

# Causal Attributions, Perceived Control, and Psychological Adjustment: A Study of Chronic Fatigue Syndrome<sup>1</sup>

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Causal attributions control, beliefs, and helpful and unhelpful support attempts were examined among people experiencing chronic fatigue syndrome (CFS) and their close others. Results revealed that 84% of respondents with CFS believed that their illness was due, at least in part, to physical or external causes, whereas 47% mentioned internal/psychological causes. Reports of internal causal attributions for CFS were positively correlated with indicators of poor psychological adjustment among those with CFS. Having an external locus of control (i.e., to powerful others) was also associated with poorer psychological adjustment among respondents with CFS. Close others' causal attributions to internal factors were related to frequency of self-reported unhelpful support attempts and to reports of depression and anxiety those respondents with CFS.

Social and health psychologists have become increasingly interested in the role of social cognition in coping with chronic illness. Two constructs integral to coping are causal attribution and beliefs about control (e.g., Brown & Siegel, 1988; Flett, Blankstein, & Kleinfeldt, 1990; Taylor, Litchman, & Wood, 1984; Thompson, 1981; Thompson & Spacapan, 1991).

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The present study examines causal attributions and control beliefs in the context of a poorly understood disorder: chronic fatigue syndrome (CFS). Indeed, it is because CFS is of unknown etiology that we are particularly interested in examining relations between people's causal attributions and psychological adjustment. Our key objectives are to examine (a) causal attributions for CFS among respondents with the disease; (b) beliefs about psychological control among respondents with CFS; and (c) psychological correlates of such causal attributions and control beliefs. Importantly, we also are interested in the relations between close others' attributions for CFS, perceptions of their social support provided, and psychological distress among respondents with CFS.

### Chronic Fatigue Syndrome

*Chronic fatigue syndrome* (CFS) is a term that has emerged in recent years to describe a constellation of symptoms of unknown etiology. Although CFS is difficult to define and diagnose (Holmes, 1991), the major criterion for diagnosis of CFS is as follows:

New onset of persistent or relapsing, debilitating fatigue or easy fatigability in a person who has no previous history of similar symptoms, that does not resolve with bed rest, and that is severe enough to reduce or impair average daily activity below 50% of the patient's premorbid activity level for a period of at least 6 months. (Holmes et al., 1988, p. 388)

In addition to fatigue, a diagnosis of CFS must include symptoms such as substantial impairment in short-term memory or concentration; sore throat (nonexudative pharyngitis); tender cervical or axillary lymph nodes; muscle pain (myalgia); multijoint pain without swelling or redness (migratory arthralgia); headaches of a new type, pattern, or severity; unrefreshing sleep; and post-exertional malaise lasting more than 24 hours (Fukuda et al., 1994).<sup>3</sup> More stringent definitions assert that the major criterion must be accompanied by at least eight symptom criteria (Holmes et al., 1988), whereas more recent (and less strict) definitions suggest that four symptom criteria must be present for a diagnosis of CFS (Fukuda et al., 1994).

<sup>3</sup>According to the Centers for Disease Control and Prevention, the guidelines for identifying CFS have been amended (Fukuda et al., 1994) to assert that a diagnosis can be made only after alternate medical and psychiatric causes of illness have been excluded, inclusionary and exclusionary conditions are outlined, and a set of uniformly applicable criteria for clinical and research evaluation of CFS are considered.

Regardless, CFS is viewed as a cluster of symptoms combined with persistent fatigue that interferes with day-to-day functioning and can have a negative impact on psychological adjustment. For example, researchers have noted that there is a relatively high prevalence of depressive symptoms among people with CFS (e.g., Graffelman, Neven, Nagelkerken, Petri, & Springer, 2002; Ray, 1991). Currently, there is no reliable method to determine incidence or prevalence rates of CFS, but the Centers for Disease Control and Prevention (CDC, 2002) estimates that as many as a half million people in the United States have a CFS-like condition.

### *Causal Attributions for Chronic Fatigue Syndrome*

Because CFS is so poorly understood by the medical community, there are many different scientific explanations regarding its etiology (see Jason et al., 1995; Levine, 1998). Although researchers have articulated their own views regarding the causes of CFS (see Abbey & Garfinkel, 1991a, 1991b; Katon, Kleinman, & Rosen, 1982; Patarca, Fletcher, & Klimas, 1993; Taerk & Gnam, 1994; Ware & Kleinman, 1992; for a recent review, see Craig & Kakumanu, 2002), not much is known about the perspectives of respondents with CFS and their close others. Past research has examined how different labels for CFS (Jason & Taylor, 2001) and different treatment recommendations (Taylor, Jason, Kennedy, & Friedberg, 2001) influence observers' causal attributions for CFS. However, scant research has examined perceptions of the causes of CFS among individuals with the illness, and even less research has examined attributions for CFS among their close others. What research there is suggests that those with CFS primarily attribute the cause of their illness to external physical factors, such as a virus (e.g., Clements, Sharpe, Simkin, Borril, & Hawton, 1997; Ware & Kleinman, 1992; Wessely & Powell, 1989).

We seek to gain a more detailed account of people's causal attributions for CFS with the inclusion of both qualitative and quantitative measures of attributions. Moreover, we assess the attributions of both respondents with CFS and their close others, and examine whether any particular causal theory is associated with psychological adjustment.

According to attribution theory (e.g., Kelley, 1967; Wong & Weiner, 1981), people faced with an unexpected, threatening, or stressful change in their environment often initiate a search for causal explanations for that change. Indeed, a large body of research has indicated that people suffering from various illnesses and disorders generate theories about their origin (e.g., Affleck, Tennen, Croog, & Levine, 1987; Bard & Dyk, 1956; Koslowsky, Croog, & La Voie, 1978; Lowery, Jacobsen, & McCauley,

1987). Accordingly, we assume that the majority of people with CFS and those close to them will generate causal attributions for their illness.

Because it seems likely that a search for meaning will be more central among respondents with CFS, we predict that they will be focused on possible causes of the illness and, accordingly, they might consider a greater number of possible causes than would their close others. We anticipate that respondents with CFS often will indicate multiple causes for their illness. Furthermore, we predict that respondents with CFS will place more importance on both internal and external factors than will their close others.

### *Causal Attributions, Beliefs About Control, and Psychological Adjustment*

Although past research has examined how causal attributions for fatigue are related to symptoms (Cathebras et al., 1995), functional impairment (Sharpe, Hawton, Seagroatt, & Pasvol, 1992), and global negative outcomes (Wilson et al., 1994; cf. Deale, Chalder, & Wessely, 1998), to our knowledge no research has examined relations between causal attributions, perceived control, and psychological adjustment among respondents with CFS.<sup>4</sup>

It has been suggested that internal attributions (i.e., ascriptions of cause stemming from within the self; Faller, Schilling, & Lang, 1995) and self-blame for illness and other traumatic life events (Abrams & Finesinger, 1953; Kiecolt-Glaser & Williams, 1987) are related to negative psychological outcomes, such as guilt, low self-esteem, and depression. Indeed, learned helplessness theory supports the notion that the tendency to attribute negative outcomes to internal (versus external) causes, especially those that are stable (versus temporary) and global (versus domain-specific) is predictive of depression (Abramson, Seligman, & Teasdale, 1978; Coyne & Gotlib, 1983; Peterson & Seligman, 1984; Sweeny, Anderson, & Bailey, 1986).

However, it also has been suggested that internal attributions can be adaptive. For example, Bulman and Wortman (1977) found that spinal-cord-injured patients who took responsibility for their circumstances were better adjusted. Perceiving the cause to be self-generated may lead to a sense of control over the disorder, particularly when the cause is behavioral or changeable. According to Janoff-Bulman's (1979, 1982) framework, characterological self-blame (i.e., attributing the cause of a negative event

<sup>4</sup>Powell, Dolan, and Wessely (1990; see also Wessely & Powell, 1989) examined attributions among nondepressed people with CFS, depressed people with CFS, and depressed people without CFS. These researchers found that although depressed individuals without CFS tended to make internal and psychological attributions, respondents with CFS (both depressed and nondepressed) tended to make external and physical attributions. In the current study, we examine whether the internal attributions made by respondents with CFS are associated with psychological adjustment (e.g., depression, anxiety).

to some dispositional or enduring characteristic) is associated positively with depression, but behavioral self-blame (i.e., attributing the cause of a negative event to some controllable and changeable behavior) is associated negatively with depression (see also Anderson & Jennings, 1980; for related evidence, see Peterson, Schwartz, & Seligman, 1981). Additional research has found that internal attributions and self-blame are neither adaptive nor maladaptive (Hammen & Cochran, 1981; Miller & Porter, 1983; Taylor et al., 1984; Turnquist, Harvey, & Anderson, 1988). In sum, there is inconsistent evidence regarding the association between internal attributions and psychological adjustment.

It may be the case that under some conditions, internal causal attributions are psychologically adaptive; and under other conditions, they are maladaptive. One potentially important factor is whether or not the internal causal attribution is coupled with a sense of internal control over the symptoms of CFS. That is, in addition to causal attributions (i.e., beliefs about the cause of CFS), control beliefs (i.e., beliefs about the ability to control and cope with the symptoms of CFS) also play an important role in psychological adjustment to negative events. For example, a person may feel that the cause of his or her illness has something to do with his or her behavior (internal causal attribution) and also may feel that he or she personally has control over the course of the illness and has the ability to cope (internal locus of control).

On the other hand, this individual may feel that the cause of his or her illness rests with external environmental factors (external causal attribution) and that only external factors have control over his or her symptoms (external locus of control). Causal attributions and beliefs about control are not always congruent, however. That is, individuals may believe that they played a role in causing their own illness, yet also may believe that they now have little or no control over their symptoms. Alternatively, individuals may believe that the illness resulted entirely from external factors, but now feel able to exert control over the symptoms of their illness (for an expanded review, see Brickman et al., 1982).

It seems likely that in the context of CFS, making external causal attributions will be adaptive because this will reduce feelings of self-blame. On the other hand, internal attributions may lead to negative psychological outcomes. However, feelings of perceived internal control over the symptoms of CFS may be particularly adaptive. That is, feeling that one did not cause the CFS, but can exert control over coping with the symptoms of the disease, may be associated with positive psychological outcomes. The importance of both attributions and beliefs about controllability has been highlighted by Weiner's (1985, 1993, 1995) model of causal attribution, which suggests that both locus of causality (i.e., causal attributions) and

control contribute, at least in part, to emotional reactions to events (see Mandel, 2003).

Furthermore, a study by Brown and Seigel (1988) provides evidence that perceived control moderates the association between causal attribution and depression. Adolescent females rated their attributions for their most upsetting stressful life event, and completed measures of depression at the time of recalling the stressful event and again 10 months later. The researchers found that internal attributions (as well as stable and global attributions) were related positively to depression only when events were perceived as uncontrollable. Moreover, they found that internal (as well as global) attributions for controllable causes were related negatively to depression. However, subsequent research with an undergraduate sample (Flett et al., 1990) did not replicate this finding. Flett et al. found that internal attributions were unrelated to depression and that perceived control did not moderate this finding. They concluded that "The current results replicate past findings indicating that there is little relation between depression and attributions for actual life events" (p. 60).

In the present study, we build on past research by asking respondents about attributions and control beliefs regarding an ongoing stressful life event: CFS. Because CFS is a chronic condition with symptoms that must be dealt with on a daily basis, we expect that perceived internal causes will be associated with poorer psychological adjustment. We also anticipate that perceptions of internal control over the symptoms of CFS will be associated with positive psychological outcomes.

### *Close Others' Attributions, Social Support, and Psychological Adjustment*

A third objective of the present study is to examine close others' attributions for CFS. We are particularly interested in close others' attributions for CFS because they play an important role in providing social support to those with CFS (Kelly, Soderlund, Albert, & McGarrah, 1999). Very little research has explicitly examined attributions by close others for the cause of CFS. One study that examined attributions among CFS patients and their partners (Butler, Chalder, & Wessely, 2001) found that respondents with CFS were more likely than relatives to make somatic attributions for their symptoms. In the present study, we examine relations between close others' attributions for CFS, helpful and unhelpful actions, and psychological adjustment among respondents with CFS.

According to attribution theory, the perceived cause of a negative life event may influence observers' subsequent affective reactions and behavioral responses toward victims (Schmidt & Weiner, 1988; Weiner, 1985; Weiner,

Perry, & Magnusson, 1988). For example, Weiner et al. found that physically based stressful life events were perceived as onset-uncontrollable and elicited pity, no anger, and decisions to help. In contrast, mental/behavioral events were perceived as onset-controllable and elicited little pity, much anger, and lack of assistance. Thus, we anticipate that close others' beliefs that CFS is caused primarily by internal/psychological factors will be related to fewer helpful actions and more unhelpful actions, whereas beliefs that the illness is largely a result of external and physical causes will be associated with more helpful actions and fewer unhelpful actions.

Finally, we examine relations between close others' attributions and psychological adjustment among respondents with CFS. It may be the case that close others' internal causal attributions for CFS are associated with poorer psychological adjustment among respondents with CFS, perhaps as a result of more unhelpful actions.

## Method

### *Sample*

The sample was comprised of 105 respondents who had been diagnosed with CFS, as well as 87 close others. Many previous researchers have failed to distinguish between those who suffer from CFS as opposed to mere chronic fatigue (Dutton, 1992). We rigorously selected people with CFS by including only those who had been diagnosed with CFS by a medical practitioner, who reported the major criterion for CFS (persistent or relapsing fatigue that does not resolve with bed rest and is severe enough to reduce average daily activity by 50%), and who reported at least eight symptom criteria.

### *Recruitment of Respondents*

The present study was conducted in cooperation with the Myalgic Encephalomyelitis Society of British Columbia (MEBC; note that *myalgic encephalomyelitis* [ME] is another term for CFS) and an infectious diseases specialist in Vancouver. Participants were recruited in one of two ways. First, the specialist invited his patients to participate in the study, and people who indicated a willingness to take part in the study were contacted by the researchers. Second, greater-Vancouver-area residents with CFS were chosen randomly by an MEBC representative from MEBC's pool of active members and were contacted initially by a letter describing the study. One of two MEBC representatives telephoned potential respondents to ask if they

(a) had received the letter; (b) had obtained a diagnosis from a medical professional; and (c) were willing to participate in the study. The MEBC representatives gave the researchers a list of names and telephone numbers of members who verbally agreed to participate.

Potential respondents were asked if they were diagnosed with CFS by a medical professional and, if so, who had made the diagnosis. Because of confidentiality, no attempt was made to confirm the diagnosis. Then, respondents were given, in lay language, the CFS criteria developed by the CDC (2002). Only potential respondents who satisfied the major criterion and at least eight symptom criteria were included in the present study.

Because there is limited information available in the MEBC database, it was necessary to send all members a letter regarding the study, even though it was recognized that some would not be suitable to participate. One hundred ninety letters were sent out.<sup>5</sup>

The response rate was determined on the basis of the remaining potential respondents (144 people) who were eligible to take part in the study. Among those who did not take part in the study, 33 (23%) declined to participate and 28 (19%) could not be contacted by phone. In total eighty-three respondents from MEBC were interviewed, yielding an interview response rate for the MEBC sample of 58%. An additional 13 people (12% of the total sample) were obtained through an infectious diseases specialist, and 9 (9% of the total sample) were included subsequent to hearing about the study from other study respondents. From the 105 individuals with CFS who participated in the study, 87 close others completed questionnaires and sent them back to the project office, yielding a response rate of 83% in the close-other sample.

### *Procedure*

All respondents were phoned to set up an interview date, place, and time. Most interviews were scheduled to take place in the participant's home. If respondents indicated that they were married, or were in a common-law or other long-term intimate relationship, they were asked if they would be willing to ask their partner to complete a brief questionnaire as part of the study. If the participant was not involved in such a relationship, or did not feel comfortable asking their partner to complete a questionnaire, they were

<sup>5</sup>Twenty-one potential respondents (11.1% of those who were sent letters originally) were dropped because they had not been formally diagnosed with CFS; 6 (3.2%) indicated that they were recovered or significantly better; 6 (3.2%) failed to meet the CDC criteria; 5 (2.6%) had already been recruited for the study; 4 (2.1%) were CFS caregivers who were not themselves ill; 3 (1.6%) reported that they had been born with the illness; and 1 (0.1%) did not have a close other whom they would be willing to ask to complete a questionnaire.

requested to think of someone else who knew them quite well whom they would be willing to ask.

A follow-up telephone call was made before the interview to remind respondents about the appointment, and to check whether or not they were feeling well enough to take part in the study. When respondents were doing poorly, an interview was scheduled for an alternate day. Respondents were asked for permission to tape-record the interviews in order to avoid any loss of information, and to ensure that the interviews did not take longer than was necessary. The interviews were conducted by three graduate students and 12 trained undergraduate research assistants.

At the conclusion of the interview, each CFS participant was given a package containing two questionnaires. One questionnaire was to be completed by them, and the second questionnaire was to be completed by a close other. Respondents with CFS and their close other were given University of British Columbia (UBC) keychains as tokens of appreciation for taking part in the study. If either or both of the questionnaires were not received at the project office within 1 month of the interview date, a reminder letter was sent to the person with CFS, along with replacement questionnaires.

### *Measures*

All respondents with CFS were interviewed and given a follow-up questionnaire, whereas close others received only an abbreviated questionnaire. The close-other questionnaire contained many of the same questions as those in the participant interview/questionnaire, with appropriate wording changes (e.g., changing "My CFS" to "My close other's CFS").

The interview that was administered to respondents with CFS was developed to assess key constructs such as social support, attributions, meaning, perceptions of controllability and foreseeability, and counterfactual thinking. The format of the interview was semistructured, in which respondents were asked open-ended questions and then given more specific prompts for certain questions. For the purposes of this study, we focus on the questions relevant to causal attributions, beliefs about controllability, and perceptions of social support.

The measures were pilot-tested with eight people with CFS to determine how long completing the items would take, the suitability of questions, and the adequacy of the proposed methodology. The measures of particular interest for the present investigation are described next.

*Causal attributions.* Initially, respondents with CFS were presented the following open-ended question:

There is little agreement among the public and even among medical professionals regarding how CFS develops. Nevertheless, some people with CFS have one or more hunches or theories about the *cause* of their illness. Do you have any hunches or theories about what *caused* your CFS to develop?

Respondents who answered affirmatively were asked, "What are they?" Then, in order to obtain more specific information regarding perceptions of the development of CFS, all respondents with CFS were given a series of closed-ended questions. Respondents indicated on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*) how important they thought the following 11 factors were in causing their CFS: (a) "a viral infection"; (b) "a genetic predisposition"; (c) "working in an environment with no fresh air"; (d) "toxins"; (e) "working too hard"; (f) "worrying"; (g) "God or some other spiritual force"; (h) "depression"; (i) "not doing enough exercise"; (j) "stress"; and (k) "chance or pure coincidence." Close others were asked only the closed-ended questions about their views regarding the cause of their close others' CFS.<sup>6</sup>

*Coding for causal attributions.* Open-ended responses from respondents with CFS were transcribed from the tape recordings. A random sample of responses was examined in order to develop an initial set of codes. We then developed a coding scheme through an examination of responses and theoretical considerations (see Table 1 for attribution categories).<sup>7</sup> If a respondent mentioned more than one attribution within a single category (e.g., "virus" and "infection"), the code was used only once. However, different responses were coded into as many as seven categories. Because of multiple mentions per question, totals may exceed 100%. Two blind raters coded the responses independently, and Cohen's (1960) kappa was computed for each category. All disagreements were resolved through discussion. Cohen's kappas ranged from .63 to .96, and averaged .83 across the categories.

*Locus of control.* Respondents with CFS completed a version of the Multidimensional Health Locus of Control scale (MHLC; Wallston,

<sup>6</sup>Although we asked the questions about causality in a way that should encourage people to think solely about cause, different causal attributions may have differed in controllability as well. In particular, our external attribution items may tend to be more uncontrollable (e.g., toxins, genetic predisposition), whereas our internal attribution items may vary in controllability (e.g., stress, worrying).

<sup>7</sup>Although genetic factors may be considered to be internal, we classified them as external factors. This is because in our subsequent factor analysis, genetic factors loaded with external factors (e.g., toxins, working in an environment with no fresh air), rather than internal factors (e.g., worrying, stress, working too hard). In addition, genetic factors can be considered external because they can be attributed to one's parents rather than directly to the self.

Table 1

*Frequencies and Percentages of Respondents With CFS Indicating Internal and External Causal Attributions (Open-Ended Questions)*

Attribution	<i>n</i>	%
External (physical) cause	73	83.9
Virus/flu/bacteria/infection	53	60.9
Immune system disturbance	36	41.4
Other physical problem	26	29.9
Toxins/environmental factors/no fresh air	21	24.1
Vaccines/antibiotics/anesthetics	13	14.9
Genetic or other predisposing factors	11	12.6
Internal (psychological) cause	41	47.1
Stress/overwork/overactivity	37	42.5
Emotional factors	14	16.1

*Note.* CFS = chronic fatigue syndrome.

Wallston, & DeVellis, 1978) that was revised slightly to reflect perceptions of control regarding CFS symptoms (e.g., “When your symptoms worsen, it is your own behavior which determines how soon you will get well again”). This scale measures the degree to which respondents believe that control over the symptoms of CFS lies within themselves (internal), within other people (powerful others), or is a result of random factors (chance).

*Psychological adjustment.* As measures of psychological adjustment, respondents with CFS completed two subscales of the Brief Symptom Inventory (BSI; Derogatis, 1975; Derogatis & Melisaratos, 1983): depression (e.g., “feeling lonely,” “feeling no interest in things”) and anxiety (e.g., “feeling fearful,” “feeling tense or keyed up”). These items were completed on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*). Respondents also completed a five-item measure of ruminative thoughts adapted from Trapnell and Campbell’s (1999) six-item scale: “I always seem to be ‘re-hashing’ in my mind recent things I’ve said or done”; “I don’t waste time re-thinking things that are over and done with” (reverse-scored); “Long after an argument or disagreement is over, my thoughts keep going back to what happened”; “I tend to ‘ruminate’ or dwell on things that happen to me for a really long time afterward”; and “Often I’m playing back in my mind how I

acted in a past situation.” These items were reported on a 5-point scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

*Helpful and unhelpful actions.* In addition to answering the closed-ended items regarding causal attributions, close others also completed a measure of the quality of social support (Social Support Behavior Questionnaire, SSBQ; Johnson, Hobfoll, & Zalcberg-Linetzy, 1993). Close others rated various actions, identified as either “helpful” (e.g., “How often have you showed concern; for example, expressed interest or warmth?”) or “unhelpful” (e.g., “How often have you talked about yourself in an effort to steer attention away from your close other’s difficulties?”). These items were answered on a 5-point scale ranging from 1 (*never*) to 5 (*almost always*).

*Method of analysis.* In order to examine our key hypotheses, we (a) calculated the percentages of respondents with CFS and their close others who indicated that the various causal factors played a role in CFS; (b) examined the correlations between causal attributions, control beliefs, and psychological adjustment measures (e.g., rumination, anxiety, depressive symptoms); and (c) correlated the ratings of attributions made by close others with ratings of helpful and unhelpful support, and with the psychological adjustment measures of the person with CFS.

## Results

### *Demographic Information*

The CFS sample was predominantly Caucasian (96%), and the remaining respondents were Asian (2%), Black (1%), and Indo-Canadian (1%). There was a higher proportion of females (88%) than males. Previous epidemiological research in North America also has found that women contract CFS at a greater rate than do men, with estimates ranging from 59% to 85% of those diagnosed with CFS being women (e.g., CDC, 2002; Reyes et al., 1997; Steele et al., 1998).

In our sample, 60% of the CFS respondents were in an intimate relationship. Respondents with CFS noticed the onset of their symptoms an average of 8 years earlier (range = 1–22 years). The number of years since formal diagnosis ranged from 0 to 18 years, with the mean being 5 years. The CFS and close-other samples had a mean of 14.7 and 14.2 years of education, respectively. Those with CFS had a mean age of 47 years, and their close others had a mean age of 50 years. Respondents with CFS had a mean personal income of \$19,000. The corresponding figure for close others was \$31,000.

*Perceived Causes of CFS*

In response to the open-ended question, 92% of respondents with CFS reported at least one hunch or theory about what caused their CFS (see Table 1). Consistent with expectations, monocausal theories were reported rarely: Fully 75% of the CFS sample gave multiple responses. Respondents often indicated that an interlocking set or chain of causal factors was implicated in the development of their illness, and many had complex theories regarding the manner in which various causes were combined.

Responses within individuals also tended to include both external and internal causes. Thus, rather than giving answers consistent with mind–body separation, respondents gave explanations for development of CFS that involved interactions between the two. For example, 25% of respondents reported together the two most commonly mentioned causes: stress/overwork/overactivity (an internal cause) and virus/flu/bacteria/infection (an external cause). Even more revealing, 40% of respondents reported at least one internal cause (e.g., stress/overwork/overactivity, or emotional factors) and at least one external cause (e.g., virus/flu/bacteria/infection, environmental factors, other physical problems, vaccines/antibiotics/anesthetics).

The majority of respondents with CFS (84%) mentioned the role of external and physical factors. Within this category, the most frequent causal factor mentioned was virus/flu/bacteria/infection (61%), whereas 41% mentioned immune system disturbance, and 30% mentioned other physical problems (e.g., injuries, operations, illnesses, diseases, brain abnormalities). Several environmental factors (e.g., toxins in the water, air, or food) also were reported (24%). These categories were followed by vaccines/antibiotics/anesthetics (15%) and genetic or other predisposing factors (13%).

Internal factors such as stress/overwork/overactivity (43%) and emotional factors (16%) were reported by roughly half the CFS sample (47%). These two causes often were mentioned together (i.e., 11 out of the 14 times that emotional factors were reported, stress/overwork/overactivity also was mentioned). Thus, respondents often indicated that they had a legitimate physical illness, but nonetheless acknowledged the causal contribution of internal psychological factors.

This open-ended causal question was supplemented with closed-ended items, which were completed both by respondents with CFS and their close others. All 11 closed-ended items for each sample separately were subjected to a principal components analysis with varimax rotation. Using a scree plot as the basis for inclusion, two factors were extracted both for respondents

Table 2

*Factor Loadings of Causal Items by Sample*

Item	Respondents with CFS		Close others	
	Factor 1: Internal	Factor 2: External	Factor 1: Internal	Factor 2: External
Worrying	.87	.10	.85	.08
Stress	.85	.01	.86	.13
Working too hard	.81	.13	.59	.27
Depression	.60	.05	.74	-.13
Not doing enough exercise	.49	.15	.64	.06
Working in an environment with no fresh air	.18	.79	.24	.77
Toxins	.22	.78	.03	.76
Genetic predisposition	-.05	.60	-.09	.62

with CFS and close others. Any items that loaded on one of the factors for one sample but not the other sample were dropped (see Table 2). Factor 1 (Internal) for both samples included the items worrying, stress, working too hard, depression, and not doing enough exercise (respondents with CFS,  $\alpha = .78$ ; close others,  $\alpha = .81$ ). Factor 2 for both samples (External) included the items working in an environment with no fresh air, toxins, and genetic predisposition (respondents with CFS,  $\alpha = .69$ ; close others,  $\alpha = .59$ ). The item “virus” did not load on either factor for respondents with CFS, but was included in subsequent analyses because of strong endorsement as a causal factor in response to the open-ended question.

Three paired *t* tests were computed to determine if respondents with CFS and their close others viewed the causal factors differently in development of the illness. Interestingly, compared to their close others, respondents with CFS reported that all factors played a more important causal role. For instance, internal factors were viewed as being more important by respondents with CFS ( $M = 2.86$ ,  $SD = 0.88$ ) than by close others ( $M = 2.50$ ,  $SD = 0.99$ ),  $t(85) = 3.48$ ,  $p < .001$ . The former group ( $M = 3.07$ ,  $SD = 1.11$ ) also considered external factors to be more important than did the close-others group ( $M = 2.41$ ,  $SD = 0.99$ ),  $t(85) = 5.51$ ,  $p < .001$ . Finally,

respondents with CFS ( $M = 4.15$ ,  $SD = 1.09$ ) considered “virus” to be more important than did close others ( $M = 3.64$ ,  $SD = 1.39$ ) in the development of the illness,  $t(84) = 3.21$ ,  $p < .005$ .

*Attributions, Control, and Psychological Adjustment*

Consistent with expectations, among respondents with CFS, attributions to internal factors were correlated positively with depressive symptoms ( $r = .32$ ,  $p < .01$ ), anxiety ( $r = .30$ ,  $p < .01$ ), and rumination ( $r = .34$ ,  $p < .01$ ; see Table 3). In the present sample, then, the belief that the cause of one’s CFS stemmed, at least in part, from the within self was associated with poorer psychological adjustment. External attributions were not associated significantly with these negative outcomes (depressive symptoms,  $r = .08$ ,  $p < .50$ ; anxiety,  $r = .19$ ,  $p < .08$ ; rumination,  $r = .06$ ,  $p < .60$ ). The belief that CFS was caused by a virus was negatively correlated with anxiety ( $r = -.21$ ,  $p < .05$ ).

In addition, we examined the relation between locus of control and the psychological outcomes. Although we anticipated that an internal locus of control would be associated with positive psychological outcomes, none of the correlations was significant (all  $ps > .15$ ). However, as hypothesized, the belief that powerful others have control over the illness (i.e., an external locus of control) was correlated with depressive symptoms ( $r = .22$ ,  $p < .04$ ),

Table 3

*Correlations Between Attributions, Perceptions of Control, and Psychological Adjustment*

	Psychological adjustment measure		
	Depression	Anxiety	Rumination
Attribution			
Internal	.32**	.30**	.34**
External	.08	.19	.06
Viral	-.19	-.21*	-.06
Locus of control			
Internal	.01	.15	.13
Powerful others	.22*	.31**	.22*
Chance	-.10	-.15	-.24*

\* $p < .05$  (two-tailed). \*\* $p < .005$  (two-tailed).

anxiety ( $r = .31, p < .01$ ), and rumination ( $r = .22, p < .03$ ). Attributions to chance were correlated negatively with rumination ( $r = -.24, p < .02$ ). Thus, as expected, having an external locus of control to powerful others was associated with poorer psychological outcomes.

### *Close Others' Attributions and Perceptions of Social Support*

In order to investigate if different causal attributions are related to the perceived quality of social support offered by close others, the items that represent internal and external attributions of close others were summed to create composite scores and were correlated with the helpful ( $\alpha = .73$ ) and unhelpful ( $\alpha = .69$ ) subscales of the SSBQ (as reported by close others; Johnson et al., 1993). "Virus" was correlated with such actions separately. Close others' causal attributions were related differentially to the quality of social support that they reported offering. As anticipated, making internal attributions was associated positively with unhelpful support attempts ( $r = .25, p < .02$ ). Although the external index ( $r = -.10, p < .40$ ) and viral infection ( $r = -.12, p < .30$ ) did not reach statistical significance, they were in the predicted direction.

The different types of attributions were not correlated significantly with helpful support attempts (all  $ps > .40$ ). Interestingly, close others' views of CFS as internally caused by the person with CFS also were correlated with depressive symptoms ( $r = .35, p < .01$ ), anxiety ( $r = .30, p < .01$ ), and rumination ( $r = .29, p < .01$ ) for the person with CFS. Close others' views of the CFS as externally caused were not correlated significantly with depressive symptoms ( $r = .019, ns$ ), anxiety ( $r = .008, ns$ ), or rumination ( $r = .17, p < .13$ ). Thus, close others' causal attributions were associated with levels of distress in respondents with CFS. However, the relation between close others' beliefs about internal causes and psychological distress did not appear to be mediated statistically by unhelpful actions, as unhelpful actions were not correlated significantly with psychological distress (depressive symptoms,  $r = .16, p < .14$ ; anxiety,  $r = .17, p < .11$ ; rumination,  $r = .18, p < .10$ ).<sup>8</sup>

<sup>8</sup>We should note that respondents with CFS also completed the same measures of helpful and unhelpful behaviors as did the close others. The correlations between close others' causal attributions and perceptions of helpful and unhelpful behaviors among those with CFS were not significant (all  $ps > .49$ ). However, it is noteworthy that respondents' perceptions of unhelpful support on the part of close others were positively correlated with reports of depressive symptoms ( $r = .21, p < .04$ ) and anxiety ( $r = .22, p < .04$ ). Reports of helpful actions were not significantly correlated with depressive symptoms ( $r = -.11, p < .33$ ) or anxiety ( $r = -.07, p < .48$ ).

## Discussion

The present study provides a detailed analysis of the types of causal attributions and control beliefs that respondents with CFS have regarding their illness. Clearly, cognitions regarding illness and their relations with psychological adjustment will vary depending on the nature of the illness. People who are coping with CFS provide researchers with a unique context within which to consider attributions and control beliefs both because of its unknown etiology and because of its persistent nature.

Although most respondents with CFS made external and physical attributions for their illness, many also acknowledged the important causal role of internal and psychological factors, corroborating past research (Clements et al., 1997; Ware & Kleinman, 1992). In contrast, Wessely and Powell (1989) found that few respondents attributed their illness to "psychological" causes.

The discrepancies between studies are likely because of the different methodologies employed. Our findings may be more similar to those of Ware and Kleinman (1992) and Clements et al. (1997) than Wessely and Powell (1989) because both of the former studies included open-ended questions. The data collected from the open-ended questions were rich in detail, and captured the complexity of respondents' views. When respondents were given the option of reporting their own views, many spontaneously mentioned causes that were coded as internal as well as external. Wessely and Powell, in contrast, used a single 5-point scale ranging from *My illness is a physical one* to *My illness is psychological in nature*. When respondents in this latter study were asked merely to choose between abstract terms such as "physical" and "psychological," they tended toward physical ones. In addition, it seems likely that Wessely and Powell's study may have identified the most salient types of causal attributions, whereas the current study demonstrates that several types of attributions are made.

As predicted, 75% of our respondents with CFS reported more than one causal attribution for their illness. These findings are consistent with Kelley's (1972) assertion that people often generate multiple causes for an event. Moreover, respondents with CFS reported that all causes were more important than did providers, perhaps supporting the notion that people experiencing stressful life events have a greater need to "make sense" of their problem than do close others, and considering possible causes may assist them in their search for sense-making.

### *Control, Attributions, and Psychological Adjustment*

The current findings suggest that the more people believe their CFS is internally caused or that an external force (i.e., powerful other) has control

over their illness, the poorer will be their psychological adjustment. When an individual perceives the cause as being internal and believes he or she has no control over the illness, feelings of helplessness and depression may result.

In our study, perceptions of internal causality as well as perceptions of external control were associated with psychological distress. Past research has suggested that people can be retrained to make particular attributions (e.g., Dweck, 1975; Lewis & Daltroy, 1990), and one application of the current findings is that it may be valuable to discourage those with CFS from making internal causal attributions for CFS, along with external attributions regarding control over coping and symptoms. In support of this proposition, the research does suggest that cognitive-behavioral techniques designed to identify and alter dysfunctional thoughts among those with CFS have been successful (Butler, Chalder, Ron, & Wessely, 1991).

#### *Close Others' Attributions, Quality of Social Support, and Psychological Distress*

The more close others believed that CFS was a result of internal causes, the more they reported offering unhelpful support attempts. This finding is interesting because past research has failed to find a correlation between perceptions of etiology by the main support provider and the amount of social support offered (Kelly et al., 1999).

Close others' beliefs of internal and psychological etiology were correlated not only with their own unhelpful actions, but also with recipients' depressed affect, anxiety, and rumination. These findings are consistent with the work of Weiner and his colleagues (Schmidt & Weiner, 1988; Weiner, 1985; Weiner et al., 1988), who found that close others' beliefs regarding psychological causation elicited little pity, much anger, and few reports of assistance.

Psychological/internal factors may be considered to be more mutable than physical ones (Hemphill & Lehman, 1991), and hence may lead to punitive actions. The present data suggest that it is problematic for close others to assume that CFS is caused by factors internal to the person with CFS.

It may be the case, however, that complete reliance on beliefs of external causation by close others may not be particularly therapeutic and may well be countertherapeutic. This is because such beliefs may lead to thoughts that the illness is untreatable. Close others who assume there is nothing they can do to improve the situation may experience depressed affect themselves, which may prompt a cycle of pejorative interactions between providers and recipients (Coyne, Wortman, & Lehman, 1988). Although not directly

assessed in the current study, it may be the case that it is important for close others to make ascriptions regarding internal control over coping and symptoms of the CFS, but not internal attributions for the cause of the CFS itself. Similarly, factors that are within an individual's personal control may be encouraged in an empathic way in order to assist in alleviating CFS symptoms through problem-focused coping efforts (Lazarus & Folkman, 1984). Future research might examine in more detail whether a certain combination of attributions among close others might be beneficial and how this might be applied to allow close others to provide more helpful forms of social support.

### *Limitations*

These data are correlational, and hence do not provide information about causal relations between the variables of interest. Although it is possible that internal attributions and perceptions of external control (i.e., powerful other) lead to increased levels of depression (e.g., Abramson et al., 1978; Beck, 1967; Timko & Janoff-Bulman, 1985), it is also possible that depression leads to internal causal attributions and perceptions of external control. Bidirectional causality is most likely, and new methodologies must be developed to further tease apart such causal questions (for a review and discussion, see Coyne & Gotlib, 1983).

Furthermore, we did not measure clinical depression per se, but depressive symptoms. In addition, we should note that our selection of participants, because it relied ultimately on people's willingness to participate, may not have given us a completely representative sample of people with CFS.

The findings of the current study, however, do highlight the important connection between attributions, perceptions of control, and psychological adjustment among people with CFS. Furthermore, the current findings highlight the notion that close others' attributions are related not only to unhelpful forms of social support, but also to the psychological adjustment of those with CFS. It seems, then, that attributional processes among both those with CFS and their close others are related to how those with the illness cope.

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