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An Investigation of Apparent Mass Psychogenic Illness in an Electronics Plant

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An investigation of a case of apparent mass psychogenic illness was undertaken in a midwestern electronics assembly plant. The plant employed 500 workers, of whom 80% were female. The illness outbreak involved a total of 90 female first shift workers who reported a variety of nonspecific symptoms such as headache, dizziness, and lightheadedness in response to a strange odor in the workplace. Although environmental testing revealed some localized concentrations of a few airbone contaminants, no environmental toxins were discovered that could account for the continuing outbreaks of illness. An ad hoc *sample of affected and nonaffected workers was surveyed to assess the influence of psychological, sociological, and work environment factors in the outbreak. Analysis of the data revealed that affected workers reported more physical discomfort (temperature variations, poor lighting) in the workplace as well as psychological job stress (increase in workload, conflicts with supervisors) than did nonaffected workers. Moreover, affected workers scored significantly higher than nonaffected workers on personality tests measuring extraversion and hysteria traits.*

KEY WORDS: electronics assembly plant; investigation; psychogenic illness.

INTRODUCTION

Published reports describing incidents of mass psychogenic illness in U.S. industrial settings are rare. Kerckhoff and Back (1968) investigated an episode

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in a southern textile manufacturing plant in which 59 women and three men exhibited symptoms of nausea, fainting, and headache which they attributed to a bug bite received from insects imported to the plant in a shipment of foreign material. Extensive investigations of the plant environment by entomologists and industrial hygienists and medical examinations of the affected workers failed to identify any chemical or physical agent capable of producing the observed symptoms. Comparisons of the survey and interview responses of affected and unaffected workers indicated that the affecteds (1) had worked more overtime during the previous year, (2) had less faith in their supervisors, (3) were more frequently the sole breadwinners in the family, and (4) were more likely to have large families. These findings led Kerckhoff and Back to conclude that "very *different kinds* [italics theirs] of strain may operate in some additive manner to increase the probability of participation" (1968, p. 76).

Job-related stress was more specifically implicated as a potential precipitating factor in an episode of mass psychogenic illness reported by Stahl and Lebedun (1974). Thirty-five female key punch operators in a university data processing center developed symptoms of dizziness, vomiting, and fainting. Many of the affected workers complained of a strange gaseous odor emanating from their machines prior to the onset of their illness, but later examinations of the machines and the work environment failed to identify any physical toxicants. Interview data collected from the affected workers indicated that those workers reporting the most job dissatisfaction also tended to express the most severe symptomatology. Particular sources of stress included poor supervisory support and an authoritarian management style, boredom, unwanted overtime, and noise (which, aside from being inherently stressful, tended to inhibit interpersonal communications among coworkers on the job). The impact of these stressors was exacerbated by the fact that many of the women were financially obligated to work, and had limited skills and education, which minimized their opportunities for alternate means of employment. They thus found themselves "locked in" to a job which served as a continuous source of stress.

Although these two reports (Kerckhoff and Back, 1968; Stahl and Lebedun, 1974) exhaust the presently available literature describing the incidence of mass psychogenic illness in American industrial settings, recent evidence indicates that the actual occurrence of this phenomenon is much higher than previously suspected (Smith *et al.*, 1978; Colligan and Smith, 1978; Colligan and Murphy, 1979). This underreporting is due, in part, to the fact that behavioral scientists are not typically included in the state and federal teams which routinely investigate episodes of mass illness in industrial settings. If no pathogen is identified and a high level of anxiety is perceived in the plant, the investigators may tentatively offer a diagnosis of "mass hysteria" or "contagious psychogenic illness," but such a conclusion is based primarily on the absence of physical evidence rather than the presence of any identifiable psychosocial indicators of stress or anxiety.

Recognizing the need for a systematic data base describing such incidents, the Behavioral and Motivational Factors Branch (BMFB) of the National Institute for Occupational Safety and Health (NIOSH) has developed, and is presently field testing, a questionnaire for the investigation of episodes of mass industrial illness having an apparent psychogenic base. Special emphasis has been placed on measuring various aspects of job and life stress as they interact with individual personality characteristics to affect worker susceptibility to such disorders.

The present article describes the results obtained from the use of this questionnaire in the investigation of an apparent outbreak of mass psychogenic illness in a small midwestern electronics plant.

BACKGROUND

The focal plant, located in a midwestern city with a population of over a half-million people, is primarily engaged in the assembly of electrical switches and controls from parts manufactured in subsidiary plants. At the time of the initial outbreak of illness the plant employed approximately 400 women and 100 men, two-thirds of whom worked the first shift (6:30 a.m. to 3:00 p.m.) and the remaining third the afternoon shift (3:00 p.m. to 11:30 p.m.).

The initial episode occurred on a Wednesday, in late summer at approximately 8:30 a.m. when a female switch assembler became dramatically faint at her workstation. Moments later a second worker, who had been assisting the former to the first aid room, become weak and slumped to the floor. Despite attempts by management to maintain decorum and continue with routine production, anxiety continued to mount as additional workers became ill. By 11:15 a.m. approximately 20 female assemblers had been taken by ambulance to a local hospital where they were treated for presumed carbon monoxide inhalation and released. An undetermined number of workers left the plant to seek treatment by personal physicians. At approximately 11:30 a.m. a decision was made by management to evacuate the building.

State and federal health officials had been summoned to the plant at 10:00 a.m. and immediately began sampling the work environment for chemical toxicants. Interviews with affected workers revealed that many of them recalled detecting a strange odor prior to becoming ill, but they were unable to elaborate on its characteristics or source. The reported symptoms tended to be of a vague and subjective nature, involving headache, nausea, dizziness, difficulty in breathing, etc. A surprising number of affected workers identically described their condition as similar to a "cheap drunk."

The preliminary results of the industrial hygiene investigation were negative. It was, therefore, decided to resume production at 3:00 p.m. with the arrival of the second shift workers. It was agreed that the health investigators would remain on site through the week to continuously monitor the plant environment.

Work returned to normal on the second shift and continued through both shifts of Thursday without incident. On Friday, however, approximately 45 female assemblers became ill between 8:00 a.m. and 10:30 a.m. with symptoms paralleling those of the first outbreak. The affected workers were again taken to the hospital by ambulance where they were given oxygen inhalation treatment and released. All plant operations were closed down until a determination of the probable cause of the illness could be made.

The plant remained closed through the weekend while state and federal investigators continued their investigation of the plant environment. The results of the medical examinations (e.g., blood and urine analyses, electrocardiograms) performed on the affected workers by emergency room physicians revealed no relevant abnormalities. Similarly, the results of air sampling conducted by industrial hygienists did not detect any toxicants in sufficient concentration to explain the continuing outbreaks of illness.

Six days after the initial episode, a company consultant announced that he had located a sizable leak of propane gas in an auxiliary tank located inside the plant. Believing this to be a likely cause of the illness, the leak was repaired and the company reopened the plant on the following day.

Within hours after production startup, scattered workers throughout the plant began complaining of dizziness, weakness, and nausea. By 10:00 a.m. approximately 30 female workers had reported to the first aid room for treatment, and many others, rather than fight the confusion and crowding at the plant infirmary, remained ill at their workplace. Physicians on site prescribed rest for the affected workers. As in the previous two episodes, the symptoms were nonspecific and dissipated rapidly once the individual was removed from the worksite. Nevertheless, the sheer number and dispersion of affected workers throughout the plant created an atmosphere verging on panic. At approximately 11:00 a.m. management again decided to close down plant operations.

Investigators met through the following week to review the findings to date. Industrial hygienists had been on site during the most recent episode. Air samples were collected from locations throughout the plant as the illness was occurring. In addition, 12 workers, two of whom actually became ill, had been fitted with personal air monitors prior to beginning work on that day. Six methanol samples taken from the area of a dip tank ranged from 128 to 732 ppm (parts per million), with four samples in excess of the present OSHA Standard of 200 ppm; sample times ranged from 30 to 67 min. The symptoms of methanol toxicity include blurred vision, pain in the eyes, and narcosis. These symptoms, however, occur principally after ingestion, and are very rare after inhalation (Key *et al.*, 1977). The results of tests for water contamination revealed no solvents, bacteria, pesticides, or elevated metal concentrations except for a marginal increase in lead content. After a number of repairs and modifications of the ventilation system had been made, a meeting was held with management, union, and state and federal representatives. Environmental and medical findings

were discussed, and it was emphasized that no evidence of toxic exposure existed. The modifications of the exhaust system were explained to the union representatives, and it was decided that the plant should be reopened on a voluntary-attendance basis 8 days after the most recent incident. Production proceeded smoothly without reoccurrence of illness for the following week, although many workers elected not to return to work. A rising number of isolated visits to the first aid room over the following week resulted in an "Imminent Danger" notice being posted by the regional OSHA office, and the plant was again closed against the protest of both management and the union. Following discussion with health officials, the "Imminent Danager" notice was withdrawn by OSHA 3 days later. The plant resumed operation the following day and no further health problems were reported.

In summary, at least 93 cases of illness were reported over the three episodes in the plant with symptoms of headache, dizziness, weakness, and lightheadedness. These 93 cases of illness represent 80 individuals. Thus nine individuals became ill on two occasions, and three individuals were present in the plant and experienced symptoms at all three episodes. The illness was apparently limited to female workers on the first shift, and was typically preceded by vague complaints of a strange odor in the workplace. Preliminary results of environmental evaluations and medical examinations failed to identify any toxic agent capable of producing the observed symptoms.

METHOD

Members of the Behavioral and Motivational Factors Branch were on site with the beginning of the first shift on the morning of the third episode to distribute questionnaires to the workers. The original plan was to survey all those who had become ill during the first two episodes and a random sample of "nonaffected workers" selected from company payroll lists. The chaos and confusion surrounding the sudden occurrence of mass illness, however, made it impossible to adhere to the original sampling plan. Because of the general confusion and chaos in the plant, it was decided to concentrate the sampling effort on female workers since no male workers had been known to report symptoms in either of the two previous outbreaks. Questionnaires were, therefore, distributed on an *ad hoc* basis to as many female workers as possible as they evacuated the plant. Potential respondents were asked to take the instrument home, complete it, and return it at their earliest convenience. Although the plant was closed at this time for an indefinite period, many workers returned on the following 2 days to pick up weekly paychecks and to inquire about various issues related to the illness episodes. This afforded an opportunity to distribute additional questionnaires and to collect completed forms from those workers previously sampled. In all, approximately 150 questionaires were distributed to first shift female workers, 81 of which were returned.

The survey protocol had been specifically developed for investigations of apparent industrial hysteria. In addition to sociodemographic (age, sex, level of education, marital and parental status, etc.) and epidemiological information (date and time of illness, symptomatology, location of workplace at the time of onset of illness, etc.), the questionnaire contained items designed to measure perceived job stress along a variety of dimensions (unwanted overtime, role ambiguity, job boredom, role conflict, etc.). Four standardized personality/psychodiagnostic instruments were also included in the survey protocol. These were the following:

1. *The Work Environment Scale* (Moos *et al.*, 1974): This scale measures ten dimensions of social climate of the workplace which are believed to be predictive of worker satisfaction or adjustment. These are (1) Involvement – extent to which workers are enthusiastic or committed to their jobs; (2) Peer Cohesion – the extent to which workers are mutually supportive; (3) Staff Support – the extent to which management is perceived as supportive by the workers; (4) Autonomy – the extent to which workers feel self-sufficient and independent; (5) Task Orientation – the extent to which the climate emphasizes productivity and efficiency; (6) Work Pressure – the extent to which workers perceive pressure to produce; (7) Clarity – the extent to which workers know what is expected of them in the performance of their jobs; (8) Control – the extent to which management imposes rules and regulations on the workers; (9) Innovation – the extent to which variety and new approaches are emphasized in the workplace; and (10) Physical Comfort – the extent to which the physical surroundings contribute to a pleasant work environment.

2. *Abbreviated Internal-External Control Scale* (Valecha, 1973): This is an 11-item scale designed to measure the extent to which an individual attributes causation for his experience to internal vs. external sources. For example, it was felt that individuals experiencing vague, psychosomatic symptoms might attribute them to internal factors (stress, anxiety, fatigue) or external factors (a gas leak, a virus, etc.).

3. *The Eysenck Personality Inventory* (EPI) (Eysenck and Eysenck, 1968): This scale measures personality in terms of two pervasive, independent dimensions: extroversion-introversion and neuroticism-stability.

4. *The Mini-Mult of the MMPI* (Kincannon, 1968): This is a factor-analytically derived scale of the Minnesota Multiphasic Personality Inventory. Three subscales from this instrument were included in the present survey protocol. These were (a) The Hysteria Scale – measures the extent to which the individual exhibits behavioral patterns characteristic of the hysteria-prone personality: excitability, emotional instability, self-dramatization. (b) The Hypochondriasis Scale – measures the extent to which the individual somaticizes emotional or psychogenic strain or tension. (c) The Depression Scale – measures the extent to which the individual experiences feelings of dejection, hopelessness, worthlessness, etc.

RESULTS

Environmental Sampling

The major potential environmental contaminants used in the plant were acetone, freon, methanol, methyl ethyl ketone, perchlorethylene, and petroleum naphtha. Sampling of the plant environment, which began on the day of the second incident, continued intermittently for 15 days. Chemical sampling for aldehydes, amines, ammonia, isocyanates, cyanides, phenol, and organic vapors was conducted via charcoal and detector tubes, as well as midget impingers, by a variety of private, state, and federal investigators. Although localized levels of the concentration of several substances including freon, propane gas with mercaptan odorant, natural gas, methanol, and acetone varied on successive days, they never exceeded recommended safe levels.

Medical Evaluations

A review of the hospital records of those individuals affected in the first two outbreaks revealed little useful information. Although some of the records indicated carbon monoxide poisoning as a potential diagnosis, there was no evidence of elevated carboxyhemoglobin levels. Oxygen was administered to a few patients, but no significantly lowered levels of arterial oxygen concentrations were noted in the medical charts.

Data available for 28 of the workers affected during the third incident indicated the following:

1. Negative blood tests for methanol, ethanol, propanol-1, propanol-2, and acetone.
2. Hemoglobin and hematocrit determinations within the expected range.
3. Uninterpretable venous pH and PO_2 values (because of the uncertain manner in which samples were collected and preserved prior to analysis).
4. A few minor elevations of carboxyhemoglobin, all in cigarette smokers.
5. Methemoglobin levels, drawn on three of the 28 workers 2 days after the episode, within normal limits.
6. Slightly elevated blood lead levels in two of ten workers tested for heavy metals (these may have been due to the use of collection tubes not certified lead free).
7. Negative screening for pesticides, performed in three patients.

Psychological Survey Data

An initial problem in the analysis of the psychosocial data was that of defining who was, and was not, affected by the outbreak of illness in the plant.

From interview and questionnaire responses it was apparent that medical treatment for expressed symptoms was not a valid criterion. Because of the general state of confusion in the plant during the outbreaks, some individuals were sent to the hospital with minor complaints (e.g., a headache) or no symptoms at all, while other workers, experiencing a greater range of symptoms (e.g., nausea, dizziness, headache, weakness), went undetected (as determined via questionnaire responses) and so were not included on any official list of affected workers. It was, therefore, decided to identify affected and unaffected workers in terms of the number of self-reported symptoms expressed on the questionnaire. The absence of any significant clinical findings from the medical evaluations and the apparent comparability of symptoms in terms of severity suggested that the number of symptoms be used as a measure of affectedness. Thus, for purposes of data analysis, individuals reporting two or fewer symptoms were termed "nonaffecteds" while those reporting three or more symptoms were considered "affecteds." Using this criterion, the sample consisted of 51 affected and 30 nonaffected first shift female workers.

In performing specific tests of statistical significance a one-tailed test was used on the assumption that the affected workers would exhibit greater stress, job dissatisfaction, depression, etc. In addition, some findings are presented which only approach the conventional 0.05 level of statistical significance. Given the spontaneous nature of the phenomenon and the lack of an existing data base, it was felt that the risk of a higher type I error rate was justified in favor of obtaining as much information as possible. In this way, researchers would be provided with a list of candidate factors of possible significance for consideration in future investigations.

Symptoms

Twenty-four physical symptoms, identified from the literature as often characteristic of an hysterical psychosomatic response, were given on the questionnaire. The respondent was asked to check which, if any, of the listed symptoms she/he experienced during the outbreaks. Table I presents the 24 symptoms rank-ordered in terms of incidence rate for the entire sample. The five principal symptoms identified were (1) "headache" (58%), (2) "dizziness" (43%), (3) "lightheadedness" (42%), (4) "weakness" (37%), and (5) "sleepiness" (35%). "Nausea" (32%), "blurred vision" (25%), and "bad taste in mouth" (25%) were other symptoms identified by at least one-fourth of all respondents. These results were consistent with information gained through personal interviews with the workers.

Table I. Symptoms Rank-Ordered in Terms of Frequency of Occurrence for the Entire Sample (n = 81)

Symptoms	n affected	Percent of total sample
1. Headache	47	58
2. Dizziness	35	43.2
3. Lightheadedness	34	42
4. Weakness	30	37
5. Sleepiness	29	35.8
6. Nausea	26	32.1
7. Bad taste in mouth	20	24.7
8. Blurred vision	20	24.7
9. Dry mouth	19	23.4
10. Tightness in chest	16	19.8
11. Abdominal pain	15	28.5
12. Couldn't catch breath	14	17.2
13. Watery eyes	13	16.0
14. Chest pain	11	13.5
15. Difficulty swallowing	11	13.5
16. Numbness	9	11.1
17. Diarrhea	8	9.8
18. Racing heart	8	9.8
19. Tingling feeling	7	8.6
20. Muscle soreness	7	8.6
21. Passed out	6	7.4
22. Ringing in ears	5	6.1
23. Vomiting	4	4.9
24. Fever	2	2.4

Sociodemographic Factors

The results indicated no significant differences between affecteds and nonaffecteds in terms of age, marital/parental status, level of income, or level of education.

Job Satisfaction/Job Stress Factors

Analysis of the individual job stress measures indicated that the affecteds experienced more overall job-related stress than the nonaffecteds. Specifically, the following results were obtained:

1. Affecteds reported experiencing feelings of pressure from having too many bosses more frequently than did nonaffecteds (t = 2.26, df = 74, p = 0.013).

2. Affecteds felt that they get conflicting orders from superiors more frequently than did nonaffecteds ($t = 1.90, \text{df} = 75, p = 0.031$).
3. Affecteds were more frequently bothered by feelings of a sharp increase in their workload than nonaffecteds ($t = 1.61$, df = 74, $p = 0.056$).
4. Affecteds more frequently felt that they had too little authority to carry out the responsibilities assigned to them than did nonaffecteds ($t = 1.76, \text{df} = 72, p = 0.041$).
5. Affecteds were more frequently bothered by poor lighting in the workplace than were nonaffecteds ($t = 1.69$, df = 77, $p = 0.047$).
6. Affecteds were more frequently bothered by temperature variations in the workplace than were nonaffecteds ($t = 1.70$, df = 78, $p = 0.046$).

Two of the ten subscales comprising the Work Environment Scale (WES) differentiated between affected and nonaffected workers. These were Clarity (affected $\bar{X} = 1.76$, nonaffecteds $\bar{X} = 2.25$, $t = 1.58, p = 0.059$) and Control (affected $\bar{X} = 2.44$, nonaffected $\bar{X} = 2.93, t = 3.19, p < 0.001$).

Health/Medical History Information

There were no significant differences between affecteds and nonaffecteds in previous health complications or reported medicine usage. The affecteds, however, indicated (1) that they took significantly ($t = 2.40$ df = 51, $p = 0.010$) more sick days during an average month than nonaffecteds and (2) that they were more likely ($t = 2.84$, df = 74, $p = 0.003$) than nonaffecteds to report to a physician if they had been feeling poorly for a few days.

Sociometric Factors

There were no significant differences between affecteds and nonaffecteds in terms of perceived social support from friends, number of friends, or feelings toward coworkers.

With respect to the social communication patterns operating during the actual outbreak of illness, it was found that the nonaffecteds reported *hearing* of more people becoming ill than the affecteds ($t = 2.03$, df = 43, $p = 0.024$), while the affecteds reported actually *witnessing* more people becoming ill than the nonaffecteds ($t = 3.79, \text{df} = 25, p < 0.001$).

Personality Factors

The nonaffecteds scored significantly higher on the Eysenck Extraversion Scale than the affecteds ($t = 2.22, \text{df} = 58, p < 0.015$). This finding is consistent with an earlier study by Hildebrand (1968) which found normals to be more extroverted than a sample of diagnosed hysteric personalities.

The affecteds appeared to be more depressed than the nonaffecteds, as indicated by responses to the MMPI items. Thus the mean score on the depression scale for the affecteds was 4.79, as compared to a mean of 3.50 for the nonaffecteds ($t = 1.84$, df = 62, $p = 0.035$).

Finally, the affecteds scored significantly higher on the hysteria scale of the MMPI than did the nonaffecteds ($t = 2.32$, df = 67, $p = 0.012$). This indicates a greater tendency for the affecteds to display behaviors characteristic of clinically diagnosed hysterics (e.g., suggestibility, dependency, dramatization, somatization) than the nonaffecteds. There was no difference between affecteds and nonaffecteds on the Valecha Locus of Control Scale.

DISCUSSION

The findings of the present investigation are in general agreement with previous reports of mass illness having an apparent psychogenic component (Kerckhoff and Back, 1968; Stahl and Lebedun, 1974). These studies have suggested that stress-induced behavioral contagion affects primarily women engaged in a predominantly female workforce who are collectively experiencing considerable job stress and concomitant physical strain. The specific symptoms may vary across incidents but typically consist of subjective somatic complaints (e.g., headaches, nausea, chills) which the affected individuals experience in response to job or life stresses. The actual outbreak of illness is usually triggered by a physical stimulus (e.g., an odor, a bug bite) which is perceived by one or more workers and which is believed to be the source of their experienced discomfort. As the rumor begins to spread that workers are becoming ill because of a hazardous condition in the workplace, the overall anxiety may reach such a point as to necessitate a plant shutdown.

Data collected in the present investigation indicate that the affected workers were experiencing considerable job stress and concomitant strain. Compared to nonaffected controls, the affected workers reported more discomfort from both physical (work overload, poor lighting, temperature variation) and social/psychological (poor relations with supervisors, role ambiguity) stressors.

In contrast to the investigation of Stahl and Lebedun (1974) in which the affected workers reported feelings of pressure from a highly structural, authoritarian management system, the affected workers in the present study appeared to suffer from a lack of organizational structure. This is indicated by worker complaints of (1) having too many bosses, (2) receiving conflicting orders from their supervisors, and (3) having too little authority to carry out their job responsibilities. Compared to nonaffected workers, affecteds scored lower on the Clarity and Control subscales of the Work Environment Scale. These dimensions are "system oriented" and are designed to measure the extent to which the workers perceive the environment as conducive to orderly and coherent group functioning (Moos *et al.*, 1974). Similar findings were reported by Kerckhoff

and Back (1968), who, in their investigation of an outbreak of mass psychogenic illness in a garment manufacturing plant, described the organizational structure of the company as in a state of flux due to shifts in operation and personnel with a consequent breakdown in communication channels. This appeared to be the case in the present plant as well. The managerial structure was loosely defined, with the individual workers reporting at various times to different supervisors assigned to each line. This confusion was compounded by the company's policy of randomly reassigning workers to different lines on an *ad lib* basis to meet production demands or to fill vacancies. Although the work was not complex, slightly different operations were performed on each line and the workers had to adjust to new skills and supervisors with each reassignment.

Additional tension was evident from internal frictions within the workforce. A portion of the workers were openly critical of management, a portion of the workers were generally satisfied with the *status quo,* and the vast majority of the workers were located somewhere in between. The individual workers, therefore, were sensitive to the pressures exerted by a factional workforce as well as the ambiguities inherent in the plant's supervisory structure. The level of interpersonal strain in the plant was exemplified by an incident involving a union steward who was trying to force a reluctant worker to leave the plant in an attempted wildcat walkout during the third epidemic interval. The worker refused to leave and a fight resulted, culminating in the union steward's being arrested on the premises by a local sheriff. Although this incident occurred after the outbreak of illness, it is illustrative of the disharmony among the workforce which had existed for some time prior to the initial display of symptoms.

Personality characteristics also appeared to be a factor in predisposing certain individuals to the spread of illness throughout the plant. Compared to nonaffecteds, the affecteds scored higher on the Hysteria and Depression scales of the MMPI and lower on the Extraversion scale of the Eysenck Personality Inventory. Given the fact that the questionnaire was given after the outbreaks of illness, it is possible that the responses to these scales may have been contaminated to some extent by the experience of illness itself, resulting in a confounding of the predictor and criterion variables.

Some evidence that this was not the case is provided by the responses to the general health scale. Although affecteds and nonaffecteds did not differ in terms of self-reported general health status, the affecteds reported taking significantly more sick days during an average month than nonaffecteds. This could reflect a basic difference in preoutbreak coping styles such that the affecteds were more inclined to somatize psychological distress than were nonaffected workers. The former also reported experiencing considerable job dissatisfaction from both physical and psychological stressors. As Kerckhoff and Back (1968) have suggested, it may be the case that the affected individuals tend to focus on their reactions (e.g., fatigue, headache, muscular tension) to the exclusion of the external factors (e.g., noise, work pace, role ambiguity).

Thus their perception and interpretation of what is happening to them tend to be internally directed (e.g., illness oriented) rather than problem oriented. This is reflected by responses to an item asking "How likely is it that you would report to a doctor, if you had been feeling poorly for a few days"; the affecteds indicated a much greater willingness to seek medical attention than nonaffecteds. This replicates the earlier findings of Kerkhoff and Back (1968) and reflects a difference between affecteds and nonaffecteds in sensitivity to minor health fluctuations. Continued exposure to these conditions may have resulted in transient somatic symptoms for which the workers had no immediate explanation. Given a tendency on the part of certain workers to focus on these symptoms to the exclusion of problem-directed responses, it is possible that the detection of a strange odor (as reported by a number of employees), or witnessing others become ill, may have provided the affected workers with an explanation of their discomfort and triggered a contagion reaction.

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