Clinician Attributions for Symptoms and Treatment of Gulf War–Related Health Concerns

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Background: Several clinical syndromes are defined solely on the basis of symptoms, absent an identifiable medical etiology. When evaluating and treating individuals with these syndromes, clinicians’ beliefs might shape decisions regarding referral, diagnostic testing, and treatment. To assess clinician beliefs about the etiology and treatment of “Gulf War illness,” we surveyed a sample of general internal medicine clinicians (GIMCs) and mental health clinicians (MHCs).

Methods: Clinicians (77 GIMCs and 214 MHCs) at the Veterans Affairs Puget Sound Health Care System, Seattle, Wash, and the Veterans Affairs Medical Center in Portland, Ore, responded to a mailed survey of their beliefs about Gulf War illness.

Results: Compared with GIMCs, MHCs were more likely to believe that Gulf War illness was the result of a “physical disorder” and that symptoms resulted from viruses or bacteria, immunizations, exposure to toxins, chemical weapons, or a combination of toxins and stress ($P<.05$). Conversely, GIMCs were more likely than MHCs to believe that Gulf War illness was a “mental disorder” and that symptoms were due to stress or posttraumatic stress disorder ($P<.05$). In addition, MHCs were more likely to endorse biological interventions to treat Gulf War illness ($P<.01$), whereas GIMCs were more likely to endorse psychological interventions.

Conclusions: Clinicians’ beliefs about the etiology and effective treatment of Gulf War illness vary and thus might contribute to the multiple referrals often reported by Gulf War veterans. Health care models for Gulf War veterans and others with symptom-based disorders necessitate collaborative interdisciplinary approaches.

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SEVERAL COMMONLY ENCOUNTERED CLINICAL DISORDERS ARE DEFINED SOLELY BY THEIR CONSTELLATION OF PHYSICAL SYMPTOMS, IN THE ABSENCE OF AN IDENTIFIABLE MEDICAL ETIOLOGY. AMONG THESE DISORDERS ARE FIBROMYALGIA, CHRONIC FATIGUE SYNDROME, CHEMICAL SENSITIVITY SYNDROME, IRRITABLE BOWEL SYNDROME, SOMATIZATION DISORDER, AND “GULF WAR ILLNESS.” EXIGENCIES OF DAY-TO-DAY CLINICAL PRACTICE OFTEN REQUIRE CLINICIANS TO EXPLAIN THE CAUSES OF THESE DISORDERS TO PATIENTS AND TO EMBARK ON A COURSE OF TREATMENT. THIS TASK IS OFTEN CHALLENGING, GIVEN THE DEARTH OF KNOWLEDGE ABOUT THE PATHOGENESIS OF THESE DISORDERS AND THE LACK OF EVIDENCE-BASED TREATMENT GUIDELINES. UNDER THESE CIRCUMSTANCES, THE UNIQUE EXPERIENCES AND PERSPECTIVES OF CLINICIANS MIGHT SHAPE BELIEFS ABOUT THE COURSE OF THESE OFTEN VAGUE CLINICAL SYMPTOMS AND DECISIONS ABOUT TREATMENT.

A growing body of evidence suggests that clinicians’ attitudes, beliefs, and biases affect their decisions regarding treatment of clinical disorders. Physicians report that they provide more education, encourage more contact, and prescribe more medication to patients they perceive as likable and competent than to those they regard as less competent and less likable.1 Clinicians’ beliefs about pathogenesis also strongly affect the type and amount of treatment a patient receives. For example, in a group of patients complaining of fatigue, general practitioners were less likely to perform physical examinations, diagnostic tests, and medical treatment if the fatigue symptoms were believed to be “psychosocially attributed” rather than “somatically attributed.”2 Among patients experiencing myocardial infarction, nurses’ causal attributions have been demonstrated to affect the interventions they prescribe. Ogden and Knight3 found that if the nurse believed that a patient’s cardiac event was due to an “unhealthy lifestyle” he or she was more likely to view the patient as noncompliant with advice and as responsible for the...
PARTICIPANTS AND METHODS

Participants comprised GIMCs and MHCs at the Veterans Affairs Puget Sound Health Care System, Seattle, and American Lake Divisions in Washington State and the Veterans Affairs Medical Center in Portland, Ore. In November 1998, surveys were mailed to 400 providers in mental health clinics and 135 providers in general internal medicine clinics. Seventy-seven GIMCs (57%) and 214 MHCs (54%) completed the survey. Participation of respondents was anonymous. However, information was obtained on respondents’ profession, primary specialty, number of Gulf War veterans cared for in the past year, and sources of information regarding Gulf War illness. Sample characteristics of each group's professional training are shown in Table 1. Respondents reported obtaining information regarding the etiology and treatment of Gulf War illness from newspapers (GIMCs, 64%; MHCs, 51%), professional journals (GIMCs, 57%; MHCs, 57%), patient reports (GIMCs, 58%; MHCs, 31%), television or radio (GIMCs, 48%; MHCs, 27%), and government publications (GIMCs, 44%; MHCs, 58%). Mental health clinicians and GIMCs did not differ with respect to the number of Gulf War veterans they treated in the past year (mode, 1-10; range, 0 to >50).

SURVEY

The Clinician Beliefs Survey of Gulf War Symptoms consists of 19 self-report questions designed to assess beliefs about etiology, clinical course, and treatment in clinicians treating Gulf War veterans with chronic multisymptom illness. The survey was derived from the earlier work of Turk and colleagues.17 On the cover page, respondents were asked to consider the following: “Following service in the Persian Gulf, many veterans reported symptoms that are sometimes referred to as Gulf War illness or Gulf War syndrome. Veterans with this presentation often have complaints that include some combination of the following: fatigue, joint pain, muscle pain, headaches, gastrointestinal problems, rash, hair loss, and sleep disturbance or problems with concentration or memory.” Respondents were then asked to rate the degree that they agreed or disagreed with statements concerning the etiology, clinical course, and treatment of Gulf War illness on a 7-point Likert-type ordinal scale ranging from −3 to +3: −3 indicates completely disagree; −2, mostly disagree; −1, slightly disagree; 0, no opinion; 1, slightly agree; 2, mostly agree; and 3, completely agree.

The final 2 questions on the survey were global measures designed to assess providers’ beliefs concerning the etiology and treatment of Gulf War illness. The first question asked participants to “Rate the degree to which you believe Gulf War illness is (1) a physical disorder exclusively, (2) mostly a physical disorder, (3) an equal combination of physical and mental disorders, (4) mostly a mental disorder, or (5) a mental disorder exclusively.” The second question asked respondents to “Rate the degree to which you believe Gulf War illness, in general, is most effectively treated by (1) biological interventions exclusively, (2) mostly biological interventions, (3) an equal combination of biological and psychological interventions, (4) mostly psychological interventions, or (5) psychological interventions exclusively.” A copy of the instrument is available on request.

STATISTICAL ANALYSIS

Bivariate relationships were tested for statistical significance using 2-tailed independent-samples t tests for comparisons of continuous variables and χ2 tests for categorical variables. The criterion for statistical significance in all analyses was α = .05, without adjustment for multiple comparisons.

event. Several studies12 have found that mental health providers’ perceptions of the controllability of the presenting problem and judgments regarding level of patient responsibility affect the type of interventions these clinicians apply. Similarly, Brewin4 found that medical students were more willing to prescribe psychotropic drugs for patients they believed had symptoms related to events that were uncontrollable as opposed to controllable.

In addition, physicians describe certain patients who seek primary care for vague or unexplainable symptoms as frustrating or “difficult.”7,8 It also has been noted that when clinicians and patients have contrasting views of the patient’s illness, the patient is perceived as more frustrating by the clinician.6 The medical care of difficult patients has been found to involve more chronic problems, more medications, more radiographic and laboratory tests, more referrals, and more medical visits.10 On average, these patients report lower satisfaction with their care and are more likely to leave the care of one clinician in search of another.11

Gulf War veterans often report a variety of vague physical symptoms of unclear medical etiology.12 Some investigators3,14 have estimated that 15% to 20% of Gulf War veterans seeking care for their war-related health concerns endorse chronic and poorly understood physical symptoms, including fatigue, joint and muscle pain, headaches, and cognitive problems. To date, no unique disease, toxic exposure, or pathophysiologic mechanism has been established to explain these symptoms, and no definitive treatment has emerged.

The illnesses of Gulf War veterans present a unique opportunity to investigate clinicians’ attributions about cause, clinical course, and treatment because of the popular wisdom that these illnesses might represent a singular “syndrome.” In the extensive clinical experience of some investigators3,16 caring for Gulf War veterans with multiple idiopathic physical symptoms, many veterans report that they see multiple clinicians without receiving an explanation for their symptoms. Often these veterans complain that clinicians refer them for repeated diagnostic tests without explanation or a clearly stated rationale. This “medical merry-go-round” is often characterized by a general medical provider referring the Gulf War veteran to a mental health provider and vice versa. This type of referral process can leave the patient feeling frustrated.
or abandoned and clinicians from all specialties feeling helpless and sometimes unwilling or unable to offer useful interventions or the appropriate individualized attention required for effective treatment. We also believed that the medical merry-go-round experienced by some Gulf War veterans might be exacerbated by clinicians’ views of the pathogenesis of Gulf War illness. Indeed, as much as any medical challenge in recent memory, Gulf War illness has highlighted the limitations of our prevailing biomedical approach to illness.

The purpose of this study was to survey general internal medicine clinicians (GIMCs) and mental health clinicians (MHCs) to identify and contrast their beliefs about the causal attributions, clinical course, and treatment of medically unexplained physical symptoms in Gulf War veterans. Based on anecdotal reports by Gulf War patients and the lack of correspondence between symptoms and diagnostic categories, we hypothesized that GIMCs would be more likely than MHCs to attribute psychological causes and treatments to Gulf War veterans’ unexplained physical symptoms and that MHCs would be more likely than GIMCs to attribute physical causes to the same symptoms and to recommend biomedical treatments.

### RESULTS

Table 1 compares GIMCs and MHCs on specific survey items arranged in content categories of etiology, clinical course, and treatment. Compared with GIMCs, MHCs were significantly more likely to agree that Gulf War–related symptoms result from contagious agents such as viruses or bacteria, immunizations, exposure to toxins, chemical weapons, or a combination of toxins and stress (P < .05 for all). Conversely, GIMCs were significantly more likely than MHCs to believe that symptoms were due to stress or posttraumatic stress disorder. Neither group reported that symptoms were the result of compensation-seeking behavior.

Compared with MHCs, GIMCs were significantly more likely to disagree with the statements that the symptoms were contagious, permanent, life threatening, or in need of additional medical tests by a specialist. General internal medicine clinicians were significantly more likely than MHCs to agree that symptoms will often return even after treatment and can be lessened by stress reduction. Both MHCs and GIMCs disagreed with the belief that symptoms will go away without treatment; however, disagreement with this belief was significantly stronger in MHCs than GIMCs (Table 2).

The professional affiliations of the MHCs were diverse and included clinicians with medicine-oriented training (psychiatrists, nurses, physician assistants, and psychiatric nurse practitioners) and nonmedicine-oriented training (psychologists, social workers, addiction therapists, and psychology technicians) (Table 1). We therefore assessed whether the direction of clini-
Clinicians' responses remained consistent when only physician MHCs were compared with physician GIMCs. In this analysis, with a reduced sample size (33 MHCs and 43 GIMCs), the comparisons again revealed statistically significant differences and trends consistent with the larger sample. An additional analysis was performed to examine whether differences existed in the beliefs of MHCs as a result of their professional training. Medicine-oriented MHCs (n=114) were compared with nonmedicine-oriented MHCs (n=84) on all survey items. Nonmedicine-oriented MHCs were significantly more likely than medicine-oriented MHCs to believe that immunizations were responsible for Gulf War–related symptoms (t_{197}=-2.53; \( P=0.01 \)) and that the symptoms were life threatening (t_{197}=-2.71; \( P=0.007 \)). The groups did not differ in their responses to any other items, suggesting relative homogeneity of beliefs within MHCs independent of specialty training.

On the final 2 global questions, clinicians' beliefs were measured regarding the etiology and treatment of Gulf War illness. These questions allowed respondents to indicate whether they believed the cause and effective treatments for symptoms were “mostly” or “exclusively” physical or mental or “an equal combination of both.” Less than 1% of respondents selected extreme response categories of the scale (ie, “exclusively physical” and “exclusively mental”); therefore, we collapsed the “mostly” and “exclusively” response choices to create a physical or biological score. Figure 1 depicts the disparity in beliefs between MHCs and GIMCs on the global item measuring beliefs regarding the etiology of Gulf War illness. There was a significant relationship between respondent condition (GIMCs vs MHCs) and etiologic beliefs about Gulf War illness (\( \chi^2_{1}=5.73; \ P<.05 \)). As illustrated in Figure 1, GIMCs were more likely than MHCs to rate Gulf War illness as “a mental disorder,” whereas MHCs were more likely than GIMCs to rate symptoms as being due to “a physical disorder.” Although a clear disparity existed in the beliefs on the etiology of Gulf War illness between GIMCs and MHCs, almost 50% of both samples endorsed the belief that symptoms resulted from a combination of mental and physical disorders. Figure 2 depicts responses to the question concerning beliefs about the most effective treatment for Gulf War illness. Similar to the results regarding beliefs about etiology, there was a significant relationship between respondent condition (GIMCs vs MHCs) and beliefs about effective treatments for Gulf War illness (\( \chi^2_{1}=8.57; \ P<.01 \)). Again, MHCs were more likely than GIMCs to endorse biological interventions to treat symptoms, whereas GIMCs were more likely than MHCs to endorse psychological interventions. Results from this question also revealed that most MHCs and GIMCs similarly believed that treatment of Gulf War illness should incorporate both psychological and biological interventions.

To our knowledge, this is the first study to examine clinician beliefs regarding the etiology and treatment of the unexplained physical symptoms popularly described as Gulf War illness. We found divergent beliefs between GIMCs and MHCs regarding the etiology and treatment of these symptoms. As hypothesized, GIMCs tended to view symptoms as psychological in origin and requiring psychological treatments and MHCs tended to view symptoms as medical in origin and most responsive to medical interventions. Specifically, MHCs were more likely to endorse that symptoms were due to biological exposures such as infection, toxic agents, chemical weapons, and immunizations; GIMCs were more likely to believe that stress or posttraumatic stress disorder was the cause of symptoms. Both clinician groups believed that treatment would be necessary for symptom resolution, but MHCs were twice as likely to view symptoms as permanent. Clinicians in both groups generally disagreed with the beliefs that symptoms were contagious or indicative of compensation-seeking behavior.

Indices of global beliefs demonstrated that MHCs were almost 2 times more likely than GIMCs to assign a physical cause to Gulf War illness, whereas GIMCs were 3 times more likely than MHCs to endorse a psychological etiology. Similarly, MHCs were 3 times more likely than GIMCs to endorse biological interventions, whereas GIMCs were almost 3 times more likely than MHCs to endorse psychological interventions for the...
effective treatment of Gulf War illness. The global questions also revealed that approximately 50% of MHCs and GIMCs believed that Gulf War illness was the result of an equal combination of physical and psychological causes. Similarly, greater than 60% of MHCs and GIMCs endorsed equal use of biological and psychological interventions when treating these symptoms. These results suggest that while a substantial number of study participants believe that both psychiatric and biological factors play a role in the etiology and treatment of Gulf War illness, important differences in these beliefs exist between mental health and general internal medicine clinicians.

These data support the hypothesis that clinicians, when dealing with the medical uncertainty associated with idiopathic physical symptoms occurring after Gulf War service, tend to invoke explanations outside the scope of their usual clinical knowledge. The absence of scientific evidence about known causes and treatments allows an opportunity for practitioners to make clinical decisions based on personal beliefs and biases. We suspect that the medical merry-go-round experienced by some Gulf War veterans with medically unexplained physical symptoms might be exacerbated by treating clinicians’ views of the pathogenesis of Gulf War illness. When faced with so much clinical uncertainty, clinicians defer to providers within other disciplines with the hope that they might provide new information and treatment recommendations. A pattern of repeated referrals in the face of medical uncertainty is likely to contribute to unnecessary clinician visits, excessive medical testing and invasive procedures, and overprescription of pharmaceutical treatments. The health care impact of divergent clinician beliefs regarding symptom-based disorders might not be unique to unexplained physical symptoms in Gulf War veterans. Similar patterns of referral and excessive health care utilization have been described for other symptom-based disorders, such as somatization disorder, and contribute to high health care costs and preventable iatrogenesis.

Clinical uncertainty or ambiguity might be one reason clinicians struggle in their communication and relationships with Gulf War veterans who have multiple idiopathic physical symptoms. In a community primary care sample of patients presenting with symptoms similar to those of Gulf War veterans, diagnostic tests were performed in more than two thirds of the patients; however, an “organic” etiology was demonstrated in only 16% of the patients. For the general medical practitioner, a patient with multiple physical symptoms in the absence of clinically apparent physical examination signs or laboratory findings often leaves a residual psychological explanation. For example, patients with chronic pain or fatigue report that their physicians often refer them for mental health evaluations with little or no explanation and even tell them that their symptoms are “in their head.” In addition, the fact that these patients are often frustrated and distressed over their symptoms and their treatment might reinforce the medical provider’s perception that the symptoms have psychological origins. For the mental health professional, patients with multiple physical symptoms might create a similar sense of uncertainty. The mental health professional might fear that the medical provider has overlooked a potentially serious medical explanation for the physical symptoms, a perception that can be compounded when physical symptoms are not readily identifiable as a mental disorder.

Some limitations should be considered when interpreting these findings. Data were gathered from a convenience sample of Veterans Affairs clinicians practicing in a single geographic region; therefore, the generalizability of these findings to other regions or health care systems is uncertain. Case vignettes were not used; therefore, clinicians’ interpretations of Gulf War illness might have varied. Findings are from a single period and might be subject to time trends determined by such factors as recent media reports and new research findings. Last, although the measure we used to determine provider beliefs is simple, has reasonable face validity, and is based on an existing measure used to determine patient beliefs regarding symptom-based illness, it has not been carefully validated with our added modifications or in clinician samples. Consequently, the clinical significance of some of the differences detected is difficult to quantify with confidence; however, the consistency in the direction of responses suggests that these differences in beliefs might be important.

The lack of a clearly established etiology and pathophysiologic mechanism for many of the symptoms seen in primary care highlights the limitations of applying a strict biomedical model to clinical practice. Processes of health care for Gulf War veterans and others with symptom-based disorders necessitate collaborative approaches that place clinicians with contrasting views of these conditions in regular proximity to one another for the purposes of building interdisciplinary rehabilitative interventions, sharing ideas, dispelling simplistic etiologic explanations, and attempting to optimize the consistency of information communicated to patients by all clinicians.

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