

FEAR OF FUTURE ILLNESS, CHEMICAL AIDS, AND CANCERPHOBIA: A REVIEW¹

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Summary.—A review of the literature indicates that fear of future illness shares many characteristics with a wide variety of conditions. Concepts such as hypochondriasis, adjustment disorders, generalized anxiety, and mass hysteria must be considered. Also, factors such as reporting bias, influential others, collective behavior, political groups, and litigation appear to induce symptom reporting from patients complaining of fear of illness and cancerphobia. Cancerphobia may result in impairment ranging from avoidance behaviors to cognitive dysfunctions. Various treatment modalities have been used successfully in treating cancerphobia, and the prognosis is typically good. Complaints of chemical AIDS, universal allergy, or twentieth century disease have little medical or empirical support and require further investigation. Researchers and clinicians must recognize multiple factors contribute to fear of future illness or cancerphobic complaints, and additional research must be undertaken if a thorough understanding of fear of future illness, cancerphobia, and perceptions of chemical AIDS is to be obtained.

The purpose of this essay is to provide a review and exploratory discussion of literature and concepts related to various forms of fear of future illness, with specific interest on cancerphobia and chemical AIDS. Multiple factors are considered, such as alternative diagnoses, levels of impairment, methods of treatment, and potential causes. We conclude with a discussion recognizing the need to consider the multitude of influences in fear of future illness cases, and the implications for future research.

FEAR OF FUTURE ILLNESS

Fear is a response familiar to us all. It is, at times, a rational reaction to a life-threatening event and a cue for self-preservation. Other times it is less well-founded. Fear with little or no rational basis is well-known. Many people suffer extreme anxiety when presented such innocuous stimuli as needles, high places, airline travel, or insects (American Psychiatric Association, 1987). In these simple phobias, the introduction of the feared item can generate sweating, increased heart rate, and difficulty in breathing. The feared object is typically avoided or endured with distress, but for the most part, these unfounded fears do not dramatically impede the over-all functioning of the afflicted individual (American Psychiatric Association, 1987).

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Sometimes the fear involves not an object or an action, such as riding in an airplane, but a possibility—a future condition. Often this entails health considerations and may at times be well-grounded. For instance, an individual consistently engaging in high-risk behaviors such as unprotected sexual activity or sharing hypodermic needles may reasonably fear HIV infection. Although the continued behaviors may be imprudent, the fear of contracting the deadly virus is not without merit.

Fear of illness is not a recent phenomenon. It has been with humankind for centuries. From leprosy to syphilis, tuberculosis to cancer and on to AIDS, deadly illnesses have stimulated in humans emotions ranging from mild trepidation to stark terror. Each has had its era. With nearly total elimination of leprosy and the relative control of syphilis, cancer presently commands the lion's share of our anxieties about illness, although there is evidence that AIDS is more feared than cancer ("AIDS tops cancer," 1988).

Fear of future illness includes irrational fears of contracting a disease in the future, when there exists no medical foundation for such concern. Irrational fear of future illness has features in common with many diagnostic classifications and related clinical phenomena. Among them are adjustment disorders, somatoform disorders, mass hysteria and other forms of collective behavior, mood disorders, anxiety disorders, and delusional disorders. Cancerphobia is a specific incidence of an unreasonable fear of future illness, wherein the irrational fear relates specifically to cancer.

The study of fear of future illness is complicated by the fact that reports of such fears are often induced by third parties for legal, political, or religious reasons as distinct from those arising as primary clinical phenomena (Lees-Haley, 1992). This must also be considered when making a diagnosis of fear of future illness.

HYPOCHONDRIASIS

Fear of illness shares certain characteristics with hypochondriasis. According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III—R), the criteria for Hypochondriasis (300.70) include: "a preoccupation with the fear of having or the belief that one has a serious disease, based on the person's interpretation of physical signs or sensations as evidence of physical illness; . . . (and) the fear of having or belief that one has a disease persists despite medical reassurance" (American Psychiatric Association, 1987, p. 261).

Hypochondriasis is not uncommon. For example, Baur (1988) states, ". . . in cultures where mental distress is considered a terrible handicap, the substitute of physical complaints is very common" (p. 161). Hypochondriasis is not equally likely in all cultures or all segments within a culture. Some cultures and philosophical orientations are more prone to reporting physical ailments in the absence of organic explanations (Baur, 1988). In addition, hy-

pochondriasis may be more prevalent among the poor, as well as some specific ethnic populations. Like other members of the population, hypochondriacs find cancer to be a frightful disease.

To understand the relationship of fear of future illness to hypochondriasis, a recent review of the literature regarding hypochondriasis is helpful. Barsky and Klerman (1983, p. 273) indicate that hypochondriasis can be conceptualized in four ways, each with supporting evidence. They include (1) as a psychiatric syndrome composed of "functional" somatic symptoms, fear of disease, bodily preoccupation, and the persistent pursuit of medical care; (2) psychodynamically, as a derivative of aggressive or oral drives or as a defense against guilt or low self-esteem; (3) as a perceptual amplification of bodily sensations and their cognitive misinterpretation; and (4) as socially learned illness behavior eliciting interpersonal rewards.

Hypochondriasis, at least among elderly persons, can be a preventable or reversible reaction to social stress (Busse, 1976). It can become chronic if the patient finds no relief from social stress or becomes dependent upon medical services as a source of support.

When identifying a fear of future illness as hypochondriasis, the duration of the disorder must be considered. Hypochondriasis, by definition, must exist for at least six months (American Psychiatric Association, 1987). But, what if the fear of future illness is the result of a specific event, such as a toxic exposure, occurring less than six months ago? If the fear of contracting a future illness is a reaction to a relatively recent specific occurrence, it may be an Adjustment Disorder, with either Anxious Mood, Depressed Mood, Physical Complaints, Work Inhibition, or any combination of these.

GENERALIZED ANXIETY DISORDER

It is worthwhile to consider the possibility of Generalized Anxiety Disorder when evaluating fear of future illness complaints, including patients whose complaints follow a specific incident such as a toxic exposure. DSM-III—R notes that Generalized Anxiety Disorder entails "unrealistic or excessive anxiety and worry about two or more life circumstances" (American Psychiatric Association, 1987, p. 251). Many of the symptoms typically reported in fear of future illness complaints are similar to those of Generalized Anxiety Disorder: restlessness, easy fatigability, shortness of breath, dizziness, nausea, flushes, dry mouth, trouble swallowing, and sleep difficulties (American Psychiatric Association, 1987).

MASS HYSTERIA

Pervasive fears of cancer or other illness in a group or community may also be a product of mass hysteria. Mass hysteria or mass panic is occasionally the result of a perceived toxic exposure (McLeod, 1975; Small & Borus, 1983; Alexander & Fedoruk, 1986). Regardless of the actual toxicity of the

substance, the belief that the substance is toxic has precipitated panic reactions in various settings. It has been shown that the belief that a community had been contaminated by the compound Merphos—despite the finding that Merphos was harmless to humans—was sufficient to induce panic reactions in city officials, the press, and members of the community. These reactions included the evacuation of 6,000 individuals (McLeod, 1975). A conspicuous need in the psychological literature is empirical attention to social and cognitive precipitants of fears of future illness.

Although the symptoms of the hysterical illness have no organic basis for contagion, they may nevertheless spread among a specified subset of the population (Kerckhoff & Back, 1968). This has prompted some researchers to look into the nature of this type of contagion. It has been suggested that even when an organic illness itself is not contagious, the idea of being sick is. Along these lines Gehlen (1977) has characterized hysterical contagion episodes as a "craze." Gehlen states, "What is 'contagious' is the understanding that exhibiting certain behaviors will entitle one to the secondary gains of the sick role" (p. 27). The secondary gains of the sick role may take social, financial, familial, occupational, or other forms.

A review of epidemic hysteria indicates that it appears, spreads and subsides rapidly, occasionally recurs, and is easily controlled with the dispersion of the group (Sirois, 1974). Therefore, if fear of future illness is a manifestation of mass hysteria, it can reasonably be expected to remit in a relatively short period of time if not maintained by external reinforcements or incentives. Efforts to create and maintain a shared group identity for victims of mass hysteria may be counterproductive in terms of the health of the patients.

Also, there may be personal and occupational conditions which contribute to individual participation in mass hysteric episodes. It has been shown that the loss of a family member or divorce may act as predisposing factors to a mass hysteric occurrence (Small & Nicholi, 1982). Further, Olkinuora (1984) argues that boredom, pressure to produce, physical stressors, poor labor-management relations, impaired interpersonal communications, and lack of social support are predisposing factors to what he calls "psychogenic epidemics."

COLLECTIVE BEHAVIOR

Pervasive symptom reporting without medical justification by individuals following a perceived toxic exposure may be a manifestation of collective behavior consistent with the theory of emergent norms (Turner & Killian, 1987). These authors contend that collective group behavior results from a variety of social influences whereby an unusual event (e.g., a perceived toxic exposure) is defined. This reconstructed definition of reality is the emergent norm which explains not only what is going on in this novel situation, but also what to do.

Thus, the behaviors of reporting specific symptoms or joining in a lawsuit, or the fear of future illness, may be recognized as appropriate responses to the perceived exposure, especially if such behaviors are suggested by individuals perceived as leaders. Turner and Killian (1987) explain, "The leader is important primarily as a keynoter, advancing suggestions that help to resolve the feelings of ambivalence experienced by many crowd members" (pp. 84-85). In cases of perceived toxic exposure and the resultant reporting of symptoms, it is important to identify such influential others, their motivations, and the effect they have on the remaining members of the collective group.

CANCERPHOBIA

Although not a generally recognized diagnosis, the term "cancerphobia" is discussed herein because it has been applied to observable behaviors worthy of study. Also, fear of cancer is worldwide. For example, fear of cancer and its associated treatments have been investigated in Nigeria (Ajekigbe, 1991), Egypt (Ali & Khalil, 1989), Korea (Min, 1989), France (Raimbault, 1986), Germany (Scholmerich, Sedlak, Hoppe-Seyler, & Gerok, 1987), Australia (Dunne, Burnett, Lawton, & Raphael, 1990), and Sweden (Rylander, 1988). Clearly, this fear is not limited by nationality or geographic boundary.

There is some indication that cancerphobia is more prevalent in communities near chemical waste or toxic exposure sites (Dunne, *et al.*, 1990; Neutra, Lipscomb, Satin, & Shusterman, 1991) despite the fact that there is no greater incidence of serious illness, cancer, or death in the communities near the sites. Berman and Wandersman (1990) have reasoned that fear of contracting cancer is expected to be a major source of psychological disruption in communities located near hazardous waste sites because (1) synthetic chemicals and their carcinogenic properties are greatly feared, (2) toxicity is commonly inferred from simply knowing of the presence of a hazard nearby, and (3) cancer is the most feared medical condition because it frequently results in prolonged suffering, pain, disfigurement, and social isolation.

Degree of Impairment

Cancerphobia can have somatic manifestations. Profound fears, such as phobias, can have pronounced physiological effects during the panic experience brought about by exposure to the object of the phobia. The physiological reactions in the course of a panic attack include shortness of breath, dizziness or faintness, heart palpitations, trembling or shaking, sweating, choking, nausea, numbness or tingling sensations, flushes or chills, and chest pain or discomfort (American Psychiatric Association, 1987). Cancerphobia can also affect our cognitive abilities. Specifically, fear of cancer has been shown to reduce the tendency to process a persuasive message and to reduce processing of messages about cancer (Jepson & Chaiken, 1990). Fear of can-

cer has also been shown to increase misperceptions of common distress symptoms as symptoms of cancer and has been associated with lower levels of accurate knowledge about cancer (Berman & Wandersman, 1991).

Behaviorally, fear of cancer and worry about cancer have been shown to inhibit participation in cancer screening programs (Donato, Bollani, Spiazzi, Soldo, Pasquale, Monarca, Lucini, & Nardi, 1991) and delay treatment seeking (Levin, Cleeland, & Dar, 1985; Love, 1991). DSM-III—R notes that avoidance behaviors are common in phobic individuals (American Psychiatric Association, 1987).

The fear of cancer or anxiety about cancer can also affect the recovery process in the event cancer materializes. Research has shown that cancer patients' initial tension and anxiety regarding cancer treatment are instrumental in determining their functioning following treatment (Graydon, 1988).

Even birth rates and abortions have been implicated in the effects of cancer fears. Grimes (1986) has argued that the frequency of unplanned pregnancies in the USA is influenced by a fear of complications regarding contraception. Fears of complications such as ovarian and endometrial cancer may preclude contraception use by certain groups of women, thereby increasing unwanted pregnancies, births, and abortions.

Treatment for Cancerphobia

It is highly unlikely that the effects of cancerphobia are permanent. Cancerphobic complaints can be treated in a variety of ways. Various treatment methods, ranging from pharmacotherapy to meditation, have been used in dealing with cancerphobia and cancer. Although cancer patients do not necessarily suffer from cancerphobia, their fears and psychological distress can be treated. Patients with cancer have been treated with psychotherapy (Raimbault, 1986), transpersonal psychology (Busick, 1989), music-assisted relaxation (Pfaff, Smith, & Gowan, 1989), hypnotherapy (Kraft, 1990), yoga and meditation (Lerner & Remen, 1987), and Morita therapy techniques, whose principles include accepting fear of death, facing reality as it is, refocusing attention, and choosing action and purpose (Ishiyama, 1990).

For that matter, for some the disabling effects of cancer may be temporary. It has been shown that the experience of cancer does not preclude a return to the work force. It has been suggested that work may serve an important psychological function after treatment; for some cancer survivors, it may provide a means of managing depression and anxiety (Edbril & Reiker, 1989). Mellette (1985) suggests that an optimistic attitude on the part of the physician about the patient's return to work is vitally important. Mellette opines that the best medicine of all may be a positive and optimistic attitude toward the patient's participation in the work force. If Mellette is correct, it is essential for clinicians to avoid fostering negative and pessimistic attitudes about working among patients described as cancerphobic.

Cognitive therapies have also been used to treat the psychological consequences of cancer. Cognitive therapies help patients accept their disabilities and modify distorted thinking patterns that may compound their suffering. Both individual and family therapies have been used to treat the fear of cancer. It has been shown that individual sessions of exposure to fear coupled with marital sessions have been effective in dealing with an irrational fear of contracting cancer (Grana Gomez, 1991). Follow-up research indicates improvement was maintained.

Behavioral treatment of phobias via exposure (e.g., flooding, systematic desensitization) tends to be effective in alleviating the fear of the phobic object. Likewise, effective treatment of phobias has been achieved with the use of certain antipanic drugs, notably tricyclic antidepressants such as imipramine, desipramine, and clomipramine. Monoamine oxidase inhibitors (MAOIs) and the benzodiazepine alprazolam (Xanax) have been used to control the panic attacks associated with phobias such as agoraphobia (Hollander, Liebowitz, & Gordon, 1988). Also, cancerphobia has been successfully treated with fluoxetine (Viswanathan & Paradis, 1991). In this study, improvement persisted at a 14-month follow-up evaluation.

In addition to the immediate relief of cancerphobic symptoms, there is a financial advantage to the patient obtaining cancerphobia treatments. For patients suffering from cancerphobic symptoms, such as headaches, diarrhea, sleep problems, eating disorders, or anxiety in which no medically detectable somatic cause is found (frequently for cancerphobic individuals), psychological treatments such as psychotherapy, behavioral interventions, biofeedback visualization, and relaxation techniques can cut the patient's medical costs from 5% to 80%, improve the patient's ability to stay healthy, and avoid hospital admission for physical illness (Turkington, 1987).

Insufficient or inaccurate information regarding cancer leads to increased fear. Baur (1988) suggests that expanding our knowledge may quell the cancerphobic tide. She states, "It seems likely that our irrational fear of cancer, with its intricate trappings of folklore and superstition, will gradually subside as causes for certain cancers are discovered" (p. 156). History bears this out. With the discovery of Salk's polio vaccine and the subsequent elimination of polio as an active threat, the fear of polio has markedly diminished. However, a cure for cancer will not altogether stop fear of future illness. History suggests that another incurable malady will supplant cancer as the primary focus of distress. AIDS is already in position to do so.

Causes of Cancerphobia

Irrational fear is born out of ignorance, uncertainty, and threat. Prior experience with cancer, knowledge about cancer, and attitudes toward health all influence the level of cancer fear an individual experiences (Gutteling, Seydel, & Weigman, 1986; Mabe, Riley, & Treiber, 1987).

Environmental cues elicit worry about cancer. Such sources as the physician's office, consumer product labels, and media reports of cancer deaths may elicit worry about cancer (Easerling & Leventhal, 1989). Fear of cancer involves the perception of risk, vulnerability beliefs, and concrete noncancerous perceptual cues. It has been suggested that symptom effects are the result of a reminder process whereby vulnerability beliefs are aroused by somatic cues (noncancer-related), regardless of the actual risk these symptoms pose. Certain cues, such as tiredness, headaches, or pain, are observed in the individual which are linked with thoughts about vulnerability to cancer. As a result, these vulnerability beliefs lead to the interpretation of noncancer symptoms as symptoms of cancer. Cancerphobia has also been considered a by-product of perceived risks associated with food additives in the common diet (Newberne & Conner, 1986). Newberne and Conner point out that although the food supply is safer than at any time previously, the fear of contracting cancer through additives such as food colorings and sweeteners persists.

Social proof.—Like the theory of emergent norms in explaining collective behavior, the principle of social proof (Cialdini, 1984) must be considered in the individual case as a basis for cancer fears. Under conditions of uncertainty individuals look to similar others for clues as to how to act. Therefore, if others react to a novel event such as a chemical spill with fear, symptomatic manifestations of illness, or litigation, then we are likely to respond similarly. If doctors, lawyers, political activists, or the media introduce alarming interpretations of the ambiguous circumstances surrounding a toxic exposure, fear is a predictable response. If industry, government, the medical establishment, or media sources provide misleading information, a reasonable response may be uncertainty and mistrust, which provide a breeding ground for the development of irrational fear. An important area for research is the extent to which fears are social products of influential interested parties rather than rational responses to harmful situations.

Reporting bias.—A plausible explanation for higher symptom rates involves reporting bias. Reporting bias can be characterized as an incomplete, distorted, or inaccurate recollection of events (Dunne, *et al.*, 1990; Neutra, *et al.*, 1991). For example, vividly detailing the positive aspects of a previous experience while minimizing the negative aspects presents a reporting bias in describing the prior event. In a review of five studies regarding hazardous waste sites conducted or overseen by the California Department of Health Services, Neutra, *et al.* state, "The possibility of some kind of reporting bias has always seemed a credible hypothesis to explain the higher symptom rates" (p. 31). Dunne, *et al.* concur in suggesting reporting bias plays a role in higher symptom rates for Australian hazardous waste communities by concluding, "Such a bias is likely here" (p. 597).

Reporting bias may be consciously or unconsciously motivated. Consciously, subjects may report symptoms which are allegedly the result of toxic exposure to achieve external goals. Deception cannot always be detected using standard psychological batteries. Research shows that untrained volunteers can successfully fake psychopathology on various psychological inventories used in toxic exposure and cancerphobia cases (Lees-Haley, 1989a, 1989b, 1989c, 1990). Subjects asked to complete inventories as though they were suffering cancerphobia and emotional distress from a toxic exposure were able to fake pathology on the Beck Depression Inventory and the SCL-90—R, both self-report symptom inventories. Subjects were likewise able to fake pathology on the Impact of Events Scale, a self-report scale used to evaluate systematically the effects of traumatic events. Specifically, the subjects were told their goal was “to fake a psychological disturbance in a manner calculated to convince the psychologist that they were psychologically disturbed and cancerphobic as a result of the litigated stressful experience” (Lees-Haley, 1989a, p. 1205). The result was 96% effectiveness with respect to faking psychopathology on the depression scale, 100% effectiveness on the symptom inventory (SCL-90—R), and 75-85% effectiveness on the stressful event scale. Malingering may be promoted by the possibility of compensation through the courts. As pointed out by Lawton (1979), conditions of medical symptoms without medical explanation are not uncommon in the courtroom. He states, “Plaintiffs often convince themselves that they are suffering from various symptoms which medically, at any rate, may have no organic basis” (p. 8; see also Trost, 1984; R. Rogers, 1988; Price, 1990). An important, unexplored area is the extent to which malingering may be induced by role pressure or social reinforcement.

Unconscious reporting bias.—In contrast to conscious-slanted reporting, other biases in recall and reporting may occur in an unconscious manner. Responses may be influenced by the expectations of the attending doctor or attorney, or by the nature in which these professionals pose their questions. Social psychologists have long known of experimenter bias effects whereby experimenters’ expectations and motivations are partial determinants of the results of behavioral research (Rosenthal, 1962).

Leading questions and prompting may bias the reporting process. If a clinician or attorney precedes an individual’s self-report by stating that specific symptoms are frequently reported among other individuals under similar conditions, those symptoms will more likely be reported due to prompting or suggestion (Cialdini, 1984; Kunda & Sanitioso, 1989). The exact symptoms need not be suggested in order to stimulate a biased response. It has been noted that exposing individuals to positive or negative trait terms causes them to recall ambiguous events at a later time as either correspondingly positive or negative (Fiske & Taylor, 1984).

Reporting bias can also be the result of faulty causal attributions. It is widely established that individuals make more frequent internal attributions for success and external attributions for failure (Miller & Ross, 1975). Subjective physical and psychological complaints such as headaches, fatigue, marital stress, occupational dissatisfaction, or sleep difficulties may be more readily attributed to an external event such as a toxic exposure than to more internally based causative agents. The individual need not be motivated by self-serving causes to reach such erroneous attributions. Such conclusions may be the result of rational cognitive processes (Miller & Ross, 1975; Miller, 1978) or biases (Bradley, 1978; Weary, 1979). Whether fueled by self-serving motivations or rational thinking, the result is the same—a faulty causal attribution of symptoms to a toxic exposure.

Another explanation for reporting bias is that people tend to believe what they want to believe, regardless of facts to the contrary. Selectively attending to information in support of our beliefs, although not always consciously undertaken, is described by Kunda (1990), who states:

... people do not realize that the process is biased by their goals, that they are only accessing a subset of their relevant knowledge, that they would probably access different beliefs and rules in the presence of different goals, and that they might even be capable of justifying opposite conclusions on different occasions (p. 483).

By attending primarily to those bits of information consistent with our goals and motivations, we can more easily validate our positions and find support for our ideas. Gilovich (1991) points out that one of the ways our motivations influence our beliefs is the way we frame our questions. By framing a question in a leading manner, we direct the attention of the respondent toward confirmatory information and away from information which might contradict the desired conclusion. For the person who believes he or she is at risk of physical illness following a toxic exposure, the question, "Do I have any physical symptoms which may be attributable to the toxic exposure?" increases the likelihood of supportive comments and decreases the likelihood of disconfirming responses. As Gilovich states, "Because it is almost always possible to uncover some supportive evidence, the asymmetrical way we frame the question makes us overly likely to become convinced of what we hope to be true" (p. 81).

Further, by establishing a preference or value for certain traits, we can influence the facility with which those traits will be reported (Kunda & Sanitioso, 1989). This finding is especially salient in light of specific behaviors by political activists in and around communities associated with toxic exposure or chemical waste sites. Activist groups, in an effort to gather statistical information on affected residents, conduct or encourage health surveys among residents suspected of toxic exposure. For example, this practice is encouraged in *The Citizen's Toxics Protection Manual* published by the Na-

tional Campaign Against Toxic Hazards (NCATH). In their recommended survey, surveyors read off a list of symptoms, requesting the respondents to notify them if they have experienced any of those symptoms within a six-month period (Cohen, 1986). The symptoms include, among others, wheezing, chest pain, dizziness, nausea, nervousness, and skin irritations. The effect of presenting a symptom list to the residents is to convey to them that certain symptoms are likely, important, and to some extent expected. In so doing, this practice facilitates the ease with which these symptoms are reported. Moreover, the style of surveying by some political groups virtually assures a finding of pathology. For example, in the aforementioned manual, surveyors are guided to ignore negative findings but to report positive findings to residents and members of the media. Operating by this principle, the only possible publicly reported finding is that the patients indeed have a significantly greater incidence of expected symptoms. Findings of wellness are suppressed.

Litigation.—The pervasiveness of the fear of cancer may be a result of its validation in society, for example, through the courts. That such a fear is unwarranted for a particular individual by medical considerations may not allay the fear if it is confirmed in other arenas. The courts historically have allowed public fear to override science (Huber, 1991). This point is made clearly by the 1910 court decision regarding the location of a cancer hospital and the public opposition to it due to fear of contagion, despite the medical evidence that cancer is not contagious:

The court looked around for "the prevailing view in the medical profession." "From the current literature of the subject," the court conceded, "it has not been proved to the satisfaction of the profession generally that cancer can be communicated from one individual to another." But ". . . the question is not whether the establishment of the hospital would place the occupants of the adjacent dwellings in actual danger of infection, but whether they would have reasonable ground to fear such a result." They did. Cancer, then as now, inspired "general dread." So construction of the hospital would be halted (Huber, 1991, p. 134).

It has been argued that due to the rather difficult nature of proving a physical injury was caused by a toxic exposure, a claim for cancerphobia, or a fear that some other disease or injury may occur in the future, may provide plaintiffs with a viable avenue of compensation that might otherwise not exist (Maskin, 1989). And, in fact, the fear of the possibility of contracting cancer, notwithstanding the actual probability of becoming ill, is compensable (Gale & Goyer, 1986). In a review of cancerphobia litigation claims, Gale and Goyer (1986) state, "Reasonable fears, even though mistaken, of a future condition or disease, therefore, are a proper element of damages for mental suffering. . . . Courts having considered cancerphobia almost uniformly have allowed it" (pp. 450-451; see also Kidwell, 1988).

Cancerphobia complaints are on the rise, perhaps because the law is be-

coming more favorable to cancerphobic plaintiffs and providing increasingly large awards (Willmore, 1989). In this manner, the legal system contributes to the increase in reported cancerphobia by providing incentive and reinforcement for cancerphobic behavior. From the first cancerphobia claim recognized by the courts (*Ferrara v. Galluchio*, 1958) awards have increased from \$25,000 to millions of dollars (Huber, 1991; Willmore, 1989). Willmore (1989) points to three reasons larger rewards can result in increased cancerphobic claims. First, the larger awards increase the likelihood that a lawsuit will be brought about by a person exposed to a possible carcinogen. Once the lawsuit is filed and the adversarial process begins, the individual, now in the role of plaintiff and victim, has a tendency to exaggerate claims, especially as the litigation drags on and the accompanying stress mounts. Second, large awards increase the likelihood of fraudulent claims. Whereas a risk-reward formula may rule in favor of honesty when the potential payoff is relatively small, as the reward increases, the risks associated with committing fraud may seem worth undertaking. And third, higher awards affect the dynamics of toxic tort cases. As Willmore explains:

Increasingly, these lawsuits are brought as class actions, and a critical factor in their initiation is whether the plaintiffs' attorney can aggregate enough claims to provide a substantial contingent fee and cover large expenses, even if each individual award or settlement proves to be relatively small. A large class size also may have the added advantage of serving to intimidate defendants, thereby increasing the probability of settlement. These considerations are all the more important in low-level exposure cases (p. 53).

In this way, many cancerphobia complaints are encouraged, if not induced, by the legal process. This "lawyerogenic" effect should not go unsearched. With the lure of several thousand dollars for simply signing on to a class action suit, many persons who suffered no illness and who otherwise would not be inclined to pursue any claims of cancerphobia on their own may be enticed to register such a complaint. In the words of one plaintiff, "Why not sign up? It's a free lottery ticket. What have I got to lose?"

The term "cancerphobia" originated in the courtroom, not in the clinic. There is no such clinical designation in DSM-III—R or ICD-9-CM, nor is it specifically mentioned as a possible manifestation of Simple Phobia. Yet it has been the basis for claims in the courts for more than 30 years. Case law has actually distinguished between fear of cancer and "cancerphobia" as a basis for compensation claims (*Eagle-Picher Industries v. Cox*, 1985; *Devlin v. Johns-Manville Sales Corporation*, 1985; see also Veilleux, 1987). Ironically, the court ruled that cancerphobia is "an exaggerated, persistent, often irrational fear *recognized as a psychiatric illness*" (Kidwell, 1988, p. 332) [emphasis added]. Exactly which psychiatric illness is not clear. To be generally recognized in the clinical environment as an incidence of Simple Phobia, the criteria to establish Simple Phobia as set forth in DSM-III—R must be met

(American Psychiatric Association, 1987). These criteria include a persistent fear of a circumscribed object or situation exposure to which almost invariably provokes an immediate anxiety response, the object or situation is avoided or endured with intense anxiety, and the person recognizes that the personal fear is excessive or unreasonable.

Note that for a patient to have a clinically recognized Simple Phobia, the criteria require that the patient recognizes that personal fear as "excessive or unreasonable." Yet, in *Devlin v. Johns-Manville Sales Corporation*, the court ruled that the fear must be reasonable. In *Devlin*, in order to establish a claim for cancerphobia, the plaintiff must prove:

1. Plaintiff currently suffers from serious fear, emotional distress, or diagnosed phobia;
2. Such condition was caused by the exposure;
3. Fear due to the exposure is reasonable;
4. Defendant(s) are legally responsible for the exposure.

Ironically, cancerphobia is compensated despite the fact that if the fear is reasonable, it is not a phobia (clinically); yet if it is unreasonable, it is not compensable (according to case law). The question is not whether cancerphobia is a clinically recognized, clearly diagnosable medical condition. It is not. The question lies in what constitutes the mental and physical conditions of those individuals purporting cancerphobia and to what extent these conditions are the result of toxic exposure, hysteria, hypochondriasis, malingering, the process of tort litigation, cognitive and motivational reporting biases, and related forces.

The forensic environment may prove stressful for the cancerphobic individual. In discussing a case of water contamination in Legler, New Jersey, Gibbs (1986) suggests that litigants in the community felt alienated from the other individuals in the affected area who did not join the lawsuit (p. 52). Additional stress resulting from the legal process may further compound the phobic condition with additional anxiety and worsen the situation outcome (Binder, Trimble, & McNiel, 1991). It is noted by Gibbs that litigants may perceive their experience differently than do nonlitigants exposed to the same toxic water situation. She states:

Although "faking bad" did not appear to be a problem in the group, judging from the test administration and validity scales of the MMPI, it may be that litigants were more affected by the experience than nonlitigants. That is, the level of pathology in nonlitigants might be lower . . . (p. 66).

The idea of comparing the perceptions and reactions of litigants with nonlitigants, both of whom were exposed to the same toxic incident, in an attempt to find fundamental differences between the two groups, is a compelling one that warrants further exploration in an empirical setting.

An equally plausible alternative hypothesis is that litigants are self-selecting and have more pre-existing pathology. Another hypothesis is that as part of a litigating group, individuals are subjected to certain group dynamics (e.g., social conformity or social proof) that nonlitigating individuals do not experience. Such processes may significantly alter the litigants' perceptions of the event. Gibbs notes that the subjects in the Legler study did report the litigation provided a "bond for the subjects" which they saw as "helpful" (p. 52). She remarks, "Litigation groups have the advantage of allowing a researcher access to a group that might otherwise be unmotivated for testing . . ." (p. 52).

Although Gibbs naively claims to have established a precaution against subjects intentionally presenting themselves negatively in an attempt to increase their chances of winning damages, she nevertheless devised a number system such that subjects could access their individual data in the event "they desire feedback or to use the data in the litigation" (p. 53). For a thorough understanding of the psychological and physical effects of a toxic exposure experience on a litigating group, this potential motivation factor must be addressed empirically.

As mentioned earlier, pursuing claims through the courts for illnesses of dubious origin can be extremely lucrative. The courts in numerous states have awarded enormous claims to plaintiffs in cases involving health concerns allegedly resulting from toxic exposures (Huber, 1991). Many of these claims are based on the testimony of "clinical ecologists," practitioners of a relatively new field combining immunology, toxicology, and psychology. Although the field is still unproven (Terr, 1987), its presence in the courtroom is sharply felt. The rewards of filing cancerphobia claims are not simply financial. As shown with mass hysteria (Gehlen, 1977), the contagion of symptoms may be the result of the secondary gains of sickness. Leave from boring or demeaning work, escape from an unfair supervisor, time for personal activities, and being the focus of attention may become available to the patient complaining of fear of future illness. Financial incentives should not be overestimated in assessing motivation for complaints of fear of future illness. Important forces are the opportunity for attention, a sense of importance, and social validation. Consider the example of a factory worker from a low socioeconomic level, commanding little external attention in daily life. Suddenly, as a result of a toxic exposure, this individual is the focus of attention and validation for attorneys, psychologists, physicians, relatives, neighbors, and media personnel. Only by complaining of symptoms will the subject continue to garner this attention. Without the illness, there is no need for the professional services these attending parties provide. Thus, as soon as the plaintiff reports recovery, the result is a return to previous status of inconspicuous citizen.

An important issue which has received almost no attention in the study of plaintiffs in cancerphobia claims is the combined effect of peer, professional, and media attention coupled with a sense of importance emerging from the role of plaintiff and victim. Research in this area is encouraged.

CHEMICAL AIDS

“Chemical AIDS” is an assertion that environmental pollutants subvert the immune system in a manner similar to that by the human immune deficiency virus (HIV). It is also referred to as “universal allergy” and “twentieth century disease” (Terr, 1987). The hypothesis is that as a result of constant exposure to chemicals in the environment, the human immune system becomes diminished to such a degree that a host of diseases and afflictions may take root. The idea of a chemically induced immune deficiency is popular among a growing number of clinical ecologists, though, at present, it is generally unsupported among the medical establishment. Theron G. Randolph, founder of The Society for Clinical Ecology, since renamed the American Academy of Environmental Medicine, in recognizing the general lack of acceptance of clinical ecological ideas by the medical community, states, “. . . The American Academy of Allergy and Immunology has kept up a barrage of charges that clinical ecology is an ‘unproven,’ ‘controversial’ method, based mainly on the ‘placebo-effect’ and fed by the gullibility of patients” (Randolph, 1990, pp. 279-280).

The contemporary position against “chemical AIDS” or “autoimmunity” is clear. Medical evidence refutes the hypotheses of clinical ecologists. In 1985, a task force established by the California Medical Association heard presentations by clinical ecologists and reviewed clinical ecological research. The conclusion of the task force was that “clinical ecology does not constitute a valid medical discipline” and that “scientific and clinical evidence to support the diagnosis of ‘environmental illness’ and ‘cerebral allergy’ or the concept of massive environmental allergy is lacking” (pp. 239-240). Moreover, the task force indicated some concern that clinical ecology may be providing a disservice for its patients:

The task force is concerned that unproven diagnostic tests are being widely used by clinical ecologists in what may be incorrect or inappropriate applications. Decisions made on the basis of these tests can lead to misdiagnosis, resulting in patients being denied other supportive treatments and becoming psychologically dependent, believing themselves seriously and chronically impaired (p. 243).

Research in *The Journal of Allergy and Clinical Immunology* contends that there is no indication that patients with clinical ecologic diagnoses of chemical sensitivity have immune deficiency, immune complex disease, autoimmunity, or abnormal functioning of their immune systems (Terr, 1987). This is not to say that health effects or illness symptoms do not result from

the environment, only that these symptoms have no medical foundation in terms of the immune system. They may be more psychologically based.

Similarly, S. A. Rogers (1987) has investigated the concept of the "tight building syndrome," which refers to environmentally induced illness. She contends that symptoms such as headaches, dizziness, nausea, weakness, depression, exhaustion, and an inability to think clearly are the result of exposure to environmental toxins, notably formaldehyde. The results of this study, however, should be interpreted cautiously due to methodological shortcomings such as the single-blind rather than double-blind nature of the experiment and a lack of sufficient controls. Like the concepts of clinical ecology, the idea of the "tight building syndrome" has its detractors and, in some cases, lacks supporting empirical evidence. At the same time, there would appear to be little or no question that toxins in a closed space without ventilation can be harmful.

McCunney (1987) conducted a review of common types of health effects from indoor air pollutants in home and office environments, relating them to "epidemic psychogenic illness" (EPI), once again linking fear of illness to mass hysteria. McCunney suggests that such illness usually occurs in a group under some type of physical or emotional stress with concern usually focusing on an apparent toxic agent.

A network intervention model has been proposed to control the incidence of epidemic psychogenic illness and mass hysteria in response to exposure to perceived environmental toxins and other perceived technological disasters (Coulter & Noss, 1988). This model suggests that therapists should act quickly in response to a toxic exposure, utilize local lines of communication in the affected community as opposed to outside, less trusted sources, identify and inform recognized community leaders of the program agenda, clearly convey information regarding the perceived toxin, and educate the community members through seminars and simple language distributions. In a preventive measure, public health agencies should foster good will and open communication with community leaders prior to a toxic exposure to facilitate trust during the uncertain time immediately following such an event. Further, the network model recognizes that strong emotional reactions may occur as a result of and during the toxic exposure and that community leaders and health care workers should convey this expectation to community members to reduce unwarranted anxiety in emotionally responding individuals. In this way, more severe reactions may be alleviated while mild ones are appropriately explained away. Often, an explanation is all that is needed to limit anxiety. Stahl and Lebedun (1974) report that by providing a fictitious explanation of an "atmospheric inversion" to account for hysterical symptoms they could sufficiently reduce high anxiety.

DISCUSSION

Fear of future illness, cancerphobia, and chemical AIDS appear to be a

wide ranging blend of rational response, hypochondriasis, hysteria, overreaction, illusion, iatrogenic illness, "lawyerogenic" symptoms, and reporting bias. Clearly, there are individuals who suffer from stress, confusion, and somatic manifestations following an event such as a toxic exposure, and it is important to recognize how each of these features may take an active or interactive role in forming and perpetuating a fear of future illness. In addition, the social conditions under which a cancerphobic or fear of illness complaint is made should be considered. Much empirical research is needed on the differences in fear of illness or cancerphobia for litigating versus nonlitigating individuals. The role of the clinician should be more thoughtfully addressed. There is an urgent need to study the effects of physicians who encourage hardiness as opposed to helplessness, active self-help as opposed to passivity, and belief in one's abilities to attain one's goals as opposed to beliefs of invalidism and self-perceptions as disabled. As Mellette (1985) has indicated, an optimistic attitude on the part of the physician toward the patient's return to the work force is instrumental to the resumption of occupational functioning.

The effect self-perceptions have on the recovery process and prognosis can be exemplified by two patients similarly afflicted with chronic pain. Mr. J., who did not work, said he could not work because "I hurt all the time, no matter what I do." Mrs. Y., who continued to work full time, stated, "I might as well work, I hurt all the time anyway." Based on extensive medical and psychological evaluations their injuries and self-described pains were virtually identical. The differentiating factor between the occupationally functioning patient and the disabled one was a conclusion, not a disability. The patients' perceptions of the implications of pain were the guiding factor. Professionals, as well as family and friends, can influence these perceptions.

The role of the litigation process must likewise be addressed. Plaintiffs in the role of victim may be encouraged to maintain self-perceptions as disabled, helpless, or passive—perceptions which can become pervasive, destructive influences in the patient's life. Litigation can encourage noncompliance and passivity with respect to recovery. Recovery may be more expensive than rewarding because it reduces potential awards for damages. With the lure of financial reward, revenge, and the fulfillment of unmet dependency needs, attorneys or other professionals may induce or encourage symptom reporting in people who otherwise would not perceive themselves as affected.

Activist groups can influence reported symptom incidence through their information campaigns. Biased reporting of health findings is encouraged by some advocates. Perhaps there are people who feel that this sort of research is good politics or good legal advocacy, but whatever else it may be, it is not good science. It is calculated to lead to conclusions which are, at best, misleading and, at worst, false.

Despite the confounding factors associated with the creation and exacerbation of fear of illness or cancerphobic conditions, the prognosis for these ailments is quite good. Various treatment modalities, including pharmacotherapy, behavior and cognitive therapies, as well as less conventional therapies have been used with success. Preventive measures such as social support systems and information campaigns are desirable. For conditions induced by litigation, perhaps case resolution coupled with one or more of the aforementioned treatments is the appropriate course of action. In cases of perceived chemical AIDS, cancerphobia, and fear of future illness, qualified specialists are recommended as sources of scientific information.

Conclusion

In summary, the study of fear of future illness and cancerphobia is deeply confounded by social forces, notably litigation. The prudent researcher and treating clinician must distinguish between the many factors which stimulate and aggravate these complaints in order to more clearly recognize the cause, course, and appropriate treatment of the individual patient's condition. Clearly, many factors must be considered and more research is needed. A comprehensive theoretical understanding of fear of future illness, cancerphobia, and chemical AIDS will consider the known effects, causes, and treatments of immunotoxicity, hysteria, hypochondriasis, mood disorders, anxiety, and reporting biases. We must also recognize the limitations of our knowledge. The effects of the litigation process, interactions with professionals, the media, and the influence of politically motivated groups must be investigated. Although much is presently known, the field offers a fertile ground for continued research.

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