which kinds of people will be affected by such an event and which will not. There is a built-in control in the situation: all were exposed to many of the same forces, but only some were affected.

We already knew something about differences between those affected and those not. Almost all of the former were women, almost all of them were in one limited section of the plant, almost all of them had been exposed to a considerable amount of overtime on the job. Since there were men in the plant, since there were both men and women in other parts of the plant, and since there were those in the plant who had not worked much overtime, these are evidently important characteristics. But, also, since there were women in the dressmaking section of the plant who had worked overtime and had not been affected, these characteristics are not fully adequate for our purposes.

We have noted several other kinds of factors which may be involved in such cases. These may be classified under three general headings: personality, strain, and social relations.

PERSONALITY

Our earlier discussion of the personality variables presumably associated with hysterical contagion indicated that there is little consensus among students of collective behavior as to which kinds of personality are most susceptible to hysterical contagion, but most agree that personality is likely to be an important variable. The Langs emphasize the probable importance of the "socially inadequate" or "insecure" person in these cases. Such a person will be more sensitive to and dependent upon social cues and will thus be more easily influenced by such cues; they would be likely to conform whatever the behavior involved. The Langs also note, however, that some other types of persons, whom they call "high ego-defenders," will be susceptible to the extent that the behavior being diffused serves their particular psychic needs.

We also find in the collective behavior literature an acknowledgment of the fact that some persons have a lower tolerance for strain than others. This seems to be what is generally meant when we speak of a person as being "nervous." If the behavior involved in this epidemic was a function of fear of a threatening force as we have suggested, it seems likely that nervous or tense women would

be more likely to exhibit the more extreme physiological reactions than would others. Thus, without claiming any general tendency to be susceptible, such persons would seem to be more susceptible to this particular type of contagion.

Closely related to this characteristic would be the general tendency to seek medical assistance when and if symptoms appear. We might surmise, for instance, that even given the "same" symptoms, some women would report to the doctor and others would not. Since our knowledge of who was affected by the epidemic was at least originally limited to the medical records, we have found it important to be aware of the difference between "experiencing symptoms" (and perhaps even "exhibiting symptoms") and being known by the doctor as an affected case. Because of this, it seems very likely that what has been called the "inclination to adopt the sick role" would be a possible basis for differentiating between those known to be affected and those not. This may be where the Langs' definition of the high ego-defender fits in. There are undoubtedly some people who are more likely than others to be responsive to "external" physical threats.

STRAIN

We have suggested that the heavy overtime worked by the women in the dressmaking departments would have been a source of strain on the job. All discussions of such forms of collective behavior indicate that physical fatigue is a predisposing condition. On the other hand, not all of the women had worked the same amount of overtime, so it is possible that variation in this source of strain might have been an important factor. There are, of course, many other sources of strain on the job which might vary among the workers. Their degree of skill, intelligence, and experience would seem to be important variables since the greater each of these is, the better able the worker would be to meet the demands of the job and the less strain he would experience on the job. If there are different levels of work load, a worker who had (or thought that he had) a heavier work load would be under more strain. We might also define the adequacy of the worker's relationships with others on the job as a possible source of strain.

Not all of the sources of strain experienced by the worker need

be in the work situation itself. Since it would be impossible to investigate all possible sources of strain, however, it seems reasonable to focus only on those which have some clear connection with a presumed sense of strain while working. These would be largely the kinds of strain experienced because of conflict between demands of the job and demands of other roles carried out by the workers. Female workers might feel strain in family roles due to conflict with work obligations. If a woman works overtime, it will be difficult if not impossible for her to carry out her usual activities with respect to child care and the upkeep of her home. Her relationship with her husband would also be more limited and thus possibly less satisfying. Such sources of strain appear to be potentially significant.

SOCIAL RELATIONS

As noted earlier, we may view the adequacy of one's social relations in the plant as a source of strain. There is another way in which the structure of social relations might prove to be important, however. These relations may act as either means of transmission of the contagion or as means of obstruction to its transmission. We have discussed earlier, however, some of the problems involved in making a priori estimates of the role of social relations in the transmission process. There seem to be some grounds for making several different predictions.. Because of this, we were originally unable to go beyond the very general proposition that a person's position in the structure of social relations should make a difference in the probability of his being influenced by the contagion process.

We thus began our investigation sensitized to look for indications of variation in personality characteristics, strain on and off the job, and the structure of social relations on the job. Our specific areas of inquiry varied all the way from measures of "tenseness," to finding out how many children of what age the women had, to asking about friendship relations in the plant. Our guiding question was: Why were some of the workers affected by the epidemic to the point of requiring medical aid while others who were evidently in the same situation were not affected in this way?

Part II

The remainder of the volume presents a report of the results of our research efforts. In Chapter 3 we discuss the general research method and analyze the problem of specifying the dependent variable in the study. We have already noted that a belief, an experience of symptoms, and a form of behavior (reporting to the doctor) were all important aspects of the epidemic. All of these might be considered as legitimate variables, and all of them might be measured in different ways. Thus, a clarification of these variables and their relationships to each other is a necessary prerequisite to the later discussion.

The next four chapters present the findings in relation to the various factors we have discussed above as being potentially relevant to the pattern of distribution of symptoms and the development of the hysterical contagion. Chapter 4 focuses on the sources of strain experienced by the women both due to the job and the conflicts between the job and home. Chapter 5 reviews the data on the personality variables we were able to measure in the interview in light of the conceptualization suggested by previous discussions of such epidemics. Chapter 6 is concerned with the pattern of social relations among the women and the evidence we have of the relevance of such relations to the development and spread of the epidemic. In Chapter 7 we review the data of Chapters 4, 5, and 6 as they relate to each other and as they mutually contribute to an understanding of the epidemic. Whereas the previous chapters raise questions individually, Chapter 7 attempts to put them together in a

single complex question: Why did these individuals, faced with these situational strains, in this social situation become participants in the process of hysterical contagion represented by the insect bite epidemic? Chapter 8 presents an abstract general conceptualization of the phenomenon we have studied as well as a discussion of the difficulties and possibilities of further research on such problems. Finally, Chapter 9 consists of a discussion of three closely related concepts—epidemic, contagion, and diffusion—in an attempt to clarify the similarities and differences of these three processes of dissemination.

3

LIMITS AND KINDS OF CONTAGION

In Part I we have posed the problem of this volume in two steps: in Chapter 1 we have described the incident the way it was perceived by the participants and by various functionaries in the community, especially the news media; in Chapter 2 we have discussed the conceptual framework which we decided to employ in studying this event. We must now describe our research operations and the general mode of investigation, after which we will present the results of our analysis.

We were not able to collect any formal data from the workers at the plant until almost exactly two months after the epidemic ended. This delay was in part a function of the time necessary to prepare the field operations. It was more a function, however, of the reticence of management to permit us to "stir up the waters." There was understandable concern that our presence in the plant too soon after the epidemic might be interpreted by the workers as spying on them. The delay thus provided a cooling off period. Because of this concern, also, we limited our questioning about the epidemic to the bare minimum and presented the study as part of a larger

investigation of worker attitudes and opinions. In addition, the workers were assured of the confidential nature of their responses by both us and management, and management insisted that the workers be told that they could refuse to be interviewed if they wished.

Because of the degree of concentration of the affected cases, as discussed in Chapter 1, we limited our subjects to women working on the first shift, excluding all office workers. A systematic sample of one-fourth of these blue collar women was drawn using a payroll list for the week after the epidemic as the population definition. Since 85 percent of all the first-shift women worked in the dressmaking departments, we went back and oversampled those blue collar women who worked outside these departments, obtaining a one-half sample. We did the same for the Negro women in the dressmaking departments because they were so few in number and we expected them to be different from the whites in the same departments. Actually, all of the Negroes in the sample were pressers, and no white women did that job, so the Negroes were organizationally as well as racially distinct. Finally, we added all of the women who were known to have been affected during the epidemic and who had not been drawn in the sample by these means.

A total of 185 women were interviewed. Any woman, except those affected whose names were added at the end (and who were thus not part of the systematic sample), who could not be interviewed was replaced in the sample by the woman whose name appeared next on the payroll list. Table 3.1 presents the composition of the final sample, the number of replacements, and the location of the interviews. In all cases where it was possible, the interviews took place in small interviewing rooms in the plant. They were carried out during normal working hours, and the women were paid by management for the time spent in the interview. Sixteen of the women who had been affected were interviewed at home either because they refused to be interviewed at the plant or were unavailable there. All affected first-shift females were ultimately interviewed. All interviews were carried out by two experienced female interviewers associated with the National Opinion Research Center of the University of Chicago. A copy of the interview is presented in Appendix B.

TABLE 3.1
Characteristics of Sample, Refusal Rate, and Interview Location

Original sample (including 15 affecteds)	142
Affecteds added to sample	43
Total sample	185
In total sample, interviewed in plant	144
Nonaffected replacements, interviewed in plant	25
Affecteds, interviewed at home	16
Reason for failure to interview in plant	
Not there (vacation, layoff, sick, etc.)	27
Nonaffecteds	17
Affecteds	10
Refused to be interviewed	14
Nonaffecteds	8
Affecteds	6

In addition to the interview data and the information available from the medical officer's records and the news media, we were able to obtain copies of the personnel forms the company had for these workers. These forms, which were filled out only after the epidemic, included information about age, race, marital status, number and age of children, work experience, and date employed. Unfortunately, however, the personnel forms were not complete in all cases, and a number of them were missing. Thus, when analyses involving these variables are made, there is some loss of sample size.

THE DEPENDENT ATTRIBUTE

The structure of our sample reflects the fact that our basic distinction was between those women who were known to have been affected during the epidemic and all others. We had the total population of the former and a sample of the latter. However, it soon became clear to us that it was important to distinguish among three different aspects or phases which the previous chapter has suggested are involved in hysterical contagion. People come to *believe* certain kinds of facts (e.g., the reality of the threat of a poisonous insect),

they *react* emotionally (e.g., develop physiological symptoms), and they perform some *act* (e.g., they go to the doctor or they faint). All three of these aspects of the process can be observed and described in various ways, and in different instances of hysterical contagion the cognitive, emotional, and action components may be salient to different degrees. The dominant characteristic of the present case seemed to be the strength of its emotional component, the occurrence of illness. However, our basic criterion for identifying cases who had had such an emotional experience was the listing of a woman in the medical records. If there was a lack of complete correspondence between the emotional experience and the doctor's records, it was possible for us to miss some of those who had had the experience.

There was a great advantage in using the medical records since they provided not only the information that a woman had been affected, but what her symptoms had been and when during the epidemic she had been affected. Going to (or being brought to) the doctor is a definite public act, and it is precisely this act which made the whole episode a public event and brought it to the attention of management, official agencies, and the news media. The women who were involved in such a public act left behind a permanent record of their act, and we used this record in defining our sample. The study was designed to compare these women, whom we shall call "affecteds," with a sample of those who did not seek aid, whom we thought of as a control group.[1]

As soon became evident, however, there was not a perfect correspondence between the emotional reaction and the act of seeking or receiving medical aid. The affecteds were not the only ones who felt sick. During the interview, most of our questions about the epidemic were open-ended ones. After asking the women generally what had happened, we asked: "Did anything like this happen to you?" Of the 58 affecteds, all but 4 acknowledged that something like that had happened to them. Of the 4 exceptions, 2 said they were frightened and ran away; 1 said she was sick for other reasons

[1] As this is not an experimental study, the term "control" (equivalent subjects not exposed to the crucial stimulus conditions) may seem inappropriate. We are using the term in the sense of a base line group with which the critical group can be compared.

and was checked to see whether it could have anything to do with the epidemic; and the fourth did not mention that anything had happened to her. Two-thirds (36 of 54) of those who admitted they were sick did so spontaneously during their description of the epidemic, the other third doing so only after being asked this more specific question.

Even more important for our later analysis was a number of women who did not receive medical aid during the epidemic but who said that "something like that" had happened to them. Of the 127 women whom we had thought of as controls, 21 (or about one-sixth) said this. We could only interpret this as an indication that a rather large proportion of the total population of women had reacted emotionally during the epidemic and had experienced some kind of symptoms. Of these 21 women, 7 mentioned their own symptoms spontaneously during their description of the epidemic, the others acknowledging their experience in response to the more pointed question. If we assume that this one-sixth proportion accurately represents the proportion of all those who were not affecteds who actually experienced symptoms during the epidemic, it is apparent that there were more such women than there were affecteds. Thus, even though they did not come to the attention of the medical or other authorities, it is very likely that they played some part in the development and spread of the epidemic. At least it seems likely that some of their associates in the plant knew of their experience, and to the extent that there was any kind of interpersonal influence involved in the spread of the symptoms, they undoubtedly had their effect. Also, since they experienced symptoms but did not come to the attention of the medical authorities, the further question is raised as to why some who experienced symptoms got to the doctor and others did not.

The correspondence between self-report and medical attendance might be used as evidence of the reliability of the interview. In situations of this kind it is usually assumed that an interview will understate incidence as the respondents might be ashamed to admit their gullibility (Cantril, 1940, p. 58). Only the four cases mentioned above would give evidence for understatement of this kind and for them the discrepancy is at least explainable. On the face of it,

it is unlikely that respondents would claim having been exposed to the hysterical contagion, if in fact they were not. This is not an activity which confers prestige.

On further consideration we can find an incentive which would make respondents claim to have had symptoms. This would be the position like "See, I felt bad too, but I did not go and make a fuss about it." A feeling of superiority of this kind might make people exaggerate retroactively. Symptoms are so indefinite in any case that it would be hard to ascertain a definite borderline where a person would claim "legitimately" to be affected by the epidemic. Thus the important point is this self-definition of the experience and it is in this sense that we can treat them as a separate group.

Because of the conceptual significance of these women, we decided early in the analysis to consider them as a separate category. Although they were not very numerous in our sample, they could be considered to represent a rather sizeable category of women within the total population of the plant. We thus singled them out for separate analysis and called them "self-defined affecteds" because we would not have known of their having been affected if they had not told us. It is likely that others among the third category of women (whom we shall call the "controls") also experienced symptoms during the epidemic but did not tell us about them. However, we have no way of determining the identity of such women, whereas the self-defined affecteds are a distinct category.

The third aspect of hysterical contagion, a belief, is also of interest to a student of such phenomena, and the dissemination of beliefs has traditionally been an important part of the subject matter of collective behavior. Given the lack of perfect correspondence between the emotional and action aspects of the epidemic, it seems highly likely that the cognitive aspect would not correspond with either of them. Whereas the action aspect was recorded at the time, and the emotional aspect was determined on the basis of a later self-report of one's feelings at the time of the epidemic, the only measure of belief we had was one made two months later and given in answer to questions which clearly indicated that we were interested in what they believed *then* (two months later).

As the remarks quoted in Chapter 1 indicate, even two months later and even after experts and the news media had labelled the

epidemic as largely psychological in nature, most of the women believed in the potency of a mysterious insect. Some of the statements quoted earlier were given spontaneously during the description of the epidemic, but we also asked a set of direct questions about this matter. The two most relevant ones are presented in Table 3.2 along

TABLE 3.2
Beliefs About the Epidemic According to Own Response During the Epidemic

Questions and Responses	Affecteds (N = 58) %	Self-Defined Affecteds (N = 21) %	Controls (N = 106) %
What do you think caused this to happen?			
Insect or other physical cause	86.2	71.4	50.9
Physical plus psychological causes	3.4	4.8	17.9
Psychological cause only	3.4	9.5	7.5
Don't know	6.9	14.3	23.6
Do you think that some kinds of people were more affected than others? In what way were they different?			
There was no difference	51.7	23.8	22.6
There were physical differences	27.6	42.9	27.4
Other (including "imaginative" and "nervous")	20.7	33.3	50.0

with the distribution of answers given by the three categories of respondents. The most striking thing about these data are the high proportions of all three categories who accept the insect as the sole or a major cause of the epidemic and the very small proportions who attribute the sickness to purely psychological causes. The most common form of deviation from the insect theory is the expression of

doubt about the whole thing. Given this widespread belief in the significance of the insect, it is reasonable to wonder why some people were affected and others were not. In response to this question, the most common answer was that there was no difference between those affected and those who were not (i.e., it was just a matter of chance), but many of the women thought that there was some physical difference in the affected women which made them more susceptible to the effect of the bites. There is, of course, greatest skepticism among the controls and least among the affecteds, but no more than half of any category thought some nonphysical difference was involved.[2]

The fact that belief in the causal significance of the insect was so widespread, together with the fact that the measure of belief was so clearly a measure of belief after the epidemic rather than during it, made us unwilling to use belief as a basic independent or dependent measure in this study. We will discuss the distribution of belief in greater detail in Chapter 7, but it will not be used systematically in our analysis. The emotional and action aspects of hysterical contagion will be viewed systematically, however, by carrying throughout the analysis the distinction between the affecteds and the self-defined affecteds. In fact, for most of this report we will be concerned with differentiating among those who experienced symptoms, those who got medical assistance, and those who did neither.

THE PATTERN OF EXPRESSION

The difference between the affecteds and the self-defined affecteds suggests that the behavioral and emotional aspects of an epidemic

[2] One reason for the widespread belief in the insect explanation and the rejection of a purely psychological explanation was undoubtedly the fact that so many of the women knew someone who had been affected. We asked them: "Did this happen to anyone (else) in the plant whom you know well?" Ninety percent of the affecteds, 76 percent of the self-defined affecteds, and 55 percent of the controls said "yes" and were able to name the person or persons affected. We considered the possibility of using this information as another means of identifying the affected cases, but we found that, within our sample, there were only two women named as affected who did not either report to the doctor or admit in the interview that they had been affected. Therefore, the answers to this question do not add appreciably to our ability to identify affected women.

such as this one may be quite variable both in intensity and extensity. Both during the epidemic and the interview the women had the opportunity to express their feelings on matters related to the epidemic. This was also true during the encounter with the physician for those who received medical aid. All of these settings can be viewed as providing opportunities for the expression of feelings or opportunities for communication, although they certainly vary in the degree to which the behavior involved explicitly and consciously transmits a message about the woman's feelings. In considering these various modes of expression together we also emphasize the close relationship as well as the differences between the perspectives of the physician and the social psychologist in cases such as this. The physician often interprets a patient's symptoms, even when clearly caused in part by a definite physical agent, as an attempt to communicate certain needs to the physician and/or other people.[3] In the same way, the social psychologist looks on hysterical contagion as an expression of some underlying problem within a group or among certain of its members.

The affecteds complained of various symptoms when they discussed their problem with the doctor, and there is no consistent pattern in these symptoms. There was no one symptom common to all cases. In fact, there were 5 patients who reported no recollection of a bite, although they felt pain which might have been related to one. Nausea was mentioned most frequently, 40 of the 62 affecteds reporting this symptom. Fainting was also rather common, 23 patients being recorded as having fainted, and an additional 19 patients reported that they "almost fainted." It is probably worth noting here that fainting was probably the most disruptive kind of response to the epidemic, and if one wished (at whatever level of consciousness) to express her dissatisfaction with her surroundings, this would be a very effective way to do so. Headache was reported by 22 patients, and other symptoms listed were weakness, nervousness, dizziness, and being in a daze. Some rather vague feelings are also reported with

[3] The Tavistock Clinic in London has been most explicit in pioneering this approach among physicians (cf. Bion, 1961; Balint, 1957). Also, Szasz (1967) defines a concept of pain which lies predominantly in the communication aspect, ". . . it may be a request for help or a complaint about being unfairly treated or an attack or retribution against a needed but unconsciously hated object" (p. 104).

considerable frequency. The most prominent of these was a feeling that some referred to as "swelling like a balloon," and this expression occurs so frequently that it suggests the spread of a verbal pattern of reporting. But there is no very consistent pattern or combination of symptoms, and this kind of distribution reinforces the impression that we are not dealing with a relationship between a specific physical cause and a symptom but with a vague, probably psychogenic source of tension to which all kinds of symptoms could be related.

The doctor's records also report the temporal sequence of cases, and a pattern emerges from that sequence that is worth reporting. We have noted that there was a gradual build-up of cases over a period of almost a week with the great majority of cases reporting to the doctor on two big days, and a few cases coming in after these big days. The early cases often reported having been bitten several hours or days prior to seeing the doctor, but as the epidemic developed, the lag between the experience of the bite and seeing the doctor practically disappeared. Some of the women who saw the doctor during the two big days said they had also been bitten at some earlier time, but only two who were bitten on or after the first big day failed to report to the doctor the same day they were bitten.

This time sequence confirms our impression that seeking medical attention was a significant act in itself and that it was not identical with the experience of any particular symptoms. There is also a consistent trend to suggest that, as the epidemic progressed, less severe symptoms sufficed to induce a person to seek medical attention. If we take as the most severe symptom the act of fainting, we find that of the 6 persons who received medical attention before the two big days, 3 fainted. Of the 26 seen by the doctor on the first big day, 12 fainted. Seven of the 22 cases treated on the second big day fainted; and only one of the 6 patients treated after the second big day fainted. There is thus a steady decrease in the percentage who fainted from 50 percent to 46 percent to 31 percent to 17 percent. Evidently, as it became more and more socially acceptable to seek medical attention for symptoms, less severe symptoms were sufficient to lead one to treatment.

We have only the data from the interview on which to base any judgment about the severity of the symptoms experienced by the self-defined affecteds, but from their report in the interview it

would appear that their symptoms were not as severe as those experienced by the affecteds. Some of them said they felt bites and became faint; but there were quite a few who mentioned that they were bitten and nothing happened. Thus, although there is some overlap in the symptoms experienced by these two categories of women, the self-defined affecteds do not seem to have been as seriously affected. It is very likely that during the spring and summer in the southeastern states a person might get some insect bites, and therefore it may be meaningful that some of the workers associated these bites with the epidemic, while others did not get sufficiently concerned to make this association and to report to the doctor. But both the affecteds and self-defined affecteds felt sufficiently affected by the experience that they considered themselves to be the victims of the epidemic either at the time or afterwards during the interview.

If we view the epidemic and one's involvement in it as an expression of some sense of dissatisfaction (either personal or against the organization) which the individual could not express in some other way, there are several ways in which a person could express himself through the symptoms: by just having them, by using them as a basis for an act of social consequence (that is, by obtaining medical aid), or by mentioning them in the interview (which is a social act of less consequence). The degree of spontaneity of report of symptoms during the epidemic, therefore, is one index of the strength of feeling. This index also suggests that the affecteds were more deeply affected by the experience. Only one-third of the self-defined affecteds mentioned their own involvement in the epidemic spontaneously, whereas six-tenths (36 out of 58) of the affecteds did so. Of course, there were 4 of the affecteds who did not fully admit their involvement even when more direct questions were asked, but there might also have been many women like our self-defined affecteds (in the sense that they experienced symptoms) who never actually admitted to being affected.

Another measurement of the strength of feeling would be the amount of talking about the epidemic the women did in the interview. The most straightforward means of indicating this is by the average length of response to our general request for a description of what happened during the epidemic. We have presented these data in Table 3.3 organized according to whether the respondent

TABLE 3.3
Pattern of Expression and Length of Statement About the Epidemic

Type of Subject	Mean number of words in description of epidemic: Total	To first probe
No part in epidemic admitted in interview		
No participation observed (Controls, N = 106)	29.1	24.0
Participation observed (Affecteds who deny being affected, N = 4)	73.3	40.0
Participation acknowledged in interview		
No participation observed (Self-Defined Affecteds)		
Spontaneous mention in interview (N = 7)	46.2	37.5
Mention after direct question (N = 14)	35.0	28.9
Participation observed (Affecteds)		
Spontaneous mention in interview (N = 36)	52.2	37.8
Mention after direct question (N = 18)	29.4	25.8

spontaneously mentioned her own involvement and according to her position in the three major categories of respondent—affected, self-defined affected, and control. The longest average answer was given by the four affecteds who later said they felt that they had not actually been affected by the epidemic. Although they were not challenged by the interviewer about this inconsistency (the interviewers did not even know who had gone to the doctor and who had not), they apparently felt a great need to talk about the episode and to justify their own behavior during the epidemic—especially after the interviewer asked her routine probing question. By contrast, those respondents who were not affected by either criterion gave the shortest answers. Among the other four categories of women, there is a consistent difference between those who spontaneously acknowledge their participation and those who do not, the former giving the longer

TABLE 3.4
Participation and Belief in the Epidemic

	What do you think caused this to happen? "Insect" %	Why some people more affected than others? "Psychological" %
No participation in epidemic indicated (Nonaffecteds) (N = 106)	28.3	27.3
Participation is indicated		
No participation observed (Self-Defined Affecteds)		
Spontaneous mention in interview (N = 7)	57.1	42.9
Mention only after questioning (N = 14)	42.9	28.6
Participation observed (Affecteds)		
Spontaneous mention in interview (N = 36)	63.9	11.1
Mention only after questioning (N = 18)	66.7	11.1
None indicated in interview (N = 4)	25.0	25.0

replies. This difference is greater among the affecteds, those who do not spontaneously admit having been affected giving answers as short as the controls. It may be that the epidemic was not as significant an event for these women as it was for those who spontaneously acknowledged their own participation.

In concluding this delineation of the kinds of effects of the epidemic, it may be valuable to consider the interrelations of different kinds of action and belief. Table 3.4 shows the answers of the different groups which we have described to two questions on beliefs about the epidemic. The action during the epidemic itself relates to belief about the existence of the insect. With the exception of those four women who denied having been affected, the affecteds

are most likely to express belief in the insect. The controls are least likely to do so, and the self-defined affecteds are in the middle. As expected, the affecteds are least likely to suggest that psychological factors were involved in the epidemic and the controls are more likely to refer to such factors. However, the self-defined affecteds are most likely of all to suggest a psychological explanation. When this is viewed in conjunction with their acceptance of the insect explanation, they seem to be saying that there was an insect and people did get sick, but this was no reason to panic.

The general impression one gains from this analysis is that there were different degrees of severity of response both during the epidemic and afterwards. During the epidemic these ranged from those affecteds who fainted, through those self-defined affecteds who felt sick but did nothing about it, to those controls who did not feel upset at the time. During the interview there was also a variation in the strength of response about the epidemic. Some mentioned immediately that they had themselves been affected and gave rather lengthy accounts of the event, while others acknowledged their participation only after a direct question and gave rather brief accounts of the event. We have suggested that all of these measures may be interpreted as indications of differing degrees of dissatisfaction or tension in the situation, and in general such indexes of dissatisfaction and tension are found more frequently among affecteds than controls, as we would expect. In later chapters we will turn to a more direct measure of these dimensions of tension and dissatisfaction. We will seldom be able to cope with the minor variations of response we have just noted, simply because there is too much variation to permit any systematic analysis. We will, however, return to a consideration of the rather gross categories of affected cases defined according to which women fainted, which said they almost fainted, and which did neither. Throughout, of course, we will also be concerned with the difference between the affecteds and the self-defined affecteds as well as the ways in which both of these categories differ from the controls.

THE POPULATION AT RISK

Up to this point our discussion has encompassed either all of the affected cases (4 of whom were not even in our interview sample)

or our entire sample of 185 women. For the purposes of the central analysis of this study, however, we have found it useful to delimit the population under consideration even more narrowly than this. Our sample was originally chosen because we knew that all but 4 affected cases were women on the first shift. That population which we sampled included two relatively small subgroups, however, which we either knew or strongly suspected were rather different from the bulk of the population of first-shift women. These were the Negroes and those who worked outside the dressmaking departments. As Table 1.1 indicates, the great majority of first-shift women worked in the dressmaking departments. Also indicated is the fact that none of the first-shift affected cases occurred outside the dressmaking departments. Even though we oversampled the blue collar women outside the dressmaking departments, we still had only 20 of them in our sample. Since they not only worked in other departments in the plant but also worked outside the large room in which the dressmaking departments were housed and where all the first-shift cases occurred, it seemed likely that they had not been exposed to the epidemic in the same way as had those in that large room. We therefore did not feel justified in including them with the others, and since there were so few of them, it did not seem worthwhile to carry on a parallel analysis throughout this report. We thus chose to separate these 20 women and discuss them briefly in the Appendix.

There was a similar situation with the Negro women. We had only 18 of them in our sample even though we had also oversampled from those Negroes working in the production departments. (There were some Negro women in service jobs also, but they were not included in the definition of the population from which we drew our sample.) All of these 18 women were pressers, and no white women held that job. Although the pressers were in the large room with the other dressmaking departments, and although 2 of these Negro women were among the affected cases, we were hesitant simply to include them in the sample used in the basic analysis for this report. There was no doubt that these women were a separate part of the personnel in this part of the plant. The racial barrier could not be ignored by us any more than it was ignored by the women themselves. And again there were too few of these women to warrant carrying on a parallel but separate analysis. We thus decided to exclude these women also and discuss them in the Appendix.

Although this decision to separate these two special subsamples from the rest of our subjects is defensible on the grounds just noted, it is worth mentioning here that our analysis of these cases has also strengthened the case for their separation. Especially with respect to the network of sociometric relations, these two subsamples of women are so different from the others we interviewed that there is no doubt that their inclusion in the general analysis would have tended to obscure some of the facts of the situation in which the epidemic took place.

We need also mention at this point three other cases which had to be excluded from the analysis. Because the sample was based on a population defined according to the payroll of the week after the epidemic, there appeared in our sample four women (one of whom was a Negro) who were not actually working at the plant during the epidemic. This was not discovered, of course, until the interviews had been carried out. Since the characteristics of these women are of no consequence for our understanding of the epidemic, they were also dropped from the analysis.

For our purposes, therefore, the population at risk is defined as all those blue collar white women working at the time of the epidemic in the dressmaking departments, all of whom were housed in one large central room in the plant. These women were most fully exposed to the epidemic, and in regard to them it may most legitimately be asked: Since they were all equally exposed to the epidemic, why were some affected by it while others were not? We know, of course, that the line between being affected and not being affected is not easily drawn and that, depending on our definition of "affected," it may be drawn in different places. However, wherever it is drawn, it is with respect to subdivisions of this population of women that the question is most legitimately raised. Our sample included 144 such women: 56 affecteds, 17 self-defined affecteds, and 71 controls. The affecteds were the total population of such women, whereas the self-defined affecteds and controls were an approximate one-fourth sample of such women. These three sets of subjects, representing as they do three different kinds of response to the epidemic, will be the focus of our investigation from this point forward. After we have presented an analysis of the data available on these women we will return (in Chapters 7 and 8) to further

consideration of the characteristics of the population at risk and the pattern of the epidemic within that total population.

THE LOGIC OF ANALYSIS

The nature of the sample of women we used in the study poses some problems of analysis. The fact that we have a population of affecteds and a sample of other women makes some of the usual methods of analysis inappropriate. For instance, if we wish to ask if it is true that those who were under more strain were more likely to become affected, it would be normal to compare the percentage of those with high and low strain who were affected. Some test of the significance of the difference of these percentages could then be made. If we had a legitimate sample of the population at risk, such a procedure would be defensible, because it would be reasonable to assume that we had simultaneously sampled the distribution of levels of strain and the distribution of "levels" of affectedness (affected or non-affected). In our case such an assumption would not be reasonable because we very carefully did *not* sample levels of affectedness but chose instead to include all relevant cases of affecteds. Thus, if there were any relationship between being under heavy strain and being affected, the usual kind of analysis would tend to inflate the amount of that relationship by oversampling the high strain-affected segment of the distribution (Zeisel, 1957, Ch. 2).

Instead of such an approach, therefore, we have chosen to compare the percentage of the affecteds who had a particular characteristic with the percentage of the other categories with that characteristic. (We are thus asking if it is true that those who were affected were usually under more strain rather than if it is true that those under more strain were more likely to be affected.) Since the percentages are based on separate categories within each of which the sample proportion is constant, comparisons across categories are more legitimate and informative. If we find that a higher percentage of affecteds than controls were under high strain, this is a noteworthy finding which is not put in doubt by the fact that we have complete information about affecteds and only a sample of the relevant information about the controls.

The fact that our categories of cases are based on different sam-

pling proportions also makes it more difficult to justify the use of tests of significance. Only the findings for the nonaffected cases are subject to sampling variation since the affecteds are a population. We have chosen not to use tests of significance in any systematic way, but we have also been concerned that we avoid the pitfall of stressing only those differences which "make sense" to us in terms of a particular point of view. Thus, although we do not report levels of significance, we have used as a rough rule of thumb for those basic kinds of analysis using all of our cases a difference which would meet the .10 level of significance on a usual test.

We feel that there are other than purely methodological reasons for not using tests of significance in this case, however, and it is important to emphasize this point before presenting the findings. Given the general state of theory in this area of inquiry and the paucity of previous empirical research, we deemed it inappropriate to present a list of formal hypotheses which would then be carefully tested by means of the data we collected. Not only are the propositions which might be so tested very few in number, they are also often contradictory with one another. We found it necessary, therefore, to retain a very flexible view of the phenomena before us and to examine our data from a number of different perspectives, even when some of them contradicted others. We cannot claim, therefore, to have "tested a theory" or even to have provided a fully adequate basis for the general conclusions we have reached. What we have done is to provide a detailed analysis of a case of hysterical contagion, a case whose characteristics suggest the greater adequacy of some propositions than others. We believe that this analysis moves well beyond the previous discussions of such phenomena, but its ultimate value must be determined by further empirical investigations which use it as a point of departure. Because of the rather exploratory nature of the venture, therefore, a rigorous use of statistical tests appeared both inappropriate and potentially misleading.

4

SOURCES OF STRAIN

What little knowledge we had of such phenomena as the epidemic we were studying led us to be sensitive to indications that the women were experiencing some kinds of strain, either on the job or elsewhere. The underlying assumption was that hysterical contagion is a form of response to stress and that it tends to occur in situations in which nervous tension is high. We were particularly concerned with the matter of tension since the connection between the particular symptoms exhibited in this epidemic and the experience of unresolved tension seemed to be very close. Not only can it be argued that such unresolved tension leads to the kinds of tactual sensations one experiences when an insect is crawling on the skin, but the more extreme symptoms reported by the women were the same as those found in classical cases of hysteria. What evidently happened in this case was that a number of people who were experiencing these kinds of tension-related symptoms came to associate the symptoms with a mysterious poisonous insect. Thus, although a crucial part of the process was the introduction of this "explanation" of the symptoms, a high level of tension was presumably a prerequisite. We were therefore interested in attempting to delineate significant sources of tension. We also wanted to see if there were differences in the level of strain experienced by those who were known to be affected by the epidemic and those who were not affected. It has already

been noted that there were *general* sources of strain in the plant that were presumably experienced by all of the workers, at least those in the dressmaking departments. Our interest, then, was in those sources of strain which were variables rather than constants.

We viewed the possible sources of strain on the job as being of three kinds: those associated with the actual work itself, those associated with worker-management relations, and those associated with relations among the workers. We also investigated the possibility of strain due to conflicts between the work role and family roles. This seemed to be a very likely source of strain since women are subject to clear responsibility in both environments. Finally, we have included here a discussion of some means of coping with these potential sources of strain.

THE JOB AS A SOURCE OF STRAIN

One of the factors noted in our discussion of the general stressful quality of the work situation was the fact that the epidemic occurred at the peak of the production cycle. A great deal of overtime was worked at this time, especially by those in the dressmaking sections of the plant. We had hoped to obtain from the management records information as to the amount of overtime worked by each of our subjects during the period just prior to the epidemic. This information was never made available, seemingly through a complication in the record-keeping rather than through any unwillingness on the part of management to cooperate in the study. We were thus forced to use the information obtained in the interview. The interview, of course, was designed to give the minimum amount of emphasis to the epidemic. Therefore, it was not possible to ask the most directly relevant question: How many times a week did you work overtime during the four weeks just prior to the epidemic? It was not even possible to ask about that particular period of time. We were assured by management, however, that the overtime patterns had not changed in the interim, and on this basis we have used answers to the question: About how many times during the last month have you worked overtime during the week? as our indication of this source of strain on the job.

In spite of the doubt we had in the adequacy of the question for our purposes, it proved to be one of the clearest differentiators

between the affected women and the controls. Almost two-thirds (66 percent) of the affected women had worked overtime at least two or three times a week compared with only 41 percent of the controls (see first section of Table 4.1). Even fewer (29 percent) of the self-defined affecteds had worked that much overtime. This finding is clearly in keeping with the expectation that those who became affected were under more strain on the job than those who were not affected, although the position of the self-defined affecteds is less easily fitted into this pattern.

We also found that more of the affected women had been laid off since beginning work at Montana Mills than had the controls, although the difference is not great (36 percent versus 25 percent). Again, however, the self-defined affecteds raised a question for us. Over half of them had been laid off. Since our original logic was that the experience of being laid off would add an extra burden for the workers and make the strain of the job greater, this finding suggests that the self-defined affecteds were under greater strain from this source than either the affecteds or the controls, and they should then have had a greater probability of being affected than either of the other categories of women. This is another indication that these women were rather different from those who reported to the doctor. We have seen in the last chapter that they interpreted the epidemic in a different way. We now begin to see that they were different with respect to the situation they were in also. This will be a recurring theme throughout our analysis. Consistent with this greater tendency for the self-defined affecteds to have been laid off is their unanimous statement that their jobs were not "steady" ones, that they could not "count on working at least a full week all year." In contrast, sizeable minorities among both the affecteds and the controls viewed their jobs as steady.

Almost all of the other findings in this part of our analysis are rather inconclusive. The affecteds are not much more likely to see the work pace as variable, though variation in the pace was viewed by us as a probable source of strain. They also tend to respond at least as favorably toward their jobs as do the other two categories of subjects. They have relatively favorable scores on two scales we devised to measure attitudes toward work, scales on which the self-defined affecteds have the least favorable scores. When we asked them what they would prefer to do if they had their choice, "work

TABLE 4.1
Indications of Strain Among Affecteds, Self-Defined Affecteds, and Controls

Index of Strain	Affecteds (N = 56) %	Self-Defined Affecteds (N = 17) %	Controls (N = 71) %
Worked overtime at least two or three times a week	66.1	29.4	40.8
Have been laid off	35.7	52.9	25.4
Do not define job as "steady"	76.8	100.0	81.7
Do not mention supervisor as one to go to with a complaint	44.6	17.6	25.4
Mention the union steward	28.6	11.8	15.5
Are members of the union	78.0	86.7	66.1
The section varies in output	41.1	35.3	25.4
Often find themselves "trying hard to keep up with the others"	25.0	11.8	23.9
They work faster than the others	17.9	29.4	12.7
Are sole family breadwinners	21.4	23.5	9.9
Provide half or more of family income	43.4	37.5	22.4
Are separated, divorced, or widowed *	16.1	25.0	2.9
Have a child under six years old *	48.0	31.3	36.8
Have a child under six years old *and* work overtime a great deal *	33.9	6.3	14.1
Overtime interferes with something	50.0	70.6	59.2

*Data on marital status and family composition came from company records. Since these data were not complete, there are some cases missing, and the percentages are sometimes based on slightly smaller category sizes.

here, keep house, or do something else," their responses were not much different from those of the others. In fact, here again the responses of the self-defined affecteds were the most unusual, more of them saying they would prefer to "work here."

With respect to the original expectation that the affected women would report greater strain on the job, therefore, the only finding that was clearly in keeping with the expectation was that the affecteds had worked much more overtime than either of the other two categories of women. Although they had also been laid off somewhat more than had the controls, the self-defined affecteds had experienced layoff more than either the controls or the affecteds. On the more subjective measures of the women's attitudes toward the work situation, the picture is mixed, but there is no real indication that the affecteds are less satisfied than the others.

WORKER-MANAGEMENT RELATIONS

We asked the general question: How are workers treated here compared with other plants? and a number of other direct questions regarding the women's attitudes toward their supervisors. There were no very noteworthy differences among the three categories of women on these items. If anything, the affected and the self-defined affected women responded somewhat more favorably to such direct questions.

This pattern of response to direct questions is cast in doubt, however, since the affected women responded quite differently to a more indirect question about their superiors. We asked them: "If you had a complaint about your job, to whom would you go or to whom would you talk about it?" The affecteds were less likely than either the controls or the self-defined affecteds to mention their supervisor in response to this question (see second section of Table 4.1). Only slightly more than half of them mentioned the supervisor compared with about three-fourths of the controls and an even greater proportion of the self-defined affecteds. Only about one-tenth of each category explicitly denied that they would go to their supervisor when we later asked this more pointed question, but almost half of the affected women failed to mention the supervisor when faced with the original question. They evidently had less faith than the other women in the official channels of appeal in the plant, although they did not readily admit it.

This interpretation is strengthened by the fact that the affecteds were much more likely to mention the union steward as the person to whom they would turn if they had a complaint, and they were more likely than the controls to be members of the union. Although we would not wish to make any general claim that union membership is an indication of a lack of faith in management, in this particular plant such an interpretation is more easily justified. It was very apparent to us that the stature of the union, both in the plant and in the larger community, was not very high. Management did not have any consistent or effective dialogue with the union representatives and usually ignored them or treated them with a mixture of disdain and suspicion. Although the majority of the women in the dressmaking portion of the plant were union members, unions had made very little headway in the other plants in the area. In fact, during our field operations a union was picketing a local establishment in an effort to gain recognition. This activity was treated with derision by both the local press and many of the passersby on the street. The only reason for the presence of the union at Montana Mills, so far as we could determine, was that the union had a contract with the parent company whose operations were mainly in the North, and this contract automatically covered Montana Mills when it opened. To join the union in the face of such general community opposition and the union's own weakness in the plant would presumably require rather strong feelings on the subject.

The major outcome of this analysis, therefore, is a striking contrast between the verbal statements of the affected women with regard to their attitudes toward management and their behavior both in joining the union and in failing to designate the supervisor as the point of appeal. We interpret the less direct measures as an indication of a rather low level of faith in management and suggest that the verbal statements of attitude are thereby cast in doubt.

PEER RELATIONS AMONG THE WORKERS

The other workers in the plant could serve as either a source of strain (if a woman found them unattractive) or a source of strength (if she found them attractive and friendly). As we will discuss in greater detail in Chapter 6, it is also possible to view the fellow

workers as a means of communication and interpersonal influence in such an epidemic as this. But at this point in the analysis we are only concerned with the possibility that such relations may constitute an additional source of strain.

We raised two kinds of questions in this regard. First, there was a series of questions about the general degree of favorableness with which the women responded to their fellow workers. Second, there was a series of questions regarding how they viewed themselves in the work context in comparison with the others in the plant. The findings in both cases are at best mixed. In general, the affected and self-defined affected women seem to have somewhat more positive attitudes than the controls toward their fellow workers, but the differences are neither very great in most cases nor are they fully consistent. Both the affecteds and self-defined affecteds are somewhat more likely to perceive variation in work output in their sections than are the controls (see third section of Table 4.1). However, the self-defined affecteds are least likely of all to say they often find themselves "trying hard to keep up with the others." Instead, the self-defined affecteds are more likely than the others to say that they "work faster than the other people" in their section.

We thus find only limited support for the general thesis that those who were affected were those who had stressful relations with their peers. In fact, we find that the affecteds do not differ appreciably from the controls on any of the attitude measures. They are more likely than the controls to perceive variation in output in their section, but they are not different from the controls in their report of their own position in this pattern of variable output. Again, the position of the self-defined affecteds on these measures is not clearly consistent with any simple explanation of their self-defined role in the epidemic. We will return to some of these findings again later in the chapter.

CONFLICT BETWEEN WORK AND FAMILY ROLES

Workers may experience strain from sources other than the job and their fellow workers and management, and such strain can have a significant effect on their job behavior. Other potential sources are

almost unlimited and can vary greatly from one person to the next, but we focused our attention on the possible strain caused by a conflict between the demands of the job and the demands presumably placed on a woman in the family situation. The fact that those who were affected by the epidemic were most likely to have worked a great deal of overtime may be interpreted both as an indication that they were physically tired from so much work and as an indication that they faced more conflicts between home and work obligations than did the other women.

Other indications of such conflict were also investigated. We thought, for instance, that those whose work was more important as a source of income to the family might be under more strain, and we found that there was a tendency for the affected and the self-defined affected women more frequently to be the sole breadwinners in the family (see last section of Table 4.1). The affecteds are also more likely than the controls to supply one-half or more of the family income. The job was thus more important to them than it was to the other women.[1]

The affecteds and self-defined affecteds were somewhat more likely to have larger families than the controls. More important, however, is the composition of those families. The great majority (about three-fourths) of all categories of women were married, but both affecteds and self-defined affecteds more frequently had disrupted marriages. (This means also, of course, that there were more single women among the controls.) The affecteds were more likely than either of the other categories of women to have preschool children. More significantly, the affecteds were more likely to have young children *and* to have worked a great deal of overtime. This should mean that these women faced a greater strain due to the demands of maternal and work roles. The fact that *none* of the self-defined affecteds faced this kind of role conflict again makes them very unusual.[2]

[1] It may also be worth noting here that a larger proportion of the self-defined affecteds and the controls had more than two incomes in the family. Eighteen percent of the former and 19 percent of the latter had more than two incomes compared with only 5 percent of the affecteds.

[2] We also found a larger proportion of the affecteds had preschool children *and* supplied at least half of the family income. Only 7 percent of the controls had these characteristics compared with 18 percent of the affecteds. Again, *none* of the self-defined affecteds had both of these characteristics.

Given such knowledge about the family situations of these women, their responses to another set of questions come as a surprise. We asked the women whether working overtime interfered with their other activities, and we specified such activities as "housework," "taking care of children," "being with husband," "being with friends," and "going to church" as well as asking them if there were any other activities it interfered with. Although the affecteds were slightly more likely than the controls to say that overtime interfered with taking care of children and being with their husbands, the differences are very small, and in both cases the self-defined affecteds acknowledged such interference even more frequently than the affecteds. When we raise the more general issue of whether the women see overtime as interfering with *anything*, the affecteds were least likely of all to say so. Although the difference between the affecteds and the controls is not very large, it takes on added significance when we recall that the affected women were more likely to have worked a great deal of overtime and more frequently had small children.

It is difficult to interpret this finding with full confidence. We might say that the greater importance of the job makes the acceptance of the "interference" of overtime easier, especially since the added income presumably is of more importance to the affected women, and therefore the affected women would not be so likely to complain about the overtime. We might also suggest that the affected women were more likely than the others to give only "pleasant" responses to questions, to have less tendency to complain, because they were different kinds of personalities. We will return to this point later on in this chapter.

To summarize this portion of the analysis, the most noteworthy findings with respect to home–work conflicts appear to be the greater tendency for affecteds to supply half or more of the family income and to work overtime even when they had young children. These findings suggest that they had more to cope with in the work situation than did the other women, even though they did not overtly object or complain about these burdens.

COMBINING INDEXES OF STRAIN

In the previous sections we have investigated several sources of potential strain and have found a number of these which discriminated

between the affected and control cases in the direction one would expect if strain increased the probability that a woman would participate in the epidemic. Since the general expectation calls for increased strain to lead to increased probability of participation, however, we are interested not only in these individual measures but also in the total burden borne by the women. Within each type of strain we have found some measures which discriminated the affecteds from the controls. It therefore seems likely that the total burden of the affecteds was greater. However, this does not necessarily follow. It is quite possible that the distribution of these several types of strain is such that any combined measure would not discriminate between affecteds and controls any better than the individual measures. We thus turn to an examination of the distribution of combined strains.

It might be argued that we should combine *all* of the measures we have used in the previous analysis so that our resulting index will be composed of a wide range of sources of strain. We have chosen to do otherwise for three reasons. First, we have suggested that there is some reason to doubt the adequacy of some of our original measures. This is particularly true of measures based on evaluations made by the subjects themselves. Second, since so many of the measures do not show any noteworthy differences between the affecteds and controls, their inclusion in a summary measure would tend to obscure the effects of the measures which do discriminate. To say this, of course, is to acknowledge that we are not able with any confidence to define in advance *what* sources of strain might be significant in such an epidemic as we have studied. Thus, third, we recognize that our procedure is in the nature of an analog of the discriminant function technique. We are searching for that combination of strain measures which most clearly discriminated between the affecteds and controls.

We have therefore taken the most noteworthy measure from each of the four areas discussed thus far and combined them. By "noteworthy" we mean both that they discriminated between the affecteds and the controls (not necessarily between the affecteds and the self-defined affecteds) and they characterized a sizeable proportion of the affecteds. Some of the measures meet the first criterion but not the second. For instance, many more of the affecteds than

controls were separated, divorced, or widowed (see Table 4.1), but this still represented only about one-sixth of the affecteds. In that same area, however, we find that there are many more affecteds than controls who supply at least half of the family income, and this attribute characterizes more than two-fifths of the affecteds. We thus chose the latter index from Table 4.1 rather than the former. The indexes we combined, therefore were (1) working overtime at least two or three times a week, (2) not mentioning the supervisor as one to go to with a complaint, (3) saying that the section varies in output, and (4) supplying half or more of the family income.

The distribution of the number of these strains experienced by the three categories of women is presented in Table 4.2. It is very

TABLE 4.2
Distribution of Four Sources of Strain Among Affecteds, Self-Defined Affecteds, and Controls*

Number of Sources of Strain Experienced	Affecteds (N = 56) %	Self-Defined Affecteds (N = 17) %	Controls (N = 71) %
0	10.7	35.3	18.3
1	25.0	23.5	56.3
2	32.1	29.4	21.1
3	26.8	11.8	4.2
4	5.4	0.0	0.0

* The four measures of strain are as follows: worked overtime at least two or three times a week, do not mention supervisor as one to go to with a complaint, the section varies in output, and provide half or more of family income.

striking that the differences between the affecteds and the controls which were seen when using these measures individually have been increased by the combination of the measures. The maximum difference between these two categories of women in any of the previous four tables was 24.2 percent (the difference in how many worked a great deal of overtime). If we combine the sources of strain, we see that 25.3 percent of the controls and 64.3 percent of the affecteds experienced at least two of these, a difference of 39.0 percent. Thus,

by combining the measures of strain, we have greatly increased our differentiation between these two categories. This increases our confidence in the importance of the sources of strain as factors leading to participation in the epidemic. It also increases our confidence in the idea that combinations of very *different kinds* of strain may operate in some additive manner to increase the probability of participation.

Before leaving Table 4.2, it is worth noting that the self-defined affected cases are different from both the affecteds and the controls. The most striking feature of this group is the large proportion who faced none of the four sources of strain. This is in keeping with much of what we reported in the earlier sections. The fact that so many of them faced two or more sources of strain, however, suggests that this may be a rather mixed category of people, so far as their overall position is concerned.

MEANS OF COPING WITH STRAIN

It would be incorrect to interpret the previous literature as suggesting that objective strain per se is predictive of hysteria. Not only are there likely to be variations in the personal qualities of individuals which make any given objective situation more or less stressful for them, it is also true that individuals differ in the facilities available to them for coping with the strain, facilities which go beyond their personalities.

Both age and level of education have been noted in previous studies as variables which seem to distinguish persons affected in somewhat similar circumstances and those who are not affected (Cantril, 1941; Johnson, 1945). The suggestion from these earlier works is that relatively young persons (adolescents or young adults) and persons of relatively low levels of education are more likely to be affected. In both cases, these characteristics are interpreted as indicative of low levels of critical ability and thus limited ability to cope with new and/or stressful experiences. Both of these suggestions are supported by our data (see Table 4.3), but the differences among our three categories of women are not large. Thus, although the affecteds were both the youngest and the most poorly educated, we cannot make much of these small differences. (We will return later

TABLE 4.3
Indications of Means of Coping with Sources of Strain Among Affecteds, Self-Defined Affecteds, and Controls

Index of Means of Coping	Affecteds (N = 56) %	Self-Defined Affecteds (N = 17) %	Controls (N = 71) %
Are high school graduates	17.0	31.3	23.4
Worked elsewhere before Montana Mills	85.7	94.1	70.4
Overtime can be refused	46.4	58.8	45.1
It is wrong to stay home when not sick	82.1	52.9	73.2
Average age	28.2	28.9	30.1

to the fact that the self-defined affecteds were the most highly educated.)

Using the same general logic which suggests that affecteds should be younger and more poorly educated, we might also expect that a worker's critical ability might be lower if she were relatively inexperienced in the role of industrial worker. We had hoped to obtain job histories through the plant personnel department to help with this issue, but, as we have noted earlier, the information obtained from that source was very incomplete. This was particularly true of the job-history information. We thus had to fall back on a single question used in the interview which simply asked if the woman had ever worked elsewhere before coming to Montana Mills. There were sizeable differences between the affecteds and the self-defined affecteds on the one hand and the controls on the other, but these were in the direction of the *controls* having had less work experience than the others. This is clearly contradictory to expectation if one views inexperience as a factor facilitating the spread of the epidemic. Unfortunately we do not know if the previous work experience these women had was in work situations or on jobs that were at all comparable to the ones at Montana Mills. The relevance

of the experience cannot confidently be interpreted, therefore. It is possible that this finding reflects an opposite dynamic from the one we originally assumed. Since those who have the most work experience are also those who are most likely to belong to the union,[3] previous work experience may have operated in such a way as to increase the workers' fear or mistrust of management. If this were the case, previous experience might be an indication that the woman was working under an added strain. However, this kind of interpretation can be seen as no more than an attempt to give some meaning to what is a clear reversal from our original expectation.

Another source of variation in the available means of coping with strain, we reasoned, would be the women's belief in the *legitimacy* of some of the means of coping which might be assumed to be open to all of them. We asked them, for instance: "Is working overtime the sort of thing you can refuse if you feel like it, or is it something that's expected of you and that's hard to refuse?"[4] There was no difference in response to this question between the affecteds and the controls, but the self-defined affecteds were more likely to say overtime could be refused. We find, therefore, that those who work the least overtime (the self-defined affecteds) more frequently believe overtime can be refused, while those who work the most overtime (the affecteds) less frequently believe this. This may, of course, be one of the reasons why the former worked less overtime than the latter—they more often refused to do so.

We also asked the women if they thought there were those in the plant who sometimes took off from work for a rest when they were not sick. We then asked them if *they* did this and if they thought there was anything wrong with doing this. About half of each of the three categories of women said they thought some people did this, and almost no one in any of the categories admitted to doing it herself. More interestingly, there were noteworthy differences among the women with respect to their evaluation of this practice. The affecteds were most likely of all to see it as wrong, and

[3] Using all subjects, the two-by-two table relating union membership and previous work experience has a Chi square of 6.87, $p < .01$ with one degree of freedom.

[4] Management had already told us that "of course" a woman could refuse overtime if she wanted to, but we suspected that at least some of the workers had come to think otherwise.

the self-defined affecteds were much less likely to view it this way. Although there is not a great difference between the affecteds and the controls in their reply to this question, the former, who have the most to cope with, are the least likely to accept this means of doing so. In fact, 54 percent of them worked a great deal of overtime *and* rejected this means of getting a rest, compared with 34 percent of the controls and only 18 percent of the self-defined affecteds.

PROBLEMS OF INTERPRETATION

The most obvious source of strain faced by the affected women was the frequent overtime they worked. They were also less likely to suggest that their supervisor would be a suitable person to turn to if they had a complaint about their job and more frequently named the union steward, thus tending to reject the most effective channel of appeal in the plant. They also more frequently rejected the idea of staying home for a rest, and they were not very likely to think overtime could be refused. These affected women had more obvious obligations at home: they more frequently worked overtime in spite of having preschool children and more frequently supplied a large proportion of the family income. Evidently they had both a great "need" to work and a "need" to stay home. Even on the job, they were more likely to see variation in output in their sections. When four of these measures of strain are combined, the affecteds are much more likely than the others to have experienced two or more of these four strains.

In rather sharp contrast with the affecteds, the self-defined affecteds seem to have both a lower level of strain and greater resources for coping with strain. Their major sources of strain were due to their contribution to the family income and the fact that many of them had been laid off. They worked less overtime than anyone and more frequently thought it was permissible to refuse overtime. They also were most likely to think it was all right to stay home to get a rest. They were most likely to see the supervisor as the person to turn to with a complaint and least likely to define the union steward as such a person, in spite of the fact that they were most likely to belong to the union. They were generally more highly educated than the others.

It is puzzling at first glance that the affecteds and the self-defined affecteds often are most clearly different from each other. It may seem reasonable that the self-defined affecteds were different from the affecteds only in the extent to which they were affected by the epidemic. One could assume simply that they were affected less dramatically and thus with respect to those characteristics which differentiate the affecteds and the controls we should expect them to fall somewhere in between. In fact, however, they are often more clearly different from the affecteds than the controls are.

The picture that emerges here of the self-defined affecteds, especially as it is contrasted with the one we get of the affecteds, is of a number of women who generally face only a limited number of strains and who have the means of coping with these strains. They seem to be very "normal" and "sensible" in many ways. They willingly acknowledge that they have some problems even when the question makes it obvious that that is what is being asked. They do not see their jobs as steady ones, which is realistic, since seasonal layoffs are to be expected. They readily admit that working overtime sometimes interferes with other things they would like to do. They are evidently willing to discuss their problems with their superiors and, if that proves ineffective, to take action on their own (e.g., staying home) to deal with the problems they face. Although this description may tend to make them appear excessively admirable, the fact remains that they seem to be rather open and realistic women who are not easily threatened and who seem to feel personally secure in their relations with others.

This raises the question, then, of why they should have been affected at all by the epidemic. In the last chapter we saw that they did accept the existence of the insect but are skeptical of people who asked for medical attention. This might indicate that they are subject to stress and its symptoms, but like to deal with it in their own way. We also note that they may have a slightly marginal position in the plant, being more likely to be laid off and less likely to be asked to do overtime. On the other hand, they keep their independence, feeling free to reject overtime and not thinking absenteeism wrong. We shall return in the following chapters to other evidence on the self-defined affecteds.

This discussion of the situation of the self-defined affecteds

illuminates two related problems we faced in this chapter. Although the self-defined affecteds are usually different from the other women with respect to the more objective measures of strain they faced, much of our interpretation of their situation and many of the differences we found earlier were based on their (and the other women's) verbal assessment of their situation. We have noted that the self-defined affecteds seemed more willing than either of the other two categories of women to acknowledge difficulties when they were specifically asked about them. We have also faced the problem of deciding what role certain presumed sources of strain played in the epidemic. For instance, the self-defined affecteds were more likely than either of the other types of women to have been laid off from their jobs at Montana Mills. Does this mean that they were under more strain from this source and thus should have been more likely to become affected, or does it mean that because of this experience they would be less likely to be affected? Are there different kinds of strain which affect the women's position vis-à-vis the epidemic in different ways? We must look more closely at such issues.

THE VALIDITY OF VERBAL STATEMENTS

In several cases the evaluations our subjects made of their situations seemed to be in direct contradiction to the evident "facts" of the situation. This seemed to happen more often with the affecteds than with either of the other categories. For instance, there were many of them who consistently said (in reply to several questions) that they had a great deal of confidence in their supervisor and thought the supervisor understood their problems very well but who did not suggest they would turn to their supervisor if they had a complaint about their job. Also, the affected women, who had worked the most overtime and who most often had preschool children, less often said that overtime interfered with their being with their children than did the self-defined affected women who less frequently had worked overtime and less often had young children.

How may one interpret such findings? Did the seemingly inconsistent women "really" like their supervisor and have confidence in her? Is it simply irrelevant to their feelings of security on the job that they did not suggest going to the supervisor with a complaint? Did the affected women with small children "really" not find over-

time a problem? Would it thus be incorrect to define it as a source of strain? Or is the opposite true? Were those who would not go to their supervisor with a complaint so uncomfortable in their relations with their supervisor that they could not even acknowledge this discomfort in an interview for fear of reprisal? Were the affected women with small children so caught up in the cross-pressures of their dual role of worker and mother that they could not see any solution and thus considered it useless to complain?

There is some reason, of course, to suspect that some of the answers the women gave were distorted because the interviews took place in the plant with the clear approval of management. Even though management had given their assurance that the interviews were confidential and had almost urged the workers to refuse to be interviewed if they preferred not to be, it would not be surprising if a degree of suspicion and fear remained for at least some of the women. One might even suspect that such doubts would have been greater for the affected women since they had so recently been involved in such a disruptive event in the plant.

It is difficult to *demonstrate* that they had such doubts, but the pattern of findings is at least suggestive. We have noted that a number of indices of strain have been distributed as one would expect, the affected women more frequently exhibiting them than the controls, but that some of the other indices have shown a very different pattern. We find that the two kinds of indices are quite different in content. The vast majority of the measures of strain which support the general hypothesis (that those affected were under more strain) are of a factual nature: the amount of overtime a woman worked, the number and ages of her children, the amount of the family income that comes from the woman's job, whether she has a broken marriage, and so on. On the other hand, those measures which contradict the general hypothesis are almost all measures of attitude: the work satisfaction scales, saying that "workers are treated better here," rejecting the notion that "overtime interferes with" various activities, seeing the supervisor as "easygoing," and so on. There is only one item which could possibly be called an attitude item which supports the hypothesis: saying that it is wrong to stay home for a rest when you are not sick. And here the difference between affecteds and controls is not great.

We thus find that "the facts" tend to support the hypothesis, but the verbal evaluations generally do not. In spite of indications of a number of sources of strain, the affected women do not respond very negatively about their lot. Their answers are on the whole at least as "pleasant" as those of the other women, and sometimes they are more so. Particularly, they tend to give more pleasant answers than do the self-defined affecteds. Given the consistency of this pattern within the data discussed in this chapter, and given its agreement with the pattern of the personality measures reported in the following chapter, we have chosen to emphasize the possible significance of these differences rather than simply view them as inconsistent results. We therefore feel that, in the context of the general hypothesis that strain should operate to increase the probability of a person's participating in the epidemic, the several more objective measures we have reported should be given the greater emphasis.[5] But since there is such a striking pattern of "pleasant" or "socially desirable" responses by the affecteds, isn't it reasonable to see the present findings as additional evidence of some form of "denial"? If so, is this type of denial also related to the tendency of a woman to be affected?

In order to follow up this possibility, we need to be certain that the *same* affected women did in fact say *both* that they experienced a situation we would call stressful *and* that the situation was not troublesome to them. We focused on the strain due to conflict between family and work roles to see if the affected women did actually deny the significance of role conflict when it seemed to be

[5] There are two items which have been interpreted as supportive of the general hypothesis but are not clearly either attitudinal or factual in nature. The affecteds more frequently say they would go to the steward with a complaint and less often mention the supervisor. They also more frequently say the women in their section vary in output. These items presumably ask for rather "factual" statements, but they were expected to reflect both the situation and the respondent's response to it. The important thing to note about these items in contrast with those attitudinal items which do not support the general strain hypothesis is that they are not *obviously* attitudinal in nature. They do not openly ask the respondent how she likes her supervisor or if she finds variation in work performance disturbing. When we ask the more obvious evaluative questions, our results with the affected women are not very different from those with the other women. But rather consistently when we do not, in effect, warn them that we want their attitudes toward something, the results are in the expected direction.

manifestly present. We found that of the 19 affected women who had worked a great deal of overtime in spite of the fact that they had small children, 15 said they "liked to work overtime." Also, 10 of them insisted that overtime did not interfere with child care. Of the 10 controls who faced the same combination of conditions, 7 and 5, respectively, gave these responses. Thus, of the 56 affecteds, 27 percent and 18 percent were deniers by this definition, compared with 10 percent and 7 percent of the 71 controls. More generally, 29 percent of the affecteds are "role-conflict deniers" (as we will call them) by one or both of these definitions, compared with 10 percent of the controls. Thus, affected women are more likely both to have this kind of conflict and to deny its significance. Such denial is therefore an important correlate of becoming affected.

DIFFERENTIATING BETWEEN "STRAIN" AND "RESISTANCE TO STRAIN"

In several cases in this chapter we have been surprised at the findings even when they were based on the more objective questions of fact. In each of these cases, we have found that the presumed source of strain, though more frequently found among the affecteds than among the controls, was also found very frequently among the self-defined affecteds. This was true with respect to the questions concerning layoffs, which women were the sole breadwinners, which supplied half or more of the family income, and which were widowed, separated, or divorced. In each case, both the affecteds and the self-defined affecteds had the significant characteristic more frequently than did the controls. In fact, in all but the question of supplying half or more of the income, the self-defined affecteds had the characteristic more often than the affecteds.

We have suggested earlier that perhaps some of our measures could be interpreted in either of two opposite directions. For instance, the threat of being laid off presumably adds a strain in that it makes the woman very much aware of the possibility of a future layoff. Because of this, we could (as we did) view it as a factor leading a woman toward becoming affected in the epidemic. On the other hand, one might argue that this very threat of possible layoff would make a woman more fully devoted to her job and less likely to become influenced by strange activities going on around her. The same

kind of double argument could be presented for the three other measures. These presumably indicate the great importance of the job to the woman, and though this means she is bearing an added burden, it also means she would be more likely to be conscientious about her work and to persevere in the face of adversity.

Such "two-edged" sources of strain would presumably make it more likely that a woman would eventually succumb to the added burden of the epidemic (particularly since she would be less likely than the others to want to leave the plant), but they would be expected to have their effect later than some other sources of strain. Since the self-defined affecteds were rather likely to experience such sources of strain and to experience few of the other sources of strain, it is not unreasonable to speculate that if the epidemic had continued longer many of them might have become affected cases. Needless to say, we cannot demonstrate the validity of such speculation, but the dual nature of some of these forces is a reasonable assumption. In Chapter 7 we will present other data which add greater strength to this argument.

5

QUALITIES OF THE PERSON

In the previous chapters we have discussed participation in the epidemic as a means of communicating or expressing one's sense of tension or dissatisfaction and we have looked for sources of tension and dissatisfaction as part of our investigation of the phenomenon. It is also likely, however, that individuals will vary in the degree to which they will be responsive to such sources of strain and in their tendency to express their feelings in the particular manner found during the epidemic. That is, there will undoubtedly be persistent patterns of behavioral tendency which will in part determine the type and extent of response a woman will exhibit under such conditions. We have purposely avoided using the term "personality" in this context because our data do not permit any clinical or psychodynamic interpretations of the women's behavior, but to the extent that such persistent behavioral tendencies may be called personality, that is the subject of this chapter.

We have limited ourselves to the investigation of personal characteristics which may be viewed as rather directly relevant to the particular kind of behavior which formed the manifest content of the epidemic, namely, the hysterical contagion of illness behavior. We thus selected the following kinds of measures:

1. Since the mode of expression was through illness behavior,

the meaning of health and sickness in the person's life is directly relevant. Especially important is the question of the emotional significance of sickness, whether it is viewed in a rather matter-of-fact manner or whether it occupies a central place in the life of the person. This should give us some basis for differentiating among the women according to their readiness to respond in the manner observed during the epidemic.

2. Closely associated with this question of the emotional significance of illness is the kind of self-report a woman gives of her own state of health and her report of her recent experiences with illness.

3. Another rather direct measure of the relevance of illness to the woman is the frequency with which she acknowledges having symptoms listed for her by the interviewer.

4. Another characteristic, not necessarily directly associated with those just noted, is the degree to which a woman is anxious or tense. This should indicate a tendency to develop those symptoms which could be defined as due to "bites."

5. Finally, as a factor which would presumably predispose a woman to be influenced by the contagion, we also attempted to measure the level of suggestibility or acquiescence.

HEALTH AND SICKNESS AS AN EMOTIONALLY CHARGED AREA

Two different but related issues were raised in the interview. One was the general inclination to adopt the sick role; the other refers to the instrumental use of illness, namely, claiming illness as a reason to stay home from work to get a rest. The inclination to adopt the sick role was measured by an index derived from the work of Mechanic and Volkart (1961). It is based on the following question: During the past year would you have reported to the doctor if the following situations had arisen: (1) You had been feeling poorly for a few days; (2) You felt you had a temperature of about 100 degrees; (3) You felt you had a temperature of about 101 degrees. Each question could be scored from 0 to 3 for responses ranging from "certainly" to "very unlikely." The total scores were dichotomized so that

a score of 0 to 5 indicated a high tendency to adopt the sick role and a score of 6 or higher indicated a low tendency.

We have briefly discussed the other measure in the last chapter. It was derived from the following questions: Do you think that some people here in this plant sometimes take off from work when they aren't sick, just to get a rest? Do you think that there is anything wrong with this? The answer to the second question was used as an indication of the woman's attitude toward using illness behavior as a means of improving her situation. The responses to this question were related to the scores on the measure of inclination to adopt the sick role, those having a high inclination being less likely to see such instrumental use of illness as acceptable. Though not strong, this relationship held up for all three categories of women (see Table 5.1).

TABLE 5.1
Inclination to Adopt the Sick Role and Approval of Instrumental Use of Illness Among Affecteds, Self-Defined Affecteds, and Controls

Characteristic	Affecteds (N = 56) %	Self-Defined Affecteds (N = 17) %	Controls (N = 71) %
High inclination to adopt sick role			
It is wrong to stay home when not sick	60.7	41.2	52.1
It is not wrong	8.9	29.4	15.5
Low inclination to adopt sick role			
It is wrong to stay home when not sick	21.4	11.8	21.1
It is not wrong	8.9	17.6	11.3

All three categories of women scored rather high on the measure of inclination to adopt the sick role, over two-thirds of all the women being in the "high" category. If we compute the mean of the actual scores for each category of women, the affecteds had a somewhat

greater inclination to adopt the sick role. Their average score was 4.1 compared with 4.6 and 4.4 for the self-defined affecteds and controls, respectively, a low score indicating a high inclination to adopt the sick role. As we have seen before, there was greater difference in the responses on the second measure with the affecteds saying most often that it was wrong and the self-defined affecteds agreeing least often (see Table 4.3). There was also some noteworthy variation when one considers the combination of these two measures. Since such a large proportion of the affecteds saw taking off work for a rest as wrong, almost all of those affecteds who had a high inclination to adopt the sick role felt that way. Only 5 out of 39 high inclination affecteds said there was nothing wrong with such a practice. In very striking contrast, almost as many high inclination self-defined affecteds saw this as acceptable as saw it as objectionable (five versus seven). The controls fell between these two extremes. Thus, although all three categories of women seemed to define rather minor symptoms as medically relevant, they differed considerably in their willingness to cope with discomfort and fatigue without recourse to medical authorities.

It is as if there were alternative ways of dealing with the experience of symptoms. One can define them as an "official illness" and seek medical attention, or one can attempt to cope with them oneself. Although the great majority of the women said that they would seek medical attention if they had symptoms which are defined in medically acceptable terms (having a temperature or not feeling well), they differed in their ability to cope with the more everyday problems such as fatigue. Some of them evidently were unable to cope with such difficulties unless they defined them as "official illnesses," whereas others were better able to deal with them by themselves. If we view those with a high inclination to adopt the sick role as women who became disturbed by minor symptoms, it is clear that there were some who could handle such problems better than others. The affecteds had the highest proportion who were sensitive to minor symptoms but who seemed incapable of coping with them on their own, while the self-defined affecteds had the smallest proportion of such women and the highest proportion of those who were sensitive to minor symptoms but seemed quite capable of coping with them.

It is also true that a larger proportion of the self-defined affecteds with a low inclination to adopt the sick role seemed to be capable of dealing with such problems.

This pattern, of course, corresponds to the behavior of the affecteds and self-defined affecteds during the epidemic. The former, when faced with an upsetting experience, were either overwhelmed with the experience and fainted or sought medical attention. The latter, faced with what they said was a similar experience, managed to cope with it by themselves. It may very well be, therefore, that a major difference between these two categories of women was the ability of the self-defined affecteds to handle their own problems without defining them as medically relevant and without any socially conspicuous behavior.

HEALTH EXPERIENCE

In describing their own health experiences, the respondents in the three categories present a picture which is generally consistent with their attitudes toward health as discussed in the previous section. On practically all questions, the controls indicated the least experience with health problems, and in general the affecteds indicated the greatest experience (see Table 5.2). In response to the question: Have you been sick during the past several years? less than one-fourth of the controls answered "yes," compared with almost two-fifths of the affecteds. Similarly, the affecteds were more likely to say that they had had to stay home from work during the past year because they had been sick,[1] and they were more likely to acknowledge that they were taking medicine of some kind at the time of the interview. In most cases, the self-defined affecteds were more similiar to the affecteds than the controls. There is the possibility, of course, that the self-defined affecteds were really organically weaker. Looking at the description of the illnesses which made them stay home, we can isolate the strictly organic cases from those due to such things as nausea, alcohol, or nervousness. If we look only at staying at home for these organic reasons, the self-defined affecteds are the highest, while the other two groups are almost identical. The self-defined affecteds are also more likely to take medication. We may infer that they are dealing realistically with health problems just as they were dealing realistically with environmental strain.

When one considers that the interview took place only two months after an epidemic which had led all of the affecteds and self-defined affecteds to feel sick and many of them to stay home and/or to take medicines, the order of these findings is not particularly surprising. In fact, the surprising thing is that so *few* of the affecteds said they had been sick. When we look at the content of the interviews, it becomes apparent that only eight of the affecteds mentioned anything about the epidemic when discussing the reasons they had had to stay home. Given the recent experience during the epidemic, it was surprising both that there were not more affecteds who said

[1] It is rather striking, however, that in all three categories there are many more women who admit they had stayed home from work during the past year because of illness than admit they had been sick during the past several years. Evidently there is a general tendency to view some illnesses as sufficient to warrant staying home but not serious enough to refer to as a sickness. This presumably would be the case with menstrual difficulties, but it might also be the case with other ailments. We will return to this peculiar pattern later in the chapter.

TABLE 5.2
Health Experience and Assessment of Affecteds, Self-Defined Affecteds, and Controls

Characteristic	Affecteds (N = 56) %	Self-Defined Affecteds (N = 17) %	Controls (N = 71) %
Had been sick during the past several years	39.3	29.4	21.1
Had had to stay home because of sickness during the past year	64.3	70.6	52.1
Had had to stay home because of organic sickness only during the past year	28.6	35.3	28.4
Had been taking medicine or pills recently	41.1	47.1	28.2
Described own health as "excellent"	16.1	5.9	25.4