Environmental Sensitivities: Prevalence of Major Symptoms in a Referral Center: The Nova Scotia Environmental Sensitivities Research Center Study

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Although the phenomenon of environmental sensitivities (ES) has no clear etiology nor well-accepted pathophysiology, affected individuals experience symptoms that cause varying levels of dysfunction. Through a dedicated, government-funded research and treatment center, a detailed questionnaire covering 217 symptoms in 13 systems was mailed in 1997–1998 to 812 individuals referred to the center by physicians. A total of 385 (47%) questionnaires were returned, and data were analyzed on 351 individuals. Participants tended to be women (80%), middle-aged individuals (37% age 40–49 years), and those in higher educational groups (28% completed university), but there was wide variation in demographic variables. General symptoms such as difficulty concentrating, fatigue, forgetfulness, and irritability dominated the overall prevalence of symptoms since the start of their illness. Those related to irritation such as sneezing, itchy or burning eyes, and hoarseness or loss of voice were more common after exposure to environmental irritants. Ranking of symptoms using severity scores was consistent between men and women. Overall scores were higher in women, in participants who were separated or divorced, and in low-income groups. The type and consistency of symptoms experienced after exposure to triggering substances may not fit a purely psychogenic theory. *Key words*: multiple chemical sensitivities, survey, symptoms. *Environ Health Perspect* 109:161–165 (2001). [Online 24 January 2001] *http://ehpnet1.niehs.nih.gov/docs/2001/109p161-165joffres/abstract.html*

Environmental sensitivities (ES) are still considered by many to be an enigmatic health concern. Within the medical community, disparate views on the origins and pathophysiology abound (*1–15*). Nevertheless, individuals continue to experience symptoms that produce varying degrees of disability. The most frequently cited term to describe this clustering of medically unexplained symptoms has been multiple chemical sensitivities (MCS), originally coined by Cullen in his initial paper on workplace health risks (*16*). Several theories have been advanced to explain the diverse symptoms occurring after exposure to low-level irritants, foods, or electromagnetic radiation (*1,3,4,5–15*).

In the 1995 Nova Scotia Health Survey, 3% of the population reported being environmentally sensitive (*17*). A more recent study conducted by Kreutzer et al. (*18*) stated that 16% of Californians reported being "allergic or unusually sensitive to everyday chemicals." There were no specific questions on symptoms other than a list of products or situations "bothering" or making individuals "sick." In a telephone survey conducted in North Carolina, Meggs et al. found that 33% of those surveyed reported sensitivity to chemicals (*19*), and 4% of the total population reported daily or almost daily frequency of their symptoms. The most common symptoms among individuals with chemical sensitivity were nausea (47%), headache (33%), and eye irritation (16%). There was no detailed evaluation of symptoms in this phone interview survey. Kipen et al. (*20*) found a prevalence of sensitivity to chemicals of 13% among Gulf Registry Veterans (*20*). Common within all these reports was the need to explore further and more accurately describe this phenomenon.

To answer this need, we used a symptom-based questionnaire to explore the frequency, severity, and type of symptoms experienced by a Canadian patient population referred to a specialty center for environmental sensitivities.

Methods

The Nova Scotia Environmental Health Center is a government-funded facility dedicated to research in the context of management of individuals referred to the center by their family physician or another physician. Confirmation of the diagnosis is based on symptomatology consistent with ES (*16,21*). Alternative reasons for their symptoms, such as cancer or other major illness including major depression or a psychiatric diagnosis, are routinely ruled out before their referral and after consultation with the center physicians.

A self-administered questionnaire was mailed between October 1997 and February 1998 to 812 patients of the center who had been referred for management of ES. A total of 385 (47%) questionnaires were returned. Thirty-four participants were not included in the study because ES were ruled out by the treating physician, leaving 351 people for analyses.

In the questionnaire, a general health section covered patients' health status since the beginning of their illness (ES). The next section focused on limitations in their daily activities due to their illness, and a section on health problems documented major conditions diagnosed by a physician.

The section on symptoms covered symptoms that the patients may have experienced since the start of their illness, frequency and intensity of these symptoms, and whether or not these symptoms occurred or got worse after identified exposure. Symptoms were subdivided into 13 categories addressing different organ systems: eye, ear, nose, mouth, throat, lung, heart and circulation, blood and gland, muscle and joint, nervous system, stomach and bowel, bladder and genital, and skin. At the bottom of each system an "other" category allowed additional symptoms to be listed. A section for women looked at reproductive systems. A lifestyle section covered smoking, alcohol intake, physical activities, and hobbies.

Open-ended questions provided space for patients to list the type of exposures that might have been associated with occurrence of their symptoms. This was followed by their family history, demographic characteristics, employment history, socioeconomic status, and information related to the completion of the questionnaire.

The Environmental Health Center Questionnaire was based on the University of Toronto Health Survey questionnaire (*22,23*). Several modifications were made based on suggestions from the Toronto investigators and feedback from focus groups involving patients, from practitioners, and from pilot testing. Face validity was achieved by designing the symptoms around the six definitions of ES (*22,23*). To restrict the length of the questionnaire, we placed less

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emphasis on attempts to identify exposures that patients perceived as provoking symptoms. An open-ended question was added to provide an opportunity to document perceived exposure–symptom relationships. Further modifications included changes in wording from that of the Toronto questionnaire. Complex terminology and politically sensitive language were avoided. Pilot testing indicated that the modifications were relevant and reliable. Ethical approval of study and of consent forms was obtained from the faculty of medicine ethics committee of Dalhousie University.

Content validity for the Environmental Health Center questionnaire was achieved in several ways. Questions relating to ES were derived from consultation with ES practitioners and patients. Because recent definitions state that ES are a multisystem, multisymptom, multifocus health problem (*21*), the initial questionnaire was subdivided into different organ systems to ensure identification of those systems involved in the illness. Additional symptoms were added to increase content validity after feedback from patients and clinicians. Demographic and social variables were obtained from census questionnaires used by Statistics Canada Standards Division. Questions on general health were modeled on those used in previously validated health surveys (*24*).

At this point, it is difficult to assess construct validity, predictive validity, and concurrent validity. We evaluated test–retest reliability for 19 individuals who completed the same questionnaire after an interval of approximately 2 weeks. Kappa-values for each section ranged from 0.6 to 0.8, with the lowest value being 0.4 for one question. For the initial Toronto questionnaire, test–retest reliability showed κ-values around 0.4–0.6 for most systems and overall good agreement on symptoms (*23*) .

We computed scores as the frequency of occurrence of symptoms since the beginning of the illness (rarely, from time to time, most of the time, all the time, rated as 1–4) multiplied by the severity (low, moderate, high, rated 1–3). Therefore the maximum score for each question is 12, the minimum being 0. The global score is a mean score computed as the sum of all scores divided by the number of symptoms. Statistical tests (χ^2 statistic for proportions and two-sample *t*-test statistic for means) were used only for select comparisons to limit multiple comparison problems and increase clarity of the tables. Standard errors are provided to simplify comparisons.

Results

The frequency and proportion of individuals in each category of selected demographic characteristics are presented in Table 1. Age ranged from < 9 years old to > 60 years old. Thirty-seven percent of the patients were in the 40–49 age range for both men and women. A small peak in frequency was seen in males 10–19 years (20%), but not in young women. Most men (51%) and women (67%) were married or in common-law relationships. A higher but not statistically significant proportion of women than men were divorced (11% vs. 4%, $p > 0.05$), and a higher proportion of men than women were never married (37% vs. 17%, $p = 0.001$). More than one-quarter (28%) had completed university, with 14% having had some university training. A higher proportion of women than men (19% vs. 1%, $p = 0.001$) had completed diploma programs. Overall, men had a lower education level than women. Household income distribution was bimodal, with one peak in the $20,000–30,000 range and one in the $80,000+ range.

Table 2 presents the proportion of all respondents who have the 15 most common symptoms and how each symptom ranks compared with the others, between each sex. The most common 15 symptoms that occur after an exposure are also presented in the same table. Symptoms occurring after the start of illness that may or may not be related by the patient to some identified exposure are noted under "in general," compared to symptoms occurring after an identified environmental exposure ("after exposure"). Ranking of these symptoms does not vary greatly by sex. Ranking of "trouble finding right words" was higher in women (8th) than in men (24th) and "stuffy or full

Table 1. Distribution of selected demographic characteristics of individuals with ES, by sex.

	Males		Females		Both males and females	
Characteristics	No.	%	No.	%	No.	%
Age (years)						
0–9	5	7	5	2	10	3
10–19	14	20	12	4	26	7
20–29	0	0	9	3	9	3
30–39	14	20	55	20	69	20
40–49	24	34	107	38	131	37
50–59	9	13	72	26	81	23
60+	4	6	21	7	25	7
All	70	100	281	100	351	100
Marital status						
Never married	25	37	47	17	72	21
Separated	1	1	9	3	10	3
Widowed	0	0	3	1	3	1
Married or common-law	35	51	189	67	224	64
Divorced	3	4	30	11	33	9
Other	4	6	3	1	7	2
All	68	100	281	100	349	100
Education						
No formal schooling	0	0	2	1	2	1
Some primary	9	13	2	1	11	3
Completed primary	1	1	3	1	4	1
Some secondary or high school	7	10	23	8	30	9
Completed secondary or high school	11	16	28	10	39	11
Some college	7	10	14	5	21	6
Completed college	9	13	33	12	42	11
Diploma program	1	1	53	19	54	16
Some university	7	10	40	14	47	14
Completed university	15	22	82	29	97	28
All	67	100	280	100	347	100
Household income						
No income	4	6	2	1	6	2
< $6,000	1	2	5	2	6	2
$6,000–$11,999	2	3	22	8	24	7
$12,000–$19,999	4	6	20	7	24	7
$20,000–$29,999	11	18	36	13	47	14
$30,000–$39,999	5	8	41	15	46	14
$40,000–$49,999	12	19	26	9	38	11
$50,000–$59,999	3	5	28	10	31	9
$60,000–$69,999	4	6	17	6	21	6
$70,000–$79,999	–	–	12	4	12	4
$80,000 +	7	11	32	12	39	12
No response	9	15	33	12	42	13
All	62	100	274	100	336	100

Column percentages might not add to 100% due to rounding.

sinuses" was ranked higher in men (6th) than in women (21st). Although general symptoms had dominated the overall prevalence of symptoms since the beginning of their illness, those related to irritation were more common after exposure. Although ranking of the first three symptoms was identical in men and women, women ranked "hoarse/loss of voice" higher than men (5th vs. 36th). "Forgetful/poor memory," "tight chest," and "trouble finding right words" also ranked higher in women than in men (7th vs. 26th, 8th vs. 22nd, and 10th vs. 31st respectively) while men ranked "usual odors sickening" and "irritability" higher than women (7th vs. 12th and 6th vs. 20th respectively).

Table 3 shows the mean score of the top five symptoms that had occurred since the beginning of the illness, in general and after exposure. Ranking of the symptom score is presented for each sex. For each category, if a symptom is ranked in the first five, this symptom's rank is presented for the other sex category.

The highest overall score for both men and women was "stronger sense of smell." Women ranked fatigue and "tiredness not relieved by rest or sleep" higher than did men, while men ranked "less sense of smell" and "usually acceptable odors were sickening" higher than did women.

For all the other systems (separate analysis), there were no major differences in the ranking of the first five symptoms between men and women. In the nervous system section, men ranked "irritability" higher than did women and "trouble staying asleep" lower. "Constipation and bloating of stomach" were ranked higher among women than among men, whereas "heartburn" showed the opposite pattern.

Different patterns were seen after exposure, with some noticeable differences in ranking and in mean between sexes. For all systems, "stronger sense of smell" was ranked highest for both men and women. "Trouble seeing at night" was ranked second among women but ranked very low among men (84th). On the other hand, men ranked the following higher than did women: "dark coloring of finger tips" (2nd), "bed wetting" (3rd), "trouble staying asleep" (4th), "snoring or snorting during sleep" (5th), "having to get up at night to urinate" (6th), and "joint swelling" (7th) (not all variables shown in Table 2). Although there were differences in ranking between men and women for each system (separate analysis), there was an overall consistency in ranking.

Table 4 displays global mean symptom scores, by sex, for selected demographic variables. Mean score peaked in the 30–39 age group for both men and women. For all age groups men had lower mean scores than women and a global mean score much lower than that of women (2.0 vs. 2.7, $p = 0.0002$ after adjusting for age). Men and women who were separated/divorced or in the lower income categories had higher mean scores than the other groups ($p < 0.05$).

Discussion

Many articles have argued about the reality of ES as a single, well-defined medical entity. The arguments have been summarized by Sparks et al. (*7*). A common belief, shared by some authors, claims that this is an age-old problem, unsubstantiated by pathophysiological evidence, whose name changes depending upon current medical and sociocultural beliefs. Furthermore, this lack of evidence suggests that the manifestations should be classified as psychological by default. Such authors argue that the symptoms are psychogenic in nature and culturally dependent and driven (*5*,*6*). First, there has been relatively little research on this

Table 2. Prevalence of the top 15 symptoms reported since start of illness and ranked by sex among individuals with ES.

	Both		Males		Females	
Symptoms	%	Rank	%	Rank	%	Rank
In general						
Difficulty concentrating	95	1	90	1	96	2
Fatigue, very tired, without energy	95	2	87	3	97	1
Tiredness not relieved by rest or sleep	92	3	84	5	94	3
Sneezing/runny or congested nose without a cold	91	4	90	2	92	5
Forgetfulness/poor memory	90	5	80	9	93	4
Irritability	90	6	85	4	91	6
Other headache	88	7	79	10	90	7
Itchy eye(s)	88	8	81	8	90	9
Trouble finding the right words	86	9	70	24	90	8
Need to clear throat	85	10	83	7	86	12
Difficulty making decisions	84	11	73	16	87	11
Stuffy or full sinuses	83	12	84	6	82	21
Muscle pain or ache not related to overexercise	83	13	79	11	94	17
Stiffness in muscles or joints	83	14	75	13	84	15
Feeling light-headed	82	15	71	18	85	13
After exposure						
Sneezing/runny or congested nose without a cold	66	1	60	1	68	1
Itchy eye(s)	64	2	59	2	65	2
Difficulty concentrating	54	3	47	3	56	3
Other headache	52	4	41	8	54	4
Burning eye(s)	50	5	46	4	52	6
Hoarse or loss of voice	49	6	29	36	54	5
Stuffy or full sinuses	46	7	44	5	47	9
Forgetfulness/poor memory	46	8	33	26	49	7
Tight chest	45	9	34	22	48	8
Usually acceptable odors were sickening	44	10	41	7	45	12
Fatigue, very tired, without energy	43	11	40	9	44	15
Difficulty making decisions	43	12	34	20	45	11
Trouble finding the right words	43	13	31	31	46	10
Irritability	43	14	43	6	43	20
Feeling light-headed	43	15	37	11	44	14

"Both" includes males and females; % indicates percent of patients having the symptom; and "rank" is the rank of each symptom compared with all other symptoms.

Table 3. Top five symptoms scores reported among all systems, by sex, generally or after exposure, among individuals with ES.

	Both			Males			Females		
Symptoms	Mean	SE	Rank	Mean	SE	Rank	Mean	SE	Rank
In general									
Stronger sense of smell	8.8	0.21	1	8.9	0.63	1	8.8	0.22	1
Fatigue, very tired, without energy	7.4	0.18	2	6.2	0.40	7	7.7	0.20	2
Tiredness not relieved by rest or sleep	7.4	0.18	3	6.4	0.40	5	7.7	0.20	3
Less sense of smell than most people	7.0	0.59	4	7.9	1.31	2	6.7	0.67	9
Usually acceptable odors were sickening	6.7	0.23	5	6.9	0.51	4	6.7	0.25	10
After exposure									
Stronger sense of smell	9.6	0.26	1	9.9	0.65	1	9.6	0.29	1
Tiredness not relieved by rest or sleep	7.8	0.28	2	7.2	0.65	10	8.0	0.30	2
Trouble seeing at night	7.5	0.59	3	5.0	1.68	84	7.9	0.60	3
Bruise easily	7.3	0.93	4	–	–	–	7.3	0.93	7
Sensitive to temperature change	7.3	0.59	5	6.9	1.20	13	7.4	0.68	5

issue. Second, most of the articles published contain recycled opinions or rhetoric rather than data. Controlled studies are rare, and most of the designs have basic flaws raising concerns about relevance of conclusions (*2*).

We are not dealing with a new "disease." It is quite remarkable that there has been no systematic collection of symptoms using a reliable instrument, and very little in terms of exploring pathophysiologic theories (*1,7–15,25,26*). This lack may be due to the historical confrontation of clinical ecologists/environmental medicine physicians with the rest of the medical establishment.

We examined the prevalence of 217 symptoms in 13 sections/systems. Our study is the first attempt to describe the type, frequency, and severity of the most common symptoms experienced by an environmentally sensitive population. Outside of the study by Meggs et al. (*19*), no research has been published on a large number of individuals with ES, with a focus on the prevalence of the most common symptoms. Meggs et al. looked at the percentage of individuals with symptoms of allergy and chemical sensitivity, but on a limited number of symptoms, and reported only on overall frequency. The length of the telephone survey may have limited a more in-depth study of symptoms.

Environmental sensitivities seem to affect more women than men (80% vs. 20%), and women express higher severity scores than men. This could reflect a true biological difference because other diseases such as rheumatoid arthritis, systemic lupus erythematosus, scleroderma, multiple sclerosis, and Sjögren's syndrome are more common in women. This difference could also be due to confounding variables such as socioeconomic variables or reflect cultural differences between men and women wherein men would underreport reactions; or it may suggest that women have more severe reactions than men. These alternative hypotheses need to be explored. Although frequency distribution peaks in the 30–40 age range, ES occur not just among middle-aged individuals. Young as well as older individuals are reporting symptoms consistent with ES, with 22% of males who report symptoms being < 20 years old. The higher proportion of men than women affected in the young age group remains difficult to explain. Follow-up surveys must be conducted to see whether this represents a new trend. A concept that has been commonly held in the literature points to the absence of ES in older age groups. We found that approximately 7% of individuals reporting symptoms consistent with a diagnosis of ES were ≥ 60 years old. About 5% of participants in Kreutzer et al.'s study (*18*) had onset of their sensitivity after age 50, and the average age of people reporting sensitivities to chemicals in Meggs et al.'s study was 42.4 ± 15.5 years (*19*). Although most of the individuals were married, it is interesting to note that 12% were separated or divorced, and 21% were never married. In addition, individuals who are separated have a higher global score than the other marital categories (Table 4). This may be the result of increased stress in the relationships due to ES, although some authors have hypothesized that increased difficulties in the relationship might have led to these symptoms through a psychogenic mechanism (*6*). We have observed both situations at our center. Increased stressors in individuals' lives might be factors predisposing to the occurrence of ES, potentiating the effect of exposures or triggers (*25,26*).

Another common belief suggests that ES only affect highly educated individuals. Although the data show a high proportion of individuals with postsecondary education (28% completed university) and above average income (16% above $70,000), a widespread distribution remains among all education and income categories, similar to the findings of Meggs et al. (*19*). People with higher education may be more likely to report symptoms and cognitive problems affecting their work than people doing manual labor. It is important to note that the highest global scores are seen in individuals with a family income < $20,000. Similarly, Kreutzer et al. (*18*) found that those with the higher percentage of indicators of chemical sensitivity had incomes < $10,000. This may reflect the loss of employment due to the severity of the reactions or else sociocultural and psychological stressors as predisposing factors in the development of ES.

Day-to-day variations in symptoms and important variations during the course of illness create limits to this questionnaire. Some individuals had difficulty thinking about averaging frequency and severity over the course of their illness. The type of initial exposure(s) triggering symptoms may also be different from the substances triggering reactions at later stages of the illness. Nevertheless, Hu et al. (*27*) have found that a brief screening questionnaire based on exposures could differentiate individuals with ES from controls. McKeown-Eyssen et al. (*23*) also found that the original questionnaire had good agreement on criteria for ES case definitions (*23*).

The type of symptoms reported in this survey—such as difficulty concentrating, fatigue, forgetfulness, poor memory, irritability, trouble finding the right words, and difficulty making decisions—could indicate a psychogenic origin to these symptoms. The distribution of symptoms was consistent between sexes. In addition, the presence and severity of symptoms were not randomly distributed. Some symptoms were rare, while others were not rated high in terms of severity. Some symptoms such as bed wetting in men, after exposure, were difficult to predict, yet were ranked high (separate analysis). It seems logical to infer that more randomness in the distributions of symptoms would be expected in a purely psychogenic origin. It could be argued that a common psychological mechanism might lead to specific symptoms.

Table 4. Global mean symptoms scores by selected demographic characteristics among individuals with ES.

Characteristics	Both		Males		Females	
	Mean	SE	Mean	SE	Mean	SE
Age (years)						
0–9	1.3	0.23	1.2	0.32	1.4	0.37
10–19	1.4	0.15	1.2	0.14	1.6	0.26
20–29	2.1	0.31	–	–	2.1	0.31
30–39	3.1	0.16	2.9	0.48	3.1	0.16
40–49	2.7	0.12	2.2	0.26	2.8	0.14
50–59	2.5	0.13	1.9	0.51	2.6	0.13
60+	2.1	0.19	1.4	0.36	2.2	0.20
All	2.5	0.07	2.0	0.16	2.7	0.08
Marital status						
Never married	2.5	0.17	2.0	0.33	2.7	0.20
Married or common-law	2.5	0.09	2.0	0.22	2.6	0.09
Separated/divorced/widowed	2.9	0.18	2.5	0.26	2.9	0.19
Other	1.1	0.16	1.3	0.13	0.8	0.26
Education						
Up to some secondary/high school	2.2	0.23	1.7	0.42	2.5	0.26
University degree[a]	2.5	0.10	2.0	0.22	2.6	0.11
Completed secondary/high school	2.4	0.19	2.2	0.37	2.5	0.23
College or diplomas	2.8	0.12	2.4	0.34	2.9	0.13
Household income						
< $20,000	3.0	0.17	2.7	0.44	3.1	0.17
$20,000–$39,999	2.7	0.13	2.3	0.48	2.8	0.13
$40,000 +	2.3	0.11	1.8	0.22	2.4	0.11
No response	2.5	0.18	1.8	0.23	2.7	0.18

[a]Undergraduate or graduate level.

However, this can be questioned because symptoms experienced after exposure are commonly associated with irritation. Davidoff et al. (*28*) have also shown that the use of psychometric tests in this population to attribute symptoms to a psychogenic cause can be misleading.

In terms of symptoms scores, which refer to the frequency and intensity of the symptoms, "stronger sense of smell" had the highest mean, but it was also surprising to see the high ranking of "less sense of smell than most people" and "usually acceptable odors were sickening." Although the literature extensively reports on the affected sense of smell of individuals with ES, the reasons for this apparent contradiction need to be clarified. Doty (*29*) quantitatively examined the olfactory function in patients with MCS and did not find significant changes in odor detection threshold to two target stimuli.

Some of the high scores among women after exposure such as "trouble seeing at night" and "bruising easily" were not expected. The next steps in the analysis of these data will be to conduct factor analyses to see if there are any specific subgroups. Multivariate analysis will be used to investigate associations between symptom occurrence, scores, and other variables available in this data set. In a separate preliminary factor analysis, a single factor explained a high proportion of variance compared with all the other factors, suggesting a certain homogeneity of this group of individuals.

This study has a few limitations. The relatively low response rate (47%) in this usually committed group was not anticipated and limited generalizations. The response rate might be explained partly by negative media attention aimed at the center and by a postal strike, both of which coincided with the mailing of surveys. Follow-up calls to recipients elicited the following most frequently cited reasons for failing to answer the questionnaire: difficulty answering some of the questions, length of the questionnaire, busy lifestyle, or the taxing nature of the questionnaire. Because this population experiences a high level of cognitive difficulties, a long questionnaire might have been perceived as too taxing on the already low energy level of some of these individuals. Pilot testing had not revealed any major problem in this area, so the length of the questionnaire had not been reduced. Because basic demographic data had been collected on all individuals, comparison of nonrespondents with respondents found no statistically significant differences in age or sex distribution between these groups.

Issues around bias due to self-referral and differential diagnosis were limited because only Nova Scotia physicians have referred patients to the center. After examination, about 9% of referrals received a diagnosis other than ES. These 34 individuals were removed from analyses. Because we are the only referral center in Nova Scotia, we can also assume that our patient population is fairly representative of the ES population. Nevertheless, it is important to recognize that, as yet, no conclusive test exists to confirm the diagnosis of ES and that a diagnosis of ES remains clinical, based on limited criteria (*16*,*21*).

A priori labeling of these symptoms as psychogenic has done tremendous harm: It has hindered the ability of affected individuals to seek help, and also the amount of research conducted (*7*,*28*,*30*). It is time to recognize that we cannot separate the psyche from the physical dimensions of the human being, and that we must understand and support ES sufferers. It is vital not to wait for answers on definitions, etiology, and pathophysiology before we protect individuals with existing recommendations (*31*,*32*). This phenomenon is not new (*33*); it affects quality of life, disables, and creates major human and economic losses. Although many individuals return to a healthy and productive life, varying degrees of sensitivity remain. Strategies that look at multiple aspects of individuals' lives have been successful in reintegrating individuals into a fulfilling social and work environment. Attitudes of treating physicians must change to reflect and accept the reality of these experiences as multifactorial, where psychological and physical aspects are part of the problem and the solution.

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