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Transactional theory and research on emotions and coping

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Abstract

In this article we examine the fundamental premises of our cognitive-relational theory of emotion and coping and assess our progress in examining them through 10 years of programmatic empirical research. Our discussion involves the metatheoretical topics of transaction and relationship, process, and emotion as a system. The person–environment relationship is mediated by two key processess: cognitive appraisal and coping. We evaluate the findings of our research on these processes, their dynamic interplay, their antecedents, and their short-term and long-term outcomes. In the final section we highlight major substantive and methodological issues that need to be addressed. These include issues surrounding the theory and measurement of appraisal, functional and dysfunctional coping, causal inference, microanalytic vs macroanalytic research strategies, objective vs subjective approaches and confounding, and the problem of method variance.

INTRODUCTION

The study of stress and coping from a transactional perspective is relatively uncommon. Even those who believe they understand the arguments in favour of this perspective often fail to grasp fully its essence and implications for research. Given the importance of action theory in West German psychology (cf. Frese and Sabini, 1985), the central themes of which are closely allied with our concerns, and the interest shown in our theory and research by German researchers, it is particularly fitting that we use this opportunity to evaluate the current status of our research.

We began our collaborative efforts in the late 1970s, when we launched the first of three ambitious cross-sectional studies of stress and coping in adults of varying age. Throughout this period we have attempted to enlarge and make more precise a self-consistent *metatheory*, the first accounts of which appeared over 20 years ago

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(Lazarus, 1966); advance our thinking about the two main *theoretical constructs* of the system, appraisal and coping; and develop *measures of daily stress, appraisal* and *coping* in order to study the empirical relationships among the so-called antecedent, mediating, and outcome variables that comprise the stress process. We use the qualification 'so-called' because we assume that the variables in this complex system are recursive; at different points in the flow of events an antecedent can be an outcome, and vice versa.

Although we have usually referred to stress and coping theory and research, we think that we should now speak less of stress and more of emotion. Stress, which primarily concerns negative person–environment relationships, cognitive appraisals, and emotional response states such as fear, anger, guilt, and shame, falls under the larger rubric of emotion, which also includes positive relationships, appraisals, and emotions such as joy, happiness, pride, love, and relief.

The task we have set ourselves is to examine the fundamental premises of our thinking and assess our progress in tying them down in research. We have written extensively about our system of thought (e.g. Lazarus, 1981, 1983; Lazarus, Coyne and Folkman, 1982; Lazarus and Folkman, 1984, 1986a; Lazarus, Kanner and Folkman, 1980), and have engaged in interchanges in journals of psychology (e.g. Lazarus, DeLongis, Folkman and Gruen, 1985; see also comments and replies in *American Psychologist*, 1986). We will therefore provide relatively brief statements about our theoretical system and spend the larger part of our account in an evaluation of findings, issues and how further progress might be made.

METATHEORY

Three themes may be found in our metatheoretical approach to emotion: (1) relationship or transaction; (2) process; and (3) a view of emotion as an interdependent system of variables.

Transaction and relationship

What does it mean to speak of relationship or transaction? The essential point is that we cannot understand the emotional life solely from the standpoint of the person *or* the environment *per se*. We need a language of relationships in which the two basic subsystems, person *and* environment, are conjoined and considered at a new level of analysis. By this we mean that in the relationship their independent identities are lost in favour of a new condition or state. Threat, for example, is not solely a property of the person or of the environment; it requires the conjunction of an environment having certain attributes with a particular kind of person who will react with threat when exposed to those environmental attributes. The concept of threat actually loses its meaning when applied to an environment without regard to the persons who transact with it; or when it is applied to persons without regard to what it is about the environment that is threatening to them. The terms 'relationship' and 'transaction' are for all intents and purposes interchangeable,

although transaction emphasizes more the dynamic interplay of the variables, whereas relationship emphasizes their confluence and organic unity.

Process

Process involves change over time or across situations. Stress and/or negative emotions imply process, since we strive to change that which is undesirable or distressing. Change as well as stability is pervasive in the short-term and long-term patterns of our lives.

Our study of coping has been explicity process-oriented. Studying coping as a process requires that certain conditions be met. First, one must make observations describing coping thoughts and acts that *actually* have taken place or are occurring, in contradistinction to thoughts and actions the person usually engages in. The latter imply a trait, since the word 'usually' signifies an effort to transcend specific situational contexts in the search for what is stable. The second condition is that observations must be made in a *particular context*. Coping as a process can be studied only if we have an opportunity to compare what happened at one moment, or in one context, with another.

This leads to the third condition, which is that coping must be measured over a number of *slices of time* or across a number of *different contexts*. When we say that we must study what has happened in the same persons over more than one unit of time or across different contexts, we shift attention from the observations themselves to the research design for making observations. Comparisons, say of coping under different conditions, can be made on the basis of an individual's variations around the mean of the whole sample or on the basis of variations around each individual subject's own mean (cf. Broverman, 1962; Marceil, 1977). These strategies address somewhat different questions, and may or may not produce similar findings (cf. DeLongis, Folkman and Lazarus, in press; Lazarus, Speisman and Mordkoff, 1963; Opton and Lazarus, 1967).

Emotion as a system

As McGuire (1983) has observed, there has been a progression in metatheoretical doctrine over the past 40 to 50 years in social psychological research toward a systems approach, although the vast majority of social scientists have not yet caught up with it.

We are forced logically to systems analysis once we accept that emotion cannot adequately be defined externally in terms of environmental stimuli or as a response to such stimuli, or internally as impluse or conflict between impulses, and further that the quality and intensity of an emotion depends on a variety of mediating variables and processes. In recent discussions we have employed a systems table in which the main variables are arranged as *environmental antecedents* such as demands, constraints and resources, ambiguity, and imminence; *person antecedents* such as goal hierarchies and belief systems; *mediating processes* such as appraisal and coping; *short-run outcomes* such as the emotions during and right after an encounter, and *long-run adaptational outcomes* such as subjective well-being or morale, social functioning, and somatic health. A standard version is presented in Table 1.

Table 1. Illustrative system variables for the emotion process

Causal antecedents →	Mediating processes →	Immediate effects →	Long-term effects
Person variables:	Encounter 1...2...3...n		
Values, commitments, and goals General beliefs, e.g. Self-esteem Mastery Sense of control Interpersonal trust Existential beliefs	Within an encounter time 1...2...3...n Primary appraisal (stakes) Secondary appraisal (coping options)	Affect Physiological changes	Psychological well-being Somatic health/ illness
Environmental variables: Demands Resources, e.g. social support network Constraints Temporal aspects	Coping (including use of social support): Problem-focused forms Emotion-focused forms	Quality of encounter outcome	Social functioning

Note. Although not shown here, the model is recursive. Also, note parallelism between short- and long-term effects.

THEORY

We are now ready to examine the substance of the variables in which we are interested and how they might relate to each other. Two basic constructs are central to our approach, cognitive appraisal and coping.

Cognitive appraisal

Humans, and other animals too, constantly *evaluate* what is happening to them from the standpoint of its significance for their well-being. This is what appraisal means. Whether and how we cope with demands flows from this appraisal, as do the qualities and intensities of the emotions we experience.

It is important to distinguish between two kinds of cognitive activity that operate in the emotion process, information and appraisal. *Information* concerns what we know or think we know about the world and how it works; in social psychology this is called attribution (Weiner, 1985). *Appraisal* concerns the implications of that information for one's personal well-being. The issue addressed is: 'What does it mean for me personally?'

Two kinds of appraisal, primary and secondary, should be distinguished. They have different functions and deal with different sources of information. *Primary appraisal* is concerned with the motivational relevance of what is happening, that is, whether something germane to our well-being is involved. Primary appraisals of stress are of three types: *harm* already experienced; *threat*, which is harm that is anticipated; and *challenge*, which is the potential for mastery or gain. We refer to challenge as a stress appraisal because the person must mobilize to cope with obstacles in order to produce an outcome of positive value, and there may also have to be some risk of harm to have the experience of challenge; therefore, challenge and threat are in some degree typically co-mingled. To these standard appraisals about which we have written elsewhere, we must add *benefit* appraisals to expand the system to one dealing more broadly with emotion.

The extent to which a human relationship is harmful or beneficial depends on social and cultural environmental conditions on the one hand and the psychological characteristics that a person brings to encounters on the other. One of the most important psychological characteristics, the person's goals and goal hierarchies, is motivational. Another, the person's beliefs and ways of thinking about what is happening, is cognitive. An environmental condition will not be a source of harm or benefit unless it confronts persons or groups having motivational and cognitive characteristics that make them vulnerable to that particular condition; and a person or group characteristic is not a source of harm or benefit unless that characteristic, say a goal, is confronted with a relevant environment condition such as an obstacle that prevents the person from achieving the goal. We all share certain attributes (e.g. goals and commitments) that make us all more or less vulnerable to certain environmental conditions such as disasters or threats to a loved one's physical and emotional well-being. Nevertheless, the quality and intensity of the emotional reaction these conditions generate still varies to some extent from individual to individual because of differences in personality factors and, of course, coping tendencies.

We have come to think of primary appraisal as the person's decision about whether he or she has any *stakes* in the encounter, and if so, what kinds. If there is no stake, the encounter is irrelevant to well-being and no emotional reaction will occur. If the encounter is relevant to the person's goals, the quality and intensity of the emotion will vary with what and how much is at stake.

The concept of stakes also allows us to illustrate the metatheoretical distinction made earlier between antecedent and transactional variables. A person's goal hierarchy is an *antecedent* trait variable because it is a person characteristic. Stakes, on the other hand, are a *transactional variable* since they are formed by a goal commitment *and* a particular environmental context in which the goal is relevant.

In addition to the stakes one has in an encounter, evaluative judgments are also required about whether any actions can be taken to improve the troubled person–environmental relationship, and if so, which coping options might work. We use the term *secondary appraisal* for this cognitive process. Secondary appraisal is a crucial supplement to primary appraisal since harm, threat, challenge, and benefit depend also on how much control we think we can exert over outcomes. If there is a risk of a damaging outcome but one is confident that this can be prevented, threat is apt to be absent or minimal.

Coping

A major change in thinking about adaptation and emotion became evident in the late 1970s. Interest began to shift from stress *per se* to coping as the major factor in adaptational outcomes such as subjective well-being, social functioning and health. It became increasingly clear that the coping process needed to be adequately described and measured.

At the same time, approaches to coping were also changing. Previously there had been two basic models of coping, the animal model and the ego psychology model. In the animal model, coping was viewed as behavioural responses (mainly escape and avoidance) that controlled aversive environmental conditions, thereby lowering arousal or drive (see, for example, Levine and Ursin, 1980). Not surprisingly, animal researchers did not include cognitive coping or what psychoanalysts called ego defenses within their purview. In contrast, the ego psychology model emphasized the thinking (ego processes) involved in making adaptational decisions as well as the actions employed to manage impulses and to deal with the environment. A major concern in this model was the quality of these coping processes, which was conceptualized as a hierarchy from pathological to healthy. The main criteria for placement within the hierarchy was the extent to which a coping process conformed to reality and its flexibility or rigidity. Internally driven and compulsive coping such as denial and intellectualization was neurotic, whereas realistic and flexible coping such as suppression and the use of humour was healthy or mature (see, for example, Menninger, 1954; Vaillant, 1977; Haan, 1977).

Elsewhere (Folkman and Lazarus, 1980; Lazarus and Folkman, 1984) we have offered critiques of the ego psychology model and noted that although it is cast in dynamic terms, it had spawned mainly structural coping measures based on trait or style concepts (cf. Lazarus, Averill and Opton, 1974). Numerous clinical and research tests, for example, the Defense Mechanism Inventory of Gleser and Ihilevich (1969) and measures of a personality dimension variously referred to as

repression-sensitization, vigilance–avoidance, and repression–isolation (cf. Byrne, 1964; Holzman and Gardner, 1959; Krohne and Rogner, 1982) illustrate the point. Assessments are made once on the assumption that the defensive disposition will produce a stable pattern of reaction across diverse settings. In this respect such measures are static. An exception is Haan's (1977) approach, in which a clinical or research protocol can also be scored contextually for quality and type of thought (see also Folkins, 1970).

During the late 1970s a number of investigators, including ourselves, began to experiment with process measures of coping (e.g. Pearlin and Schooler, 1978; Folkman and Lazarus, 1980; Stone and Neale, 1984; Billings and Moos, 1981, 1984; Moos and Billings, 1982). Our efforts resulted in the Ways of Coping Checklist, which will be discussed later.

Although the concept of coping has been readily embraced as a determinant of adaptational outcomes, it has not been widely seen as a factor in emotion for two historical reasons. First, the obvious overlap between the concepts of stress and emotion has not been properly appreciated. As a result two literatures have developed for these concepts when logically there should be one, with coping associated exlcusively with the stress literature. Second, coping has been viewed traditionally as motivated by emotion (cf. Lazarus, 1968). This is illustrated by the notion that anxiety, acting as a drive, activates conditioned instrumental or ego-defensive processes (cf. Dollard and Miller, 1950). However, coping arises from an appraisal of harm, threat or challenge, and it can transform that appraisal and hence the emotional response. Anxiety accompanies those appraisals but should not be said to cause them. Lazarus (Lazarus and Alfert, 1964; Lazarus, 1966) expressed this idea with the concept 'short-circuiting of threat'.

This reasoning explains why, in Table 1, we treat coping along with cognitive appraisal as a mediator of short-term emotional reactions. Formally stated, we postulate that coping has two main functions: to change the actual terms of the troubled person–environment relationship, which we have referred to as problem-focused coping, and to regulate emotional distress, which we have referred to as emotion-focused or cognitive coping. Each function is served by a number of forms of thought and action, which are described later.

Systems relationships

An adequate theory of emotion must specify the pathways through which the variables of the system operate and influence each other. We shall offer some basic propositions about their interrelationships.

It is a central assumption of our theory that *primary* and *secondary appraisal*, as mediators of the emotional reaction, influence each other but have no necessary temporal ordering. The judgment that one is powerful or helpless to do something about a situation, or that a given form of coping is or is not viable, can precede the judgment about whether one has a stake in an encounter.

In addition to the interplay between primary and secondary appraisal illustrated above, there is interplay between appraisal and *coping*. With respect to primary appraisal, when stakes are high there should be mobilization of coping activity and heightened attention to its consequences (cf. Janis and Mann, 1977). We also expect a degree of specificity in the relationship between primary appraisal and

coping, depending on the stake that is involved. For example, our studies suggest that social support is more likely to be sought in encounters where a loved one's well-being is at stake than in encounters where one's self-esteem is at stake.

Coping thoughts and actions also depend on secondary appraisal, that is, whether anything can be done to alter the stressful relationship with the environment. Similar propositions can be found in social learning theory in two main variants: generalized beliefs and situational appraisals. Along with many others, we have suggested that *generalized beliefs* about one's competence to handle situations is an antecedent of secondary appraisal. There is a large variety of related concepts such as self-confidence, a sense of being in control over outcomes (Averill, 1973), mastery (Pearlin, Lieberman, Menaghan and Mullan, 1981), sense of coherence (Antonovsky, 1979), self-esteem (Rosenberg, 1965), trust (Rotter, 1980), and internal locus of control (Lefcourt, 1984; Rotter, 1966). Other things being equal, people who have a favourable sense of their ability to meet problems and overcome them are less likely than others to appraise encounters as threatening, more likely to experience challenge rather than threat, and more likely to use effective strategies of coping.

The above proposition needs refining in two ways. First, although it is stated as a main effect, we are confident that general beliefs also interact with other person attributes and with the specific conditions of an encounter in producing their effects. Second, a general belief must undoubtedly be disaggregated into subvarieties, as Wallston, Maides, and Wallston (1976) have done in the measure of health locus of control. However, even when general beliefs become more specific as the domains to which they apply become more restricted, they still differ from situational appraisals of control. Generalized beliefs about control presumably transcend situations; *situational appraisals* of control, which are about actual encounters, vary with the circumstances. Bandura's (1982) concept of self-efficacy belongs in this latter category. There may be little or no relationship, in fact, between general beliefs and situational appraisals except when the context is ambiguous (cf. Rotter, 1975).

MEASUREMENT AND SELECTED FINDINGS

Since 1977 we have invested considerable effort in the development of measures of the theoretical constructs in our system and in obtaining field data to examine the theoretical framework. Our efforts have centred on daily stress (as an appraised relationship), appraisal, coping, and both antecedent and outcome variables.

Daily stress

We began our research on hassles by addressing elementary issues in the measurement of stress in daily living and then we moved to increasingly complex issues. Our first objective was to determine whether or not daily hassles mattered as sources of stress compared with life events, particularly in their respective ability to explain psychological symptoms and physical health. When we measured daily stress (hassles) once a month for 9 months, for example, we found that hassles were

a better predictor of concurrent and subsequent psychological symptoms than were life events; and when the effects of life events on symptoms were controlled, hassles remained signficantly correlated (Kanner, Coyne, Schaefer and Lazarus, 1981). Similar findings with respect to somatic health were reported by our research group (DeLongis, Coyne, Dakof, Folkman and Lazarus, 1982). These findings have subsequently been replicated by other investigators (e.g. Burks and Martin, 1985; Holahan, Holahan and Belk, 1984; Monroe, 1983; Zarski, 1984).

The original version of the Daily Hassles Scale contained 116 items; there was also a separate Uplifts Scale of 135 items (Kanner *et al.*, 1981). We later modified the Hassles and Uplifts Scales by reducing the number of items and having each item worded so that subjects could report the extent to which each item was a hassle and an uplift for them during a given period such as the previous day or week (DeLongis *et al.*, in press). A factor analysis of the hassles items from the revised version (DeLongis *et al.*, under review) suggested eight scales that cluster around household responsibilities (e.g. cooking, housework); finances (e.g. sought money for emergencies, enough money for extras); work (e.g. your work load, meeting deadlines); the environment and social issues (e.g. pollution, news events); home maintenance (e.g. home repairs, yardwork); health (e.g. your health, your physical abilities); personal life (e.g. sex, intimacy); and family and friends (e.g. your spouse, your children, your friends).

The identification of these subscales makes it possible to look at patterns of hassles. If we wish to identify what makes people differentially vulnerable to stress, we must evaluate not only *degree* of stress, but also sources or *content* of stress. If administered over multiple occasions, the Hassles Questionnaire helps identify such content areas to the extent that it reveals the areas of living most likely to be experienced as hassles over time. For example, one person may report hassles primarily from work situations whereas another may report from social situations.

We have explored the conceptual issues prompting us to develop the Daily Hassles Scale elsewhere (e.g. Kanner *et al.*, 1981; DeLongis *et al.*, 1982; Lazarus and DeLongis, 1983; Lazarus, 1984; Lazarus *et al.*, 1985; DeLongis *et al.*, in press). The main reason, of course, is that the widely used life events or change approach is not an adequate measure of stress in a person's life. It must be supplemented with measures of the more ordinary stressful experiences of daily living, some of which are the products of life events, whereas others arise out of chronic and recurrent conditions of living such as work and social relationships, and still others are merely adventitious encounters.

The early hassles studies were based on between-subject (interindividual) analyses, which can obscure systematic differences in baseline hassles rates among subjects, and in the way the stress process works in different people. It is also important to examine individuals' variations around their own means. This has been done by DeLongis *et al.* (in press) using a within-subject (intraindividual) design to examine the covariation of changing daily stress levels with changes in illness symptoms and mood. Multiple measures of stress, symptoms, and mood were obtained over 20 occasions, which were used to calculate separate within-subjects correlations for each subject, as well as the more typical between-subjects analysis. The results for the group as a whole showed that an increase in daily hassles was associated with increases in same-day illness symptoms and dysphoric mood; hassles were also predictive of changes in next-day health and mood.

Surprisingly, however, there were large individual differences in within-subjects relationships; *r*'s ranged from −0.42 to +0.85 for hassles and same-day health, and from −0.70 to +0.44 for hassles and same-day mood; the pattern of *r*'s was also similar for next-day health and mood. The enormous individual variation in the association between hassles, health, and mood is important because of the expectation that illness symptoms and dysphoric mood will increase for everyone following a rise in stress. A number of the subjects in this research reported just the opposite; increases in stress were accompanied by improved health and mood.

It is possible, however, that stressful encounters are not all equal in their health and mood effects even if their immediate emotional intensity is comparable. We have proposed a distinction between *central hassles*, which express important ongoing, sometimes troubling, personal themes and conflicts, and *peripheral hassles*, which reflect vicissitudes of the moment such as traffic jams or accidents of weather, and which come and go as part of the conditions of living without necessarily having any special or long-lasting significance for the person. A similar idea, called by Luborsky (1977) 'the core conflictual relationship theme', can be found in the writings of a number of psychodynamically oriented clinical psychologists (see Luborsky for examples).

In a recent unpublished study we asked whether central hassles have greater importance in the psychological and physiological economy of the person than do peripheral hassles. We found that on the basis of the subjects' ratings centrality differed from severity (or intensity). There were also many fewer central hassles than peripheral ones. Central and peripheral hassles differed in many important ways. Compared to peripheral hassles, central hassles seemed to reflect personal problems, unmet needs and expectations, and deficits in coping skills. Central hassles recurred more often than did peripheral hassles, which is consistent with the assumption that the former reflect ongoing personal agendas. People varied greatly in the hassles they listed as central; what was central for one person was not necessarily central for another. Even seemingly trivial hassles such as taking care of paperwork were central for some persons.

It is noteworthy that we found central hassles to have a greater role than did peripheral ones in psychological symptoms. Most of the latter variance could be explained by central hassles, even though these comprised only a small minority of the hassles reported. The relationship to physical health, however, was not significant. The cross-sectional nature of these data and some confounding makes these results only suggestive rather than definitive, and we will have to follow up these findings with better research designs.

In summary, this series of studies on daily hassles demonstrated, we believe, that (1) from a normative, interindividual perspective, hassles, which are to a degree independent of life events, explain more variance in psychological and somatic health outcomes than life events do; (2) from a within-subject, intraindividual perspective, day-to-day fluctuations in hassles are associated with changes in same-day and next-day health and mood, the latter suggesting a causal linkage; and (3) certain sources of stress, i.e. central hassles, are more important than others, i.e. peripheral hassles, to psychological well-being.

Our work with uplifts has proceeded more slowly than our work with hassles. We are currently analyzing uplifts data, which we hope will throw light on their role in the emotion and coping process, and in adaptational outcomes.

Appraisal

Of the three areas of measurement—daily stress, appraisal, and coping—appraisal is the least well developed and in some ways offers the most challenges.

Primary appraisal.

We have approached the measurement of primary appraisal through two pathways: cognition and emotion. The cognitive approach involves the assessment of the stakes a person has in a specific encounter. Our goal in developing a measure of stakes was to assess psychological, physical, social, and material goals and commitments that were relevant in the particular encounter. A factor analysis of a set of 13 items that we used in one study (Folkman, Lazarus, Dunkel-Schetter, DeLongis and Gruen 1986a) produced two clusters, one having to do with self-esteem (e.g. losing your self-respect, losing the affection of someone important to you, appearing incompetent), and another cluster having to do with a loved one's well-being (e.g. harm to a loved one's health, safety, or physical well-being, harm to a loved one's emotional well-being). In addition, four items remained separate: harm to your own health, safety, or physical well-being; a strain on your financial resources; losing respect for someone else; and not achieving an important goal at your job or in your work.

Although this approach proved fruitful in that coping was found to vary according to the stakes a person had in an encounter (Folkman *et al.*, 1986a), we are not satisfied with it for several reasons. First, although a stake should be a concrete representation of a particular facet of a person's hierarchy of goals and commitments, we could not determine the extent to which the items we used reflected such a hierarchy. Second, even if they fit within a hierarchy of goals and commitments, the items probably represented only limited aspects of the hierarchy. Third, the items are not easily applied across different samples, which makes it difficult to compare groups. We found, for example, that we needed to add items for use with college students that had to do with academic achievement (Folkman and Lazarus, 1985), and items for older adults that had to do with feeling useful and competent to take care of oneself (Folkman, Lazarus, Pimley and Novacek, in press).

The second approach to stakes was to assess the emotions people reported during a stressful encounter. Drawing on cognitive-relational theory (cf. Lazarus and Folkman, 1984), we reasoned that these emotions reflected the person's appraisal of an encounter as harmful, threatening, challenging, and/or benign.

When we asked students to identify their emotions during three stages of an exam—at the beginning of the exam, after the exam was over but before grades were announced, and after grades were announced (Folkman and Lazarus, 1985)—the reported emotions clustered in four groups: two represented *anticipatory appraisals* of threat (e.g. fear and worry) and challenge (e.g. eager/confident); the two other clusters represented *outcome appraisals* of harm (e.g. anger/disgust) and benefit (e.g. relief and happiness).

It is probably easier to develop emotion-based measures of primary appraisal than cognitive-based measures of stakes. Nevertheless, we think it is important to pursue both approaches to primary appraisal in order to understand individual differences in patterns of vulnerability to stress.

Secondary appraisal.

We have used four questions to assess subjects' evaluations of options for coping with an encounter: Was the encounter one that (1) could be changed; (2) had to be accepted; (3) required more information before acting; (4) required holding oneself back from doing what one wanted to do. These questions were developed to fit the four coping possibilities described by Lazarus and Launier (1978).

Recent efforts have focused on two of these questions—the extent to which the situation could be changed, and had to be accepted—which we regarded as theoretically and empirically more useful and interesting than the others. Our shorthand designation for these questions is controllability (Folkman, 1984) or changeability (Folkman, Lazarus, Gruen and DeLongis, 1986b). Future studies should distinguish between options that affect the occurrence or recurrence of a stressful encounter (preventive or anticipatory coping) and those that affect the outcome or consequence of a stressful encounter once it has occurred.

Coping

As in the case of hassles, we began our coping research by addressing simple, basic issues before advancing toward more complex ones. Major findings fall into four categories: the functions of coping and its measurement; coping as a process; coping and adaptational outcomes; and life-course issues.

Functions of coping and its measurement.

In our early efforts (Folkman and Lazarus, 1980) we distinguished between two major functions: one directed at altering the troubled person–environment relationship, which we called problem-focused; the other directed at managing emotional distress, which we called emotion-focused. One of the most important findings of this early work was that people used both functions in virtually every kind of stressful encounter. This confirmed the inadequacy of simpler conceptualizations of coping as either defensive (e.g. Vaillant, 1977) or as problem-solving or decision-centred (e.g. Janis and Mann, 1977). A full description of coping requires that both functions be assessed.

The reader will note that we speak here of functions of coping rather than types. Although it is tempting to classify any given coping thought or act as either problem-focused or emotion-focused, in reality any coping thought or act can serve both or perhaps many other functions, as is usually assumed in psychoanalytic thought. Thus, whereas taking a tranquilizer during an exam or performance may seem to be an emotion-focused act designed to control anxiety, the ultimate purpose may be as much to facilitate performance that might be disrupted by it as to regulate distress. Those who classify coping thoughts and acts on their face, without a contextual basis for doing so, risk confusion.

The *Ways of Coping Scale* was developed to assess the thoughts and actions people engage in to manage stressful encounters. The original 60-item version (Folkman and Lazarus, 1980) represented four basic categories described by Lazarus and Launier (1978): information search, direct actions, inhibition of action, and intrapsychic. Subjects were asked to identify a recently experienced stressful encounter and indicate whether they had used each item in that encounter.

We subsequently revised the response format to a Likert scale. A rigorous factor analysis (Folkman *et al.*, 1986a) provided eight coping subscales: *confrontive coping* (e.g. stood my ground and fought for what I wanted); *distancing* (e.g. went on as if nothing had happened); *self-control* (e.g. I tried to keep my feelings to myself); *seeking social support* (e.g. talked to someone who could do something concrete about the problem; accepted sympathy and understanding from someone); *accepting responsibility* (e.g. criticized or lectured myself); *escape-avoidance* (e.g. wished that the situation would go away or somehow be over with); *planful problem-solving* (e.g. I knew what had to be done, so I doubled my efforts to make things work; I made a plan of action and followed it); and *positive reappraisal* (e.g. found new faith; rediscovered what is important in life). The psychometric properties of the revised Ways of Coping have been reviewed by Tennen and Herzberger (1985). To assess patterns we have also used a relative score technique that controls for differences in scale length and individual differences in response rates (Folkman *et al.*, in press).

Coping as a process.

A second research theme has been the exploration of coping as a process, which requires identification of contextual and temporal factors responsible for changes in coping across encounters and as an encounter unfolds (Folkman *et al.*, 1986a). Strong support was obtained for the utility of a process-oriented conceptualization and methodology for the study of coping (Folkman and Lazarus, 1985).

A consistent finding was that the context, as appraised by the person, was clearly important in shaping the coping process. This finding means that a single assessment of coping cannot be considered a reliable sample of a given individual's coping. Our first efforts to evaluate the role of appraisal in coping centred on secondary appraisal of coping options. It was found that problem-focused forms of coping were used more in encounters appraised as changeable than in those requiring acceptance, whereas emotion-focused forms of coping were used more in encounters appraised as requiring acceptance than as changeable ones (Folkman and Lazarus, 1980). The later finer-grained analyses of coping made possible with the revised Ways of Coping and its eight scales supported this general pattern (Folkman *et al.*, 1986a). For example, confrontive coping and planful problem-solving were used more in encounters appraised as changeable, whereas distancing and escape-avoidance were used more in those appraised as requiring acceptance.

With respect to primary appraisal, we found that coping varied in accordance with what was at stake in the encounter (Folkman *et al.*, 1986a). For example, encounters engendering threats to self-esteem were characterized by greater use of confrontive coping and escape-avoidance, and by less use of planful problem-solving and seeking social support, than when self-esteem was not at stake. This pattern suggests that people might engage in a heated exchange and simultaneously wish they were somewhere else when their self-esteem is at stake, or that they might alternate use of confrontive coping with escape-avoidance in a pattern of engagement, disengagement, and reengagement. Each of the other stakes (e.g. concern for a loved one's well-being, a goal at work, or financial security) was associated with different combinations of coping. Therefore, the incorporation of primary appraisal into the analysis enriched our understanding of coping.

One of the tenets of a process-centred conceptualization is that coping changes as an encounter unfolds. Some of these changes can be due to adventitious events in the environment or can result from problem-focused coping; others can result from cognitive reappraisals or emotion-focused coping.

We used the college examination described earlier to study changes in coping across time (Folkman and Lazarus, 1985), asking students to describe how they coped with the demands of the exam's three stages: an anticipation stage before the exam, a waiting stage after the exam but before grades were announced, and a post-confrontation stage after grades were announced. Marked normative changes in coping occurred that were consistent with changes in the situational demands. For example, problem-focused coping was highest during the anticipation stage, presumably in the service of the need to study. However, it decreased dramatically during the waiting stage, when there was no longer anything that could be done to influence the outcome. In contrast, distancing increased dramatically from the anticipatory to the waiting stage, probably for the same reason that problem-focused coping decreased—nothing could now be done to change the outcome, and the most adaptive thing to do was to put the exam out of mind.

In summary, this series of studies demonstrates why conceptualizations of coping as a process, with the emphasis on a particular context and temporal flux, offers advantages over its conceptualization as a static trait or style. We have identified two cognitive appraisal factors—the primary appraisal of stakes and the secondary appraisal of coping options—that respond to contextual conditions and help explain changes or variations in coping. Coping influences the person's emotional state from the beginning of the encounter to its conclusion. Coping is also clearly not static but changes as the person-environment relationship progresses during a stressful encounter or changes across encounters. If such variations in coping are ignored, or obscured by averaging or summing over too long a time period or across divergent encounters, there is great danger that we will fail to understand what it is that people do and think to cope, what it is that they are coping with, and how adequately emotion regulation and problem-solving is accomplished.

Coping and stable adaptational outcomes.

A major question asked by stress and coping researchers concerns whether and how coping affects stable adaptational outcomes such as psychological symptoms and health status. To play such a role, coping must have a substantial degree of stability over occasions and time (Lazarus and Folkman, 1984). In our research, problem-focused forms of coping tended to be highly variable across encounters; for example, autocorrelations averaged over five encounters ranged from 0.17 (seeking social support) to 0.23 (planful problem-solving) (Folkman *et al.*, 1986b). Some forms of emotion-focused coping, however, tended to be relatively stable. The average autocorrelations for positive reappraisal and self-controlling coping, for example, were 0.47 and 0.14, respectively. These findings suggest that problem-focused forms of coping are especially responsive to contextual factors, whereas some forms of emotion-focused coping appear to be more heavily influenced by person factors.

The cross-sectional relationships in our data between the eight kinds of coping and somatic health status tended to be modest at the bivariate level (r's < 0.26)

(Folkman *et al.*, 1986b). Relationships between coping and psychological symptoms were stronger. Escape-avoidance and confrontive coping, for example, were correlated with symptoms 0.51 and 0.47, respectively. However, because the eight kinds of coping tend to be intercorrelated, it is important to look beyond simple bivariate correlations and identify the unique contribution of each kind of coping to psychological symptoms (controlling for the other kinds). When we examined the unique contribution of each form of coping to psychological symptoms using part correlations, we found a negative association between planful problem-solving and psychological symptoms, and a positive association between confrontive coping and symptoms.

In spite of problems of instability in coping, we have also obtained evidence that persons who show depressive symptomatology on the CES-D over a 6-month period, though perhaps not clinically depressed in the psychiatric sense, show a different pattern of appraisal and coping than those without depressive symptomatology (Folkman and Lazarus, 1986). The former felt they had more at stake—hence were more vulnerable—in the stressful encounters they reported, used more confrontive coping, self-control, and escape-avoidance, accepted more responsibility or self-blame, and reacted emotionally with more disgust/anger and worry/fear than those low in symptoms. The tendency to cope with more hostility, and at the same time to exhibit a greater need to inhibit impulses, makes it appear as if depressed subjects anticipated or worried about rejection or retaliation for their hostile impulses, which they therefore felt had to be controlled. However these findings are interpreted, they encourage us to believe that persons with diverse types of psychopathology will turn out, as generally assumed by ego-psychologists, to cope with stress in distinctive ways that express their particular conflicts and neurotic styles.

Coping and the life course.

The final issue addressed in this series of studies concerns changes in coping over the life span. Although our field studies were not longitudinal, we could make age-based comparisons because of two demographically comparable cohorts (Folkman *et al.*, in press). The average ages of the two cohorts were approximately 41 and 68 Clear age differences in coping were found. The younger group used more active, problem-focused forms of coping (e.g. confrontive coping, planful problem-solving, and seeking social support) than the older group did, whereas the older group used more passive, emotion-focused forms of coping (distancing, acceptance of responsibility, and positive reappraisal) than the younger group did.

Both contextual and developmental interpretations fit the data. From a contextual standpoint, there were age-related differences in sources of stress. For example, the younger group reported more hassles about work and child-rearing than the older group did; the former were still in the work force and had young children living at home, whereas the older group was retired from full-time work and no longer had children living at home. The older group, on the other hand, had more health problems than did the younger group, and appraised their encounters as more refractory to change than the younger group did. The age differences in coping seem consistent with the age differences in sources of stress. From a developmental standpoint, there was a greater use of positive reappraisal by the

older group compared to the younger group, representing, perhaps, a change in outlook with age that involves an acquired style of dealing with the unchangeable.

In summary, these studies have demonstrated that coping is a complex and changing process that is closely connected with contextual factors, including the primary appraisal of stakes and the secondary appraisal of coping options. The various kinds of coping measured by the Ways of Coping Checklist differ in their variability and stability, and in their relationships to psychological well-being. Younger and older persons differ in coping pattern, some of these differences appearing to be developmental and purely age-related and some having to do with age-related sources of stress.

Antecedent and outcome variables

For the most part we have drawn on existing measures of antecedent person variables and outcome variables. With respect to *antecedent* person variables, for example, we have measured self-esteem with Rosenberg's (1965) Self-esteem Scale, and generalized beliefs about control with Pearlin and Schooler's (1978) Mastery Scale. We have also used a modified version of Rotter's (1980) sale of interpersonal trust, and a modified version of the Buhler–Coleman Scale (Buhler, 1968) as a measure of values and commitments.

In the main these measures have been satisfactory. The major exception is the measure of motivation, which is unfortunate because the motivational principle as expressed in individual differences in goal hierarchies is a central construct in our conceptual system. Goals, however, can be examined at three levels of abstraction: at the most general level they are expressed as values, that is, what the person views as desirable and undesirable; at an intermediate level as the goals that people say are important to them; and at the most concrete level as actual activites that people are engaged in. The items on the Buhler–Coleman Scale appear to measure values at the most general level of abstraction, which we think is too far removed from the concerns involved in the stressful encounters of day-to-day living to help us explain or predict primary appraisals (cf. Wrubel, Benner and Lazarus, 1981). We are currently developing a measure of goals and goal hierarchies (the intermediate level of abstraction) that we believe will provide a more valid assessment of the commitments that are at stake in adaptational encounters, and which, therefore, could generate appraisals of harm, threat, challenge, and benefit.

The assessment of *outcome* variables includes both the immediate or short-term outcome of an encounter as well as the long-term outcomes of many encounters over months or years. With respect to short-term encounter outcomes, we have asked subjects to evaluate the outcome of the stressful encounter in terms of resolution (resolved or not resolved) and quality (the situation was improved, the same, or worse). Although these questions, which focus on the problem that caused the distress, were useful to the extent that they helped distinguish between favourable and unfavourable outcomes, they need to be elaborated and refined. We also asked the subjects to describe their emotions at the outcome of an encounter on the assumption that emotions would reflect their appraisals of the outcome. Performance outcomes were measured in only the college examination study (Folkman and Lazarus, 1985) described earlier by means of the grade the sudent achieved. For the most part, the appraisal and coping variables that we

assessed did not predict examination grade, although these variables did help explain the variance in emotion, as they have in our other studies. These findings, which are similar to those reported by Krantz (1983), suggest that appraisal and coping may have more to do with emotional reaction to an outcome than the performance that produces it.

There are three general categories of *long-term* outcome: physical health (e.g. general health status, somatic health symptoms); subjective well-being (e.g. affect, depression, and other psychological symptoms); and social functioning. We have measured physical health with the Alameda County Human Population Laboratory's Health Status Questionnaire (Belloc, Breslow and Hochstim, 1971), which has a substantial data base and evidence of validity as a predictor of later mortality. We have measured subjective well-being with the Center for Epidemiological Studies (CES-D) measure of depression (Radloff, 1977), the Bradburn Morale Scale (Bradburn and Caplovitz, 1965), and the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth and Covi, 1974). We have not yet found a satisfactory measure of social functioning; of the three classes of outcomes—physical health, subjective well-being, and social functioning—social functioning is probably the least frequently assessed and in many ways the most problematic (for reviews see Lazarus and Folkman 1984; Platt, 1981), though of great importance.

We have often said that research interest in emotion and coping is, in large part, motivated by their potential for affecting health outcomes (e.g. Lazarus, 1978; Lazarus, Cohen, Folkman, Kanner and Schaefer, 1980; Holroyd and Lazarus, 1982; Cohen and Lazarus, 1983). However, we have become increasingly skeptical that research will be able to show that emotion and coping processes account for adaptational outcomes, especially physical health, over an extended time frame. There are at least three reasons for such skepticism.

First, if one adopts a systems theory framework, with its multiplicity of functional variables, outcomes must be affected by many interacting influences, some fortuitous, which must be considered if one is to understand how the emotion process works. High environmental demands can, for example, be tempered by effective coping, and low demands that are ineptly coped with still leave the person vulnerable. In addition, one must recognize that constitutional and genetic variables may be as or even more important factors in physical health than psychosocial ones. Therefore, a researcher would have only the variance that is left over after these constitutional and genetic variables are accounted for with which to show the effects of the emotion process.

Second, since overall health is quite stable on the average, one would have to find periods of major health transition to make a strong case for a causal influence of the emotion process. Old age may be one such period, and adolescence another. For the most part, however, such change is apt to be idiosyncratic and unpredictable.

Third, the emotion process would have to be monitored longitudinally from the beginning of the study to the long-term outcome to pinpoint the causal and mediational factors in later changes in health. The longer the time frame, the more problematic such monitoring would be. This is not to say that the emotion process is not implicated in adaptational outcomes, but only that, given the complexities of human existence, it is extremely difficult and costly to design research that would provide a good test of a causal relationship.

PROBLEMS AND CHALLENGES

Our programmatic research has, we believe, advanced our understanding of the emotion process and coping, and set the stage for further progress. Some of the problems in our research are obvious and can readily be overcome. One, for example, is the restricted sociodemographic characteristics of our research samples. Other substantive and methodological problems constitute pervasive issues for the field as a whole and offer exciting challenges to be addressed in the future. We will begin with two substantive issues and proceed to methodological ones.

Substantive issues

We shall briefly examine here the theory and measurement of appraisal, and the analysis of functional and dysfunctional coping.

The theory and measurement of appraisal

A number of researchers have shown increasing interest in appraisal theory. Their efforts have resulted in a further articulation of many of the ideas that have been central to our system of thought.

Shalit, Carlstedt, Carlstedt, and Shalit (1986) propose a series of appraisal stages that includes orientation appraisal, primary appraisal, secondary appraisal, and status appraisal (which refers to where things stand), each of which they regard as essential to psychological readiness for adaptive behaviour. Scherer's (1984a,b) Component Process theory of emotion represents another attempt to expand appraisal theory. He proposes a progressive series of 'stimulus-evaluation checks' through which a number of situational facets relevant to well-being are evaluated. Systematic empirical efforts to study the dimensions of appraisal such as anticipated effort, certainty, attentional activity, and control can also be found in research by Smith and Ellsworth (1985). However one expands the analysis of cognitive appraisal processes in emotion, attention must be given to the temporal variable, which is clearly reflected in the distinction between anticipatory and outcome emotions (cf. Folkman and Lazarus, 1985) that we noted earlier. The cognitive processes shaping an emotional reaction are different in an anticipatory context than they are in an outcome context, a principle that must be built into theory and research on cognitive appraisal, and expectations at the outset strongly influence outcome emotions.

Functional and dysfunctional coping.

We have consistently argued that any given coping process may have favourable or unfavourable results depending on (1) who uses it, (2) when it is used, (3) under which environmental and intrapsychic circumstances, and (4) with respect to which types of adaptational outcomes. This statement does not preclude the possibility that some forms of coping, for example, wishful thinking, might be generally dysfunctional, whereas other forms of coping, for example, positive reappraisal, might be generally functional. However, our wariness about such statements is based on the premise that the functional value of the coping process cannot easily

be divorced from the context in which it occurs. Researchers should resist easy generalizations about the functional or dysfunctional value of any form of coping until they have examined the process under diverse conditions such as those in the list above.

We have proposed (but not yet empirically tested) that functional and dysfunctional coping may depend on the goodness of fit between (1) the person's appraisal of what is happening and what is actually happening and (2) the person's appraisal of the options for coping and his or her coping activity (Folkman, 1984; Folkman, Schaefer and Lazarus, 1979; Lazarus and Folkman, 1984). Both are specific versions of the traditional concept of reality testing. With respect to the first fit, if a person appraises a situation as changeable when in reality it is unchangeable, his or her coping efforts are likely to produce a poor outcome. Even if people appraise a situation realistically, the outcome is likely to be poor if they do not use appropriate coping strategies.

Methodological issues

The methodological issues we address below briefly are concerned with causal inference, microanalytic vs macroanalytic research strategies, objective vs subjective approaches and the problem of confounding, and dealing with method variance.

Causal inference.

It should be unnecessary to point out that issues of causality in social science are complex and controversial. In a systems analysis, in which recursiveness is a built-in premise, the problems of causality are especially complex and the variables difficult to disentangle. Nevertheless, there are important reasons for not abandoning the exploration of causal relationships. The most important one is that to overcome the circularity that is inevitable in any recursive system it is necessary to identify measurable antecedents that affect the process and thereby the outcomes. In so saying we are not deserting transactionalism and retreating to positivism, but are seeking to strengthen our analytic position by subjecting it to empirical observation.

The importance of this step can readily be appreciated by considering the circularity inherent in the concept of cognitive appraisal. If emotion is defined in cognitive terms, that is as a response to the way a person construes what is happening, the emotional reaction can only be interpreted in light of the appraisal, and vice versa, thus creating a logical circle. However, the circularity is diminished when we state in advance the combinations of environmental and person variables that will lead to a particular appraisal and emotion, and then observe whether indeed these variables work as we expected. Thus, if the theory is sound, information about a person's goal hierarchies and beliefs should make it possible to predict the conditions under which the person would or would not appraise threat.

With respect to some of the main pathways of influence of the variables in a stressful encounter, we have made the working assumption that person and environmental antecedent variables are predictive of primary and secondary appraisal processes, which then affect the coping process; in turn, coping is

predictive of short-term emotional outcomes and may, when stable, also contribute to long-range outcomes. Many of our findings are consistent with these assumptions. For example, we found that appraisal was more strongly related to coping than it was to encounter outcomes and coping was more strongly related to encounter outcomes than was appraisal (Folkman *et al.*, 1986a). However, we have not yet demonstrated causality, because our studies have been cross-sectional.

Although longitudinal research designs *per se* are not dependable guarantors of the legitimacy of causal inference (cf. Kasl, 1983), the temporal sequence that is inherent in such designs is essential for defining antecedent and outcome variables, however provisionally, and for demonstrating and predicting change, without which it is impossible to prove causality. Although we have studied the same persons over 6 or 12 months in field studies, the time periods were too brief to demonstrate changes in key adaptational outcome variables such as health status, which is a highly stable variable. The research has, however, provided correlational support for many of our formulations, allowing us to identify and replicate a number of promising relationships that could, with longitudinal designs, be shown to have causal significance. The demonstration of causality depends on turning to a judicious mixture of quasi-experimental longitudinal field and laboratory research in which the conditions influencing primary and secondary appraisal, hence the coping process and the emotional response, are manipulated experimentally.

Microanalytic vs macroanalytic research strategies.

Increasingly we have turned to a microanalytic style of research because of the realization that we must know what a person is coping with in order to understand emotion and coping responses and their flux. Again and again we have seen not only that people cope in one way in one encounter and in another way in a different encounter, but also in seemingly contradictory ways in the same encounter. The only way the simultaneous presence of two different, sometimes contradictory coping processes (and emotion) can be explained is to recognize that each coping thought or act and each emotion is a response to a specific aspect of a complex encounter and/or to the same aspect at different temporal stages. The multiple aspects of complex encounters must be disaggregated in order to know what is going on. Otherwise the transactions that take place within the encounter will be uninterpretable (cf. Folkman and Lazarus, 1985).

Although the above reasoning seems sound, a number of issues remain unresolved. A key issue is the size of the unit of analysis. Too small a unit will be wasteful if not misleading; too large a unit will obscure important distinctions. Our experience has taught us that this determination is tricky to make. For example, we asked subjects to reconstruct a recently experienced stressful encounter and to identify two separate aspects of the stressful encounter that they had to cope with. As an illustration, an encounter about having a flat tyre on the highway would involve (1) the immediate need to get the tyre changed and (2) dealing with a missed appointment. We found that subjects could distinguish separate aspects in many (but not all) of their stressful encounters, but they could not easily distinguish how they coped with each separate aspect. This problem suggested to us that we might have narrowed the unit of analysis too much. The problem may be less difficult to resolve in extended processes such as bereavement and grief, where

normative patterns might be used to make arbitrary decisions about the size of the temporal unit with which to define transition points.

It is also possible that the microanalytic approach is inadequate for describing the ways individuals deal with broad problems of living. For predicting long-term outcomes, perhaps we need to be *macroanalytic* and seek generalized traits. When we came on the scene, the dominant approach was to look for broad cognitive and coping styles having to do with how people conceived of themselves and the world in which they lived. This approach did not facilitate prediction, nor did it offer much insight into how people coped with the ordinary demands of daily living. The microanalytic approach has not been applied long enough, or with the right longitudinal designs, to determine how far it can take us in explaining and predicting long-term adaptational outcomes.

Objective versus subjective approaches and the problem of confounding.

The possibility that there is confounding between subjective measures of stress (e.g. our hassles scale) and adaptational outcomes has been the subject of spirited debate between Dohrenwend and his colleagues (Dohrenwend, Dohrenwend, Dodson and Shrout, 1984; Dohrenwend and Shrout, 1985) and ourselves (Lazarus *et al.*, 1985). Dohrenwend and his colleagues, as well as others (cf. Green, 1986), argue in favour of objective measures of stress. Presumably such antecedent measures would be uncontaminated by subjective appraisals that overlap with psychological outcome measures such as psychological symptoms. Three important questions reside within this argument. First, to what extent do subjective measures of hassles and outcome measures such as psychopathology actually overlap? Second, what alternatives are there for measuring the ordinary stressful events of day-to-day living? And third, is it possible to obtain objective measures of sources of emotion or stress, and if so how could they be used to advantage?

With respect to the first issue, confounding refers to redundancy among variables. It can occur because the components making up the variables themselves are redundant, as when there are duplicated or similar items, or when the variables reflect some third, underlying variable in common. Elsewhere we demonstrated empirically that the measures of hassles and psychological symptoms do not contain duplicate or similar items (Lazarus *et al.*, 1985), and we provided arguments and data showing that the correlations between hassles and psychological symptoms could not be explained by common psychopathological content. Although there may be some overlap in specific instances, and some confounding could occur because of a third, as yet unidentified common variable, the degree of overlap in carefully designed studies is not sufficient to warrant abandoning the subjectively based measures.

With respect to the call to objective as opposed to subjective measures, this is in large part motivated by a fear of confounding and the desire to have 'true' stimulus-based estimates of stress. The implicit question concerns the extent to which environment and person characteristics influence the appraisal of events. In the case of major events such as disasters or unexpected deaths, the features of the environment are so powerful and unambiguous in their effects that they will to some extent level individual differences in response. Thus, Green (1986) reported that for two groups of disaster survivors, objective characteristics of the event, such

as loss of friends and loved ones and injuries, were better predictors of stress response symptoms 2 years later than were subjective appraisals of the event. This finding needs replication.

However, major events whose environmental characteristics are as powerful as the floods studied by Green are relatively rare. An adequate theory of stress must include the kinds of ordinary stressful events that people experience day to day (Lazarus and Folkman, 1986a–c). The appraisal of daily hassles integrates information from both the environment and the person, but the environmental component is often less powerful than the person component is, and therefore it will exert less influence on the appraisal of hassles than it will in the appraisal of major disasters.

With respect to the third question of whether objective measures of the sources of emotion or stress are obtainable, no adequate technology for doing so has yet emerged. In the face of what is known about obtaining objective descriptions of events, it is optimistic to presume that we can ever obtain accurate measures except in the most limited sense. The difficulties involved in constructing objective measures of events are clearly evident even with major life events as soon as one goes beyond mere listing and makes a close-in examination of their complex meanings (Brown and Harris, 1978). If objective measures were actually available they could be used to advantage to study discrepancies between the objective and subjective accounts and their relationships to antecedents and consequences. These discrepancies could also be used to identify personal agendas that shape perceptions and appraisals.

Dealing with method variance.

There is no practical way to obtain data on emotion, coping, and adaptation that is not constrained by the ubiquitous and vexing problem of method variance. As we indicated earlier, research that is totally dependent on self-report procedures is bound to be subject to this problem. Because they are so widely used and so important in the study of cognitive–affective states and processes, and in the measurement of traits of personality, self-report approaches have also been most extensively criticized for potential sources of error.

The problem is not unique to self-report. Two other prime sources of knowledge about emotion and coping, namely, instrumental and expressive behaviour and physiological reactions, have their own special methodological difficulties, and these may be even more damaging than those of self-report. Even if one is in a position to observe coping behaviour in appropriate contexts—itself no mean task—many forms of emotion-focused coping are extremely difficult, perhaps impossible, to measure without using self-report. For example, it requires great wisdom, skill, and luck to be able to infer distancing or cognitive avoidance from action and expression, because these forms of coping consist of things people say to themselves, as well as to others. Appraisal would be even more difficult to study in the absence of self-report data.

The steps we favour are first to generate stable findings from purely self-report data, second to derive from these findings empirically based principles, and only then to test the most important of these primarily by check experiments crossing levels of analysis (see also Laux, 1976). We believe this is a more economical and

practical solution than to combine levels of analysis before having established findings of worth. In the event one set of investigators finds it impossible to do check experiments, findings from well constructed self-report methods could still encourage others to test them with more controlled, multimethod, experimental or quasi-experimental approaches.

Comparison of our approach with that of Hans Thomae.

The task of writing this chapter was particularly attractive not only because it provided an opportunity to make a searching examination of the state of the art of emotion and coping theory and research, but also because it provided an opportunity to compare our approach with Thomae's. Although the language barrier limits us somewhat since he has published more in German than in English, we can use an important recent overview (Thomae, 1985; see also Thomae, this issue) to search for similarities and differences.

One can see much similarity of thought about coping and adaptation between Thomae and us. Thomae, for example, has an outlook that is similar to German Action Theory, in which behaviour is seen as goal-directed and guided by plans. Our approach, which is also heavily cognitive and motivational, derives from earlier 'New Look' work (e.g. Lazarus 1966; Lazarus, Deese and Osler, 1952). Thomae's three postulates, which we paraphrase below, express themes that are also found in our writing:

1. It is the perception of change rather than objective change that is related to behavioural change. This postulate parallels our emphasis on cognitive appraisal.
2. Changes in the situation faced by the person are perceived and evaluated in terms of the dominant concerns or expectations of that person. We refer to this as the motivational principle, which we elaborated in our discussion of personal agendas and vulnerability to threat.
3. With respect to aging and the life course, adjustment depends on the balance attained between the cognitive and motivational structures of the person. This affirms that a major source of emotional distress in later life is loss (and its threat) and the conflict with one's commitments that it engenders. Thomae observes that adjustment is usually achieved by changing one's perception of a situation in a way that fits with what is desired or needed, which is what we call emotion-focused or cognitive coping. However, like us, Thomae recognizes that coping also involves direct actions that change the actual terms of an encounter with the environment.

Differences between our approaches lie less in principle and more in how we have designed our respective researches. For example, although we have argued for longitudinal research, our studies have extended only over 6 months or a year, whereas much of Thomae's research has extended over many years. We are entirely convinced that subsequent research must be longitudinal, and that one should concentrate on periods of life in which there are major transitions.

In contrast with our Ways of Coping measurement procedure, which is a checklist of thoughts and acts that took place in the encounter being described, Thomae's assessment of coping is more hermeneutical. He also uses the term 'response hierarchies' to describe the process of coping. These hierarchies differ from person to person even when employed for similar or equal problems, and they vary within the same person across problems.

What is different in our assessments of the coping process is that Thomae's forms of coping are more atmospheric and less contextual or microanalytic than ours are. His response hierarchies deal with conflict and stress in family life, for example, rather than with a highly specific family encounter. His approach is, therefore, more macroanalytic than microanalytic. He states, 'We try to trace the general behavior pattern which became manifest in specific actions, thoughts and/or the reports to be analyzed' (1985, p. 137). The response hierarchy, which consists of ways of reacting to the problem, can be compared across groups (e.g. divorced vs long-married women), and across problem areas.

Yet despite these procedural differences, much of what Thomae says about coping overlaps heavily with our own views. We both emphasize the psychological meaning or significance to the person in the encounter (or conflict), and the transactional nature of the coping processs, which is said to be in large part situation-specific as well as based on personal predilections.

Moreover, many of the procedural differences touch on our own concerns about microanalytic research. When we began our recent research, we did more open-ended interviewing as compared with our present, more quantified approach. In looking at persons over a long period, Thomae and his associates (this issue) have shown impressive stability in coping response hierarchies. We are intrigued by his suggestion that each type of life crisis may produce its own type of change in response hierarchy, a kind of lawfulness that should be carefully documented if possible. It might be fair to say that Thomae's style of research expresses something latent in our own research alter-ego, and we can see both advantages and disadvantages in both our respective approaches to the same basic issues. One wishes that it might have been possible to combine our more microanalytic style with Thomae's macroanalytic, personalistic, and extended longitudinal style to capitalize on the advantages of both approaches within a common research design and subject population.

CONCLUDING COMMENT

The above comparison and our theoretical and empirical efforts of the past 10 years convince us that there is a new era in research approaches to emotion and adaptation which holds the promise of leading to better understanding and practical intervention. Change seems to be occurring at metatheoretical, theoretical, and methodological levels. With respect to metatheory and theory, the movement has been toward transactional or relational formulations that are cognitive and motivational in focus, as well as longitudinal. Much current theory is also systems-centred, and the variables of interest in different programmatic efforts resemble each other in remarkable ways.

With respect to methodological changes, it is common now to find approaches that imitate the clinical method in which the researcher, with the help of self-report from the subject, attempts to reconstruct important encounters and problem areas in the person's life in an effort to describe emotion and coping processes, as well as the person's overall approach to living. Persons should be viewed over time within the framework of their life stories, which include stable goal hierarchies that affect appraisals of what is important and unimportant in their lives, ways of thinking

about themselves and the world, changes and transitions that threaten existing psychological structures, and patterns of coping with problems of living.

Whether these approaches will generate more understanding and practical intervention than those that preceded them is difficult to say because they are still evolving. More exchanges among researchers whose theoretical orientations are compatible, as illustrated in this volume, could increase the likelihood of developing a shared paradigm and coordinated programmatic research that could advance us beyond the frontiers of current knowledge.

We end on a note of regret. Before this issue of the *European Journal of Personality* appears, we will have closed down the Berkeley Stress and Coping Project for want of suitable support for the longitudinal testing of our framework. The timing of this article has been fortunate, therefore, in providing an opportunity for us to review our work at the conclusion of our joint empirical research programme. We hope that others will be able to draw on our work to continue what we believe has been a forward movement in the search for understanding.

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RÉSUMÉ

Nous examinons dans cet article les points de départ fondamentaux de notre théorie cognitive-relationnelle sur les émotions et les techniques utilisées pour faire face au stress; nous essayons également de déterminer les progrès qui ont été faits dans ce domaine, au travers de notre programme de recherche empirique de ces dix dernières années. Notre discussion renferme les thèmes métathéoriques suivants: transaction et relation, processus, et émotion comme un système. La relation sujet–entourage est médiatisée par deux processus-clés: taxation de signification cognitive (appraisal) et techniques utilisées pour faire face au stress. Nous évaluons les résultats de nos recherches sur ces processus, leur interaction dynamique, leurs antécédents et leurs conséquences à court et à long terme. Dans le dernier paragraphe, nous traitons un certain nombre de thèmes portant sur le contenu et méthodologiques importants qui exigent, au sein de ce contexte, toute l'attention. Il s'agit des thèmes suivants: la théories et la mesure de la taxation de signification (appraisal), les formes de techniques pour faire face au stress fonctionnelles et disfonctionnelles, les inférences causales, les stratégies de recherches microanalytiques contre celles macroanalytiques, les approches objectives vs subjectives et le problème de la confusion, ainsi que le problème de la variance de méthode.

ZUSAMMENFASSUNG

Im vorliegenden Artikel überprüfen wir die grundlegenden Voraussetzungen unserer kognitiv-relationalen Emotions- und Bewältigungstheorie und beurteilen diese anhand unserer programmatischen empirischen Forschung der letzten zehn Jahre. Unsere Diskussion bezieht sich auf die metatheoretischen Themenbereiche: Transaktion, Prozeß, Emotion als System. Die Person–Umwelt-Beziehung wird durch zwei Schlüsselprozesse gestaltet: durch kognitive Bewertung und Bewältigung. Wir beurteilen die Ergebnisse unserer Untersuchungen zu diesen Prozessen, ihr dynamisches Wechselspiel, ihre antezendenten Bedingungen sowie ihre kurz- und längerfristigen Auswirkungen. Im letzten Abschnitt stellen wir wichtige inhaltliche und methodologische Themen vor, denen man sich widmen muß. Diese Themen umfassen folgende Kernpunkte: Theorie und Erfassung von Bewertungsprozessen, funktionales und dysfunktionales Bewältigen, kausale Schlußfolgerung, mikro- vs makroanalytische Forschungsstrategien, objektive vs subjektive Ansätze und Konfundierung sowie das Problem der Methodenvarianz.