treated subjects
RCT	8 wk. treatment 8 wk. maintenance 3 wk. placebo crossover	Versiani et al. (1992)	78	1. Moclobemide 400–600 mg/day 2. Phenelzine 60–90 mg/day 3. Placebo	Phenelzine > placebo by week 4 Moclobemide > placebo by week 8 Avoidant PD Dx resolved with active treatments Both drugs still effective at 16 weeks, but relapse usual 8 weeks after stopping treatment
Open	12 wk. treatment	Bisserbe et al. (1994)	35	Moclobemide 300–600 mg/day	94% CGI improvement (18 completers) at wk. 12 LSAS improvement
RCT	1 wk. placebo run-in 12 wk. treatment	Katschnig et al. (1997)	578	1. Moclobemide 300 mg/day 2. Moclobemide 600 mg/day 3. Placebo	Moclobemide 600 mg/day well tolerated and superior to placebo on all measures Small magnitude effect Response to moclobemide 600 mg/day independent of avoidant personality disorder, duration or severity of illness
RCT	1 wk. placebo run-in 12 wk. (fixed-dose) treatment	Noyes et al. (1997)	532	1. Moclobemide 75, 150, 300, 600, or 900 mg (fixed dose) 2. Placebo	Moclobemide (35%) = Placebo (33%) by CGI at 12 weeks (failed trial) Trend towards greater efficacy of higher doses at week 8
Open	(2 month washout) 2 years treatment >1 month no-treatment period up to 2 years re-treatment for recurrence > 1 month no-treatment period post-study follow-up 4–6 years after entry	Versiani et al. (1996, 1997)	101	Moclobemide 600–750 mg/day (mean = 730 mg/day)	All treatment completers (63%) responded, improving substantially on all scales Alcohol abuse highly predicted non-response, response better in non-avoidant personality disordered patients 88% relapsed during no-treatment period 63.2% almost asymptomatic at follow-up
RCT	1 wk. placebo run-in 8 wk. treatment 8 wk. maintenance (in CGI responders)	Schneier et al. (1998)	77	1. Moclobemide 200–800 mg/day (flexible) 2. Placebo	Moclobemide (17.5%) = placebo (13.5%) by CGI at 8 weeks (not significant) Small magnitude effect Moclobemide superior to placebo on 2 of 10 primary outcome measures

Table 13.3 Trials of benzodiazepines in social phobia

Type	Reference	N	Structure	Treatments	Outcomes
Case Report	Lydiard et al. (1988)	4		Alprazolam 3–8mg/day	Marked reduction in symptomatology
Open	Reich & Yates (1988)	14	8wk. treatment	Alprazolam 1–7mg/day (78% received ≤ 3mg/day)	All improved by CGI All relapsed by 1 week after cessation
RCT	Gelernter et al. (1991)	65	12wk. treatment (all subjects also received exposure therapy)	1. Phenelzine 30–90mg/day 2. Alprazolam 2.1–6.3mg/day 3. CBGT 4. Placebo	Phenelzine 69%, alprazolam 38%, CBGT 24% and placebo 20% (trend) by week 12 Trend: Phenelzine & CBGT gains maintained 2 months after treatment
Open	Versiani et al. (1989)	40	8wk. treatment	Clonazepam 1–6mg/day	Significant improvement in CGI (5.0 → 2.1) and LSAS (81.6 → 31.6)
Open	Ontiveros & Fontaine (1990)	5	8wk. treatment	Clonazepam 1–6mg/day	All improved by CGI at week 8
Case Series	Reiter et al. (1990)	11		Clonazepam 0.75–3mg/day	9/11 improved
RCT	Munjack et al. (1990)	23	8wk. treatment	1. Clonazepam 1–6mg/day 2. Placebo	Initial Sedation common (7/10) Clonazepam > placebo at week 8 by LSAS, SAD, FNE
Open	Davidson et al. (1991)	26	1–20 months' treatment	Clonazepam 0.5–5mg/day	11/26 very much improved, 11/26 much improved
RCT	Davidson et al. (1993)	75	2wk. washout 10wk. treatment	1. Clonazepam 0.5–3 mg/day 2. Placebo	Clonazepam > placebo from week 1 by CGI, week 2 by LSAS and FNE, week 4 by SDS (work and social subscales) Clonazepam (78.3%) > placebo (20.0%) by CGI at week 10 LSAS reduction 78.3 → 38.1 at week 10
RCT	Connor et al. (1998)	37	6 month open 5 month randomisation phase	1. 5 months continuation treatment then rapid taper (3 wk.) 2. slow taper (0.25 mg/2 wk.) + placebo	Relapse: Placebo (21%) > continuation (0%), just significant Withdrawal Effects: Rapid > slow taper, although no major problems with either regimen
Open	Versiani et al. (1989)	10	8wk. treatment	Bromazepam (mean dose 26.4 mg/day)	CGI improvement 5.0 → 1.3 LSAS reduction 69.3 → 15.8 Somnolence in 100%

Table 13.4 Trials of SSRIs in social phobia

Type	Structure	Reference	N	Treatments	Outcomes
RCT	10 wk. Drug A / 2 week taper / 10 wk. Drug B (crossover)	Katzelnick et al. (1995)	12	1. Sertraline 50–200mg/day / 2. Placebo	Marked or Moderate improvement with sertraline (50%) > placebo (9%) / LSAS reduction with sertraline (22.0) > placebo (5.5)
Open	8 wk. open	Van Ameringen et al. (1994)	22	Sertraline 100–200 mg/day	80% success by CGI in 16/20 completers / High comorbid depression in sample?
Open	12 wk. open	Munjack et al. (1994)	11	Sertraline 50–200 mg/day	5/7 (non-comorbid) completers responded by week 6, having sertraline 100 mg/day for at least 2 weeks
Open	6 wk. open	Martins et al. (1994)	24	Sertraline (unspecified dose)	11/19 completers responded at week 6
Case Report	4 wk. open	Czepowicz et al. (1995)	11	Sertraline (at least 100 mg/day unless responding to lower dose)	7/11 much or very much improved by CGI
RCT	1 wk. placebo run-in / 20 wk. treatment	Van Ameringen et al. (1999)	206	Sertraline 50–200 mg/day	Significant benefit of sertraline across all outcome measures / Paroxetine (53%) > placebo (29%) by CGI / Paroxetine (34.8%) > placebo (16.7%) by reduction in Duke Brief Social Phobia Scale (BSPS)
Case Report	(17 y.o. girl)	Mancini et al. (1999)	1	Sertraline 175 mg/day	Substantial response after 4 weeks
Case Report		Lepola et al. (1994)	3	Citalopram 20 mg/day	Well tolerated, benefits maintained for > 12 months
Open	12 wk. open	Bower & Stein (1998)	22	Citalopram 40 mg/day	86% responded by CGI / All tolerated citalopram 40 mg/day, despite persistent side-effects / Highly comorbid sample
Case Report		Ringold (1994)	2	Paroxetine 20 mg/day	Preferential response over fluoxetine and sertraline
Open	11 wk. open / 12 wk. randomized withdrawal phase	Stein et al. (1996b)	36	Paroxetine 20–50 mg/day	77% responded by CGI / Mean paroxetine LSAS improvement: 75.1 to 37.2 / Withdrawal: 1/8 paroxetine relapsed, 5/8 placebo (trend)
Open	12 wk. open	Mancini & Van Ameringen (1996)	18	Paroxetine 10–50 mg/day	83.3% responded by CGI with improvement in all outcome measures
RCT	1 wk. placebo run-in / 12 wk. treatment	Stein et al. (1998) / Montgomery (1998)	187	1. Paroxetine 20–50mg/day / 2. Placebo	Paroxetine > placebo on 5/6 outcome variables, with trend on the 6th. / Paroxetine 55.0% > placebo 23.9% on CGI / Mean LSAS declined significantly from 78.0 to 47.5 in paroxetine group / More drop-outs in paroxetine group (34% vs. 23%). Delayed ejaculation noted in 36%, males, although only 2/16 men with this symptom discontinued / Response by severity (LSAS, CGI) / Severe social phobia > moderate social phobia
Open	Stein et al. (1998) (above) completers / 24 wk. open treatment / 1 wk. re-randomization	Kumar et al. (1999)	90	Paroxetine 20–50 mg/day (Placebo used in re-randomization phase)	90 RCT completers entered open phase / CGI responders at wk 24: 57/64 (89%) vs. 44/90 (44%) at week 1 / Re-randomization phase: Paroxetine > placebo by SADS, SDS-work, SDS-family
RCT	1 wk. placebo run-in / 12 wk. treatment / 3 wk. withdrawal	Baldwin et al. (1999) / Stein et al. (1999a)	290	1. Paroxetine / 2. Placebo	Paroxetine (65.7%) > Placebo (32.4%) by CGI / Paroxetine (87.6 to 58.2) > Placebo (86.1 to 70.5) by LSAS / Equivalent drop-out rates / Paroxetine > placebo by SDS

Type	Notes	Study	N	Drug/dose	Results
Case Report	(Children aged 7, 11, 116, 17, 18)	Mancini et al. (1999)	5	Paroxetine 5–80 mg/day	Dramatic improvement over 4–9 weeks. Only one patient reported any side-effect (somnolence)
RCT	1 wk. drug-free run-in 12 wk. treatment	Allgulander 1999	92	Paroxetine 20–50mg/day; Placebo	Paroxetine (70.5%) > Placebo (8.3%) by CGI. Paroxetine (70.4 to 37.0) > Placebo (78.5 to 69.9) by LSAS. Primary outcomes significant by week 4, all measures significantly favoured Paroxetine by end of study.
RCT	12 wk. treatment	Liebowitz et al. (1999) (data on file)	384	1. Paroxetine 20 mg/day 2. Paroxetine 40 mg/day 3. Paroxetine 60 mg/day 4. Placebo	Paroxetine > Placebo by CGI (45%, 47%, 43% versus 28%). Paroxetine > Placebo by LSAS (−31, −24, −25 versus −15)
RCT	12 wk. treatment	van Vliet et al. (1994); den Boer et al. (1994)	30	1. Fluvoxamine 150mg/day 2. Placebo	Week 12: Fluvoxamine (47%) > placebo (8%) by 50% improvement in LSAS-Anxiety. Initial anxiety, nausea, sleep disturbance common despite staring dose 50 mg/day
RCT	12 week treatment	Stein et al. (1999b)	92	1. Fluvoxamine 50–300mg/day 2. Placebo	Fluvoxamine > placebo in all measures from week 8 onward. Week 12: Fluvoxamine (42.9%) > placebo (22.7%) by CGI. 25% subjects taking fluvoxamine withdrew due to side effects (esp. nausea, insomnia). Male sexual dysfunction low (11.4%)
Open	1 wk. single-blind placebo run-in 6 wk. single-blind treatment	DeVane et al. (1995, 1999)	10	Fluvoxamine 50–150 mg/day	Fluvoxamine > placebo by BSPS and HAM-A at end of treatment phase
Case Report		Sternbach (1990)	2	Fluoxetine 20–40 mg/day	Marked improvement noted in two treatment
Open		Schneier et al. (1992)	12	Fluoxetine 5–40 mg/day	67% improved by CGI
Open		Black et al. (1992)	14	Fluoxetine 10–100 mg/day	63% non-comorbid responders
Case Report		Berk (1995)	2	Fluoxetine 20 mg/day	Coincidental excellent response
Case Report		Taylor (1997)	1	Fluoxetine 60 mg/day	Preferential response over paroxetine and sertraline
Open	12 wk. treatment	Van Ameringen et al. (1993)	16	Fluoxetine 20–60 mg/day	76.9% (10/13) completers responded, mean time to response was 7 weeks
Open	16 wk. treatment	Koponen et al. (1995)	32	Fluoxetine	90% (26/29) completers improved by CGI
Open	12 wk. treatment	Perugi et al. (1994)	20	Fluoxetine 20–80 mg/day	68% (13/19) responded by CGI. All 7 women responded > 6/13 men. No impact of premorbid diagnosis of avoidant personality disorder on response
Open	(Adolescents with mixed anxiety disorders)	Birmaher et al. (1994)	21	Fluoxetine (mean dose 25.7 mg/day)	81% improved by CGI
Open	9 wk. treatment (children aged 9–17, 12 had social phobia unresponsive to psychotherapy)	Fairbanks et al. (1997)	12	Fluoxetine 5–80 mg	70% (7/10) improved by CGI. Significant ↓ in LSAS (modified) rated by child and mother after treatment. 50% (5/10) no longer met DSM-III-R social phobia criteria after treatment. Well tolerated, no disinhibition, doses >20 mg/day were effective
Open	12 wk. Treatment (schizophrenic patients with clozapine-induced social anxiety symptoms)	Pallanti et al. (1999)	12	Fluoxetine 30–50 mg/day	↓ in LSAS from 83 to 60. Significant improvement in 8 of 12.

Table 13.5 Trials of beta-blockers in social phobia

Type	Structure	Reference	N	Treatments	Outcomes
RCT	Treatment with both groups receiving social skills training	Fallon et al. (1981)	16	1. Propranolol 160–320 mg/day 2. Placebo	Non-significant difference between groups Both groups improved
Open	6wk. open	Gorman et al. (1985)	10	Atenolol 50–100 mg/day	5/10 marked improvement 4/10 moderate improvement Generalized = Non-generalized outcome
RCT	2wk. washout 1wk. single blind 8wk. treatment 8wk. maintenance 4wk. withdrawal	Liebowitz et al. (1988, 1990, 1992)	74	1. Phenelzine 45–90 mg/day 2. Atenolol 50–100 mg/day 3. Placebo	Week 8 (treatment) response Phenelzine (64%) > atenolol (30%) = placebo (23%)
RCT	12wk. treatment	Turner et al. (1994)	72	1. Atenolol 25–100 mg/day 2. Flooding 3. Placebo	Flooding (89%) > atenolol (47%) = placebo (43%) by composite improvement index

Table 13.6 Trials of other drugs in social phobia

Type	Structure	Reference	N	Treatments	Outcomes
RCT	8wk. treatment	Emmanuel et al. (1997)	41	1. Imipramine 50–300 mg/day 2. Placebo	21/41 (51%) completed No significant efficacy by CGI, Duke
Open	8wk. open	Simpson et al. (1998)	15	Imipramine 250 mg/day	40% drop-out due to side-effects Mean ↓ LSAS 18% 22% improved by CGI
RCT	6 week treatment (musicians)	Clark & Agras (1991)	34	1. Buspirone 15–60mg/day (mean dose 32 mg/day) 2. Placebo 3. 5 session CBGT with buspirone 4. 5 session CBGT with placebo	CBGT(100%) > buspirone (57%) No benefit in combination therapy

			N	Treatment	Results
Open	8 wk. open	Munjack et al. (1991)	17	Buspirone 35–60 mg/day	82% (9/11) completers improved
Open	12 wk. open	Schneier et al. (1993)	21	Buspirone 15–60 mg/day	47% improved by CGI at week 12 in 17 completers / 67% improved by CGI at week 12 of those treated with at least 45 mg/day
Case Report	(16 y.o. boy with social phobia and schizotypal traits)	Zweir & Rao (1994)	1	Buspirone	Substantial clinical improvement
RCT	12 wk. treatment	van Vliet et al. (1997)	30	1. Buspirone 15–30 mg/day 2. placebo	Buspirone (1/15) = placebo (1/15) by SPS / Buspirone well tolerated
Case Report	(29 y.o. woman with social blushing and avoidance)	Emmanuel et al. (1991)	1	Bupropion 300 mg/day	Remission of symptoms
Case Report	(25 y.o. man with social blushing)	Goldstein (1987)	1	Clonidine 0.1 mg (bd)	Social phobic with blushing responded to clonidine but not propranolol, phenelzine or alprazolam
Open	12 wk. treatment	Worthington et al. (1998)	5	Nefazodone 100–600 mg/day (mean 370 mg/day)	Significant improvement by LSAS, CGI, BSPS
Open	12 wk. treatment	Van Ameringen et al. (1999)	23	Nefazodone 100–600 mg/day	21/23 completers / 16/23 (69.6%) responded by CGI / Significant improvement on most outcome measures
Case Report	(15 y.o. girl)	Mancini et al. (1999)	1	Nefazodone 350 mg/day	Substantial improvement / Visual disturbance at dose of 400 mg/day
Case Report		Kelsey (1995)	9	Venlafaxine	8 showed marked improvement / 8 had previous failed trials of SSRIs
Open	15 wk. treatment	Altamura et al. (1999)	12	Venlafaxine 112.5–187.5 mg/day	Significant improvement by LSAS / Significant reduction in avoidant symptoms
RCT	1 wk. placebo run-in 14 wk. treatment	Pande et al. (1999)	69	1. Gabapentin 600–3,600 mg/day 2. Placebo	Gabapentin > placebo by LSAS, CGI, SPIN / Gabapentin responders had 900–3,600 mg/day, 64% LSAS responders and 62% CGI responders were taking 3,600 mg/day
RCT (pilot)	Public speaking challenge	Naftolowitz et al. (1994)	18	1. Alcohol 1.25 mg/kg 80 proof vodka 2. Placebo	No significant decrease in speaking anxiety
RCT	Public speaking challenge 2 speeches	Himle et al. (1999)	40	1. Alcohol 0.5 ml/kg 2. Placebo (All subjects received placebo before the first speech)	No significant decrease in speaking anxiety / Belief in consuming an alcoholic drink increased anticipatory anxiety but buffered mid-performance anxiety

Table 13.7 Critical overview of psychopharmacological treatments in social phobia

Drug class	Drug	Suggested daily dose	Evidence*	Notes
MAOI	Phenelzine	60–90mg	+++++	Tyramine free diet required
	Tranylcypromine	40–60mg	++	Tyramine free diet required
RIMA	Brofaromine	150mg	+++	Sleep disturbance common Withdrawn
	Moclobemide	600–800mg	+++	May not be highly efficacious No license in USA
Benzodiazepine	Alprazolam	1–8mg	+	Relapse after discontinuation common
	Clonazepam	1–6mg	+++	Slow discontinuation well-tolerated, although relapse possible
	Bromazepam	26mg	+	
SSRI	Sertraline	>100mg	+++	Especially efficacious in severe social phobia
	Citalopram	20–40mg	+	Male sexual dysfunction uncommon
	Paroxetine	20–50mg	++++	Well tolerated and efficacious in open trials of children.
	Fluvoxamine	50–300mg	++	Start at 5 mg/day and proceed to at least 20 mg/day in children
	Fluoxetine	20–80mg	+	
Beta-Blocker	Propranolol	160–320mg	−	Role limited to performance anxiety
	Atenolol	50–100mg	−−	
Tricyclic	Imipramine		−−	Not effective
Other	Buspirone	30–45mg	−−	May have a role augmenting SSRI response
	Ondansetron	0.5 mg (bd)	?+	Small magnitude effect
	Bupropion	300mg	?	
	Clonidine	0.2 mg (bd)	?	Efficacy may be short-lived
	Nefazodone	100–600mg	+	Promising open studies
	Venlafaxine	112.5–187.5 mg	+	Little data
	Gabapentin	900–3,600 mg	++	Promising single RCT
	Pregabalin			RCT currently underway
Neuropeptides			?	Significant ongoing research
Alcohol			−−	Not effective

*Strength of evidence key:

+++++ Very strong Randomized Controlled Trial (RCT) evidence for efficacy, including multiple substantiated RCT's with leading drugs in other classes.
++++ Strong RCT evidence for efficacy, no conflicting RCTs.
+++ Positive RCT evidence in multiple trials.
++ At least one sound RCT or large open trial supporting efficacy.
+ No RCT evidence, but open trials or case reports support efficacy.
? Unclear efficacy.
− Open trials or case reports suggest drug not efficacious.
−− RCT show no significant effect of drug.

significant difference in anxiety between groups; however, the belief that one received an alcoholic drink appeared to increase anticipatory anxiety but buffer mid-performance anxiety. Alcohol, thus, is not an effective treatment for social phobia.

CONCLUSIONS

Many drugs have been investigated as treatments for social phobia (social anxiety disorder). An overview of research to date is presented in Tables 13.1 to 13.7. The first conclusion to draw from these data is that some drugs are ineffective treatments of social phobia. Tricyclic antidepressants and alcohol are not effective. Beta-blockers may have a limited role in performance anxiety, but their prescription for social phobia cannot now be justified. Buspirone may be a useful adjunct to SSRI treatment but is not in itself efficacious.

In contrast, other drug treatments are clearly very effective. The most robust data exist for the MAOI phenelzine, which is unsurpassed in comparison with beta-blockers, benzodiazepines, RIMAs and CBGT, although dietary restrictions hinder its usefulness. SSRIs are also proven treatments in social phobia. The best data exist for paroxetine, followed by sertraline and then fluvoxamine. A large magnitude effect, excellent tolerability in children and adults, and established efficacy in treating frequently comorbid conditions, such as depression and panic disorder, make it is understandable that SSRIs are recommended as first-line treatments of social phobia (Ballenger et al., 1998a). Although the RIMAs moclobemide and brofaromine are able treatments of social anxiety, they may have a smaller magnitude of effect than drugs such as phenelzine, and brofaromine is not now available. It is too early to determine the utility of drugs such as nefazodone and venlafaxine despite early studies suggesting effectiveness. Perhaps the most exciting future treatments include novel drugs such as pregabalin and gabapentin, and the developing class of neuropeptide agents. This is an area of intense current interest and we are likely to have some early results in the next few years.

Comparative efficacy of pharmacological treatments of social anxiety is, with the notable exception of phenelzine, largely lacking. There is an urgent need for comparative trials of SSRIs with effective drugs in other classes. Within-class randomized trials may also be of benefit, although taking the SSRIs as an example, it seems likely that response is a class effect and that reports of differential SSRI response are probably idiosyncratic. Subtle differences in other aspects of drug therapy, such as frequency of particular side-effects, are emerging, although few generalizations can be made, and drug choice on a case-by-case basis seems to be prudent.

A logical progression from comparative drug trials is comparison with effective non-drug treatments such as CBGT. Again, phenelzine leads in this area with promising results, although relapse upon discontinuation is notable. Data for other drugs are lacking, although the child and adolescent SSRI trials offer us a

clue here, as pharmacotherapy is not usually considered a first-line treatment in social anxiety in this group. Thus the impressive gains reported were seen in non-responders to the conventional psychotherapy treatments. It is surprising that there has not been more interest in child and adolescent drug treatments in social phobia. Controlled trials of SSRIs are especially indicated. A recent, extensive meta-analytic comparison of psychological and pharmacological therapies in social phobia (Fedoroff & Taylor, 2001) demonstrated that pharmacotherapies are the most effective treatments, at least in the short term

There are some caveats in interpreting the research data. Long-term data are patchy, and there is evidence of relapse after cessation. Recent randomized drug trials have concentrated on patients with the generalized social phobia subtype. The most obvious reason for this trend is that generalized social phobics score higher on outcome measures such as LSAS than those with the specific subtype, and thus it is easier to show a large magnitude treatment effect. As a consequence, the data for the efficacy of drug treatments in non-generalized social phobia are much less robust. Open and naturalistic reports typically include a more diverse cohort in which response to drugs such as MAOIs and SSRIs in specific social phobia appears to be as effective as that seen in generalized social phobia. Depressed and panic-disordered patients are excluded from some social phobia trials, as it has been important to distinguish antidepressant and antipanic effect from a social phobia therapeutic effect. On the other hand, comorbidity is frequent in clinical practice and thus aids gener-alization of the research findings. There is good evidence, however, from both the more heterogeneous open trials and the controlled trials that did not exclude comorbid subjects, that drug therapies work equally well in each group.

The impact of these medications on avoidant personality disorder symptoms is worth repeating. A comorbid diagnosis of avoidant personality disorder did not affect response to treatment with the three drugs in which the relationship was analysed: phenelzine, moclobemide, and fluoxetine. More striking is the con-sistent finding that successful treatment with drugs including phenelzine, tranylcypromine, moclobemide, brofaromine, atenolol, and venlafaxine lead to significant reduction in avoidant symptoms, often to the degree that the subject no longer met diagnostic criteria for avoidant personality disorder. This chal-lenges the notion that these conditions (at least as defined by current instru-ments) are immutable, although the efficacy of these drugs in subjects with avoidant personality disorder but not social phobia has not been studied.

In summary, there are effective and well-tolerated drug treatments of social phobia. Drug therapy should be considered on a case-by-case basis as a first-line treatment of this condition.

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