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MMPI-2 validity, clinical and content scales, and the Fake Bad Scale for personal injury litigants claiming idiopathic environmental intolerance

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Abstract

Background: Idiopathic environmental intolerance (IEI) is a descriptor for nonspecific complaints that are attributed to environmental exposure. **Methods:** The Minnesota Multiphasic Personality Inventory 2 (MMPI-2) was administered to 50 female and 20 male personal injury litigants alleging IEI. **Results:** The validity scales indicated no overreporting of psychopathology. Half of the cases had elevated scores on validity scales suggesting defensiveness, and a large number had elevations on Fake Bad Scale (FBS) suggesting overreporting of unauthenticated symptoms. The average *T*-score profile for females was defined by the two-point code type 3-1 (Hysteria–Hypochondriasis), and the average *T*-score profile for males was defined by the three-point code type 3-1-2 (Hysteria, Hypochondriasis–Depression). On the content scales, Health Concerns (HEA) scale was significantly elevated. **Conclusion:** Idiopathic environmental intolerance litigants (*a*) are more defensive about expressing psychopathology, (*b*) express distress through somatization, (*c*) use a self-serving misrepresentation of exaggerated health concerns, and (*d*) may exaggerate unauthenticated symptoms suggesting malingering.

Keywords: MMPI-2; IEI, Idiopathic environmental intolerances; Forensic assessment; Functional somatic syndromes

Introduction

Background

Idiopathic environmental intolerance (IEI) is a descriptor originating from a 1996 workshop convened by the International Programme on Chemical Safety of the World Health Organization Workshop (IPCS/WHO) and agencies of the German government [1]. The designation IEI should displace the term multiple chemical sensitivity [2] as well as other labels such as environmental illness, ecological illness, and chemical intolerance because they suggest unproven causation and physiological mechanisms. Idiopathic environmental intolerance is a descriptor without any implication of chemical etiology, immunological sensitivity, or susceptibility. Rather IPCS/WHO describes it as:

- an acquired disorder with multiple recurrent symptoms;
- associated with diverse environmental factors tolerated by the majority of people;
- not explained by any known medical or psychiatric or psychological disorder [1].

Idiopathic environmental intolerance patients report distress and disruptions in their occupational, social, and personal functioning [3]. The fundamental issue is whether these effects are explained by a toxicogenic or a psychogenic theory [4,5]. The descriptor IEI has been adopted by medical societies including the American Academy of Allergy Asthma and Immunology [6], the American College of Occupational and Environmental Medicine [7], and the American Academy of Clinical Toxicology [8].

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Proponents of the toxicogenic theory of IEI have traditionally been identified as "clinical ecologists", a group who now work under the umbrella of the American Academy of Environmental Medicine and reference themselves as "environmental physicians." However, in the United States, there is no recognized medical specialty of "environmental medicine." It is important to distinguish this group from the legitimate and recognized medical specialty of the American College of Occupational and Environmental Medicine. This latter group has rejected the toxicogenic theory of IEI [7].

The toxicogenic theory of IEI presupposes that chemical intolerance to low levels of virtually any environmental agent accounts for any and all multiorgan system complaints, even in cases with well-documented alternative medical diseases or psychiatric disorders that can account for the symptoms [9,10]. The onset of IEI is nonspecific and unique to patient history, and it may be associated with a specific environmental exposure event or chronic low-level exposure to multiple environmental agents. After onset of IEI, individuals typically report adverse reactions triggered by exposure to multiple environmental agents at doses tolerated by most people. There is no specific time course for symptoms once triggered by a perceived or actual environmental agent. Symptoms can appear suddenly and disappear in a mater of seconds, or they can last for hours or days. The chemicals on the list of inhaled environmental agents implicated are limitless but typically include odorous volatile organic compounds and solvents, many of which are ubiquitous in ambient air. Foods and food additives of all kinds may also trigger reactions. The focus may be on one specific agent that follows a social trend, such as dampness in buildings that is associated with molds. Nonchemical agents such as electromagnetic fields are included, specifically, nonionized electromagnetic fields associated with computer display terminals, cell phones and wireless station phones and their transmission towers, electrical transmission lines and transformers, and electrical wiring in buildings. Proponents of a toxicogenic theory of IEI contribute to patient and plaintiff beliefs about the source and chronicity of IEI by reinforcing or instilling these beliefs through diagnostic and treatment methods deemed unsubstantiated by the scientific community [6–8,11–14].

Functional somatic syndromes

The typical IEI case, whether involved in litigation or not, presents with an idiosyncratic set of nonspecific, multiorgan system complaints including neurological, gastrointestinal, pulmonary, cardiovascular, genitourinary, musculoskeletal, or lymphatic, as well as general systemic complaints of malaise, commonly found in epidemiological studies of the general population in the United States [15] and the Nordic countries [16]. Although the number of different complaints has been reported to be as high as 252 in a clinic sample of 295 IEI patients in Germany, the most common symptoms are cognitive dysfunction with an emphasis on attention and memory difficulties, headache, fatigue, shortness of breath, poor sleep, myalgia, and arthralgia [17]. Some of the more common IEI complaints are also symptoms of depression (impaired attention and memory, fatigue, insomnia or hypersomnia, low energy, anhedonia, and loss of libido) and anxiety (restlessness or feeling keyed up, irritability, difficulty concentrating, mind going blank, muscle tension, and sleep disturbance) [18]. Controlled studies of cognitive dysfunction using neuropsychological testing have found no consistent significant performance decrements in IEI cases [3,19–22]. Any apparent memory deficits were found to be secondary to psychiatric conditions [3,19,23]. Medically unexplained multiorgan system symptoms are commonly identified in about half of patients seen in hospital medical outpatient clinics of all subspecialties in the UK, where these individuals have significantly more associated psychiatric anxiety and affective disorders and attributions about physical causes such as environmental allergy, infectious, and toxic agents [24].

Idiopathic environmental intolerance cases are heterogeneous with respect to the type and etiology of stress-related psychophysiological disorders and psychiatric disorders, but a common characteristic identified is somatization associated with a diagnosis of a somatoform disorder [19,25,26]. One manifestation of somatization is a functional somatic syndrome that has become a fashionable diagnosis [27]. A functional somatic syndrome is not a disease but a description of multiorgan system symptoms with associated lower threshold of pain or discomfort without corroborating medical signs and biomedical abnormalities [28]. The characteristics of fashionable functional somatic syndromes [29,30] include:

- vague subjective medically unexplained multiorgan system complaints
- pseudoscientific theories
- overlap among syndromes
- denial of psychosocial distress or attribution of it to the illness
- female gender
- middle age
- chronic stress and psychological distress
- psychiatric comorbidity
- associated blunting of the stress response.

These characteristics describe the phenomenology of IEI [31,32].

MMPI and MMPI-2

The Minnesota Multiphasic Personality Inventory (MMPI) [33] and its 1989 revision as the MMPI-2 [34] remain the most commonly used and extensively validated psychological instrument in forensic settings to assess psychopathology and exaggeration of symptoms or malingering