



Cognitive-Behavioural Exposure Therapy for Multiple Chemical Sensitivity: A Case Study



Robert L Woolfolk^{1*} and Lesley A Allen²

¹Department of Psychology, Rutgers University, USA

²Department of Psychology, Princeton Medical Institute, USA

*Corresponding author: Robert L Woolfolk, Rutgers University, USA, Email: rwool@psych.rutgers.edu

Submission: May 17, 2018; Published: May 25, 2018

Abstract

A case report of a woman treated with a multi-faceted cognitive-behavioral exposure therapy (CBET) for multiple chemical sensitivity (MCS) is presented. The patient reported substantial improvements in the severity of her somatic symptoms, catastrophic thinking about symptoms, and functioning. Improvements were maintained six months after treatment ended. It is hypothesized that CBET reduces symptoms by reducing central sympathetic activation, maladaptive thinking and avoidant behavior. Long-term efficacy of CBET for MCS should be examined in large clinical trials.

Multiple chemical sensitivity (MCS), also referred to as idiopathic environmental intolerance, is a poorly understood and often intractable condition. MCS is characterized by a wide range of recurrent distressing and often debilitating somatic symptoms, such as fatigue, dizziness, headaches, breathing difficulties, heart palpitations, mucous membrane irritation, and nausea [1]. The symptoms follow and are presumed to be elicited by exposure to various low levels of chemicals, such as pesticides, cleaning products, perfumes, renovation materials including new carpet and paint, and diesel exhaust [2].

There is no consensus on the underlying cause of or treatment of choice for MCS. Although many patients with MCS report salutary effects of chemical avoidance and living in chemical-free environments [3], such approaches have not been supported in controlled clinical research. Treatments encouraging chemical avoidance can result in life-changing outcomes and extraordinary costs, with patients leaving their jobs, homes, and activities for secluded chemical-free environments [3]. Laboratory studies with patients reporting MCS suggest the importance of patients' learning histories and expectations in their somatic reactions to chemicals [4] and provide a rationale for cognitive and behavioral interventions for MCS. Nevertheless, no treatment has been demonstrated in controlled clinical trials to be efficacious for MCS [4]. In this paper, we describe a case study in which a manualized, 8-session, individual CEBT was administered for MCS. This treatment was adapted from our previous work on cognitive-behavioral treatment for somatization [5,6].

Assessment

The patient was evaluated before treatment began (pre-treatment), after treatment (post-treatment), and six months after treatment (follow-up) to assess her symptoms, quality of life, and emotional distress. A medical and psychiatric history, including a phone call with the referring physician, was also conducted prior to treatment to clarify diagnosis. Severity of MCS was assessed with the PHQ-15, a psychometrically-sound measure of 15 somatic symptoms often reported by patients with MCS [7]. Catastrophic thinking about somatic symptoms was examined with modified version of the Pain Catastrophizing Scale in which the word "pain" was replaced by "physical discomfort" [8]. Severity of depression and anxiety was assessed with the Beck Depression Inventory [9] and Beck Anxiety Inventory [10] respectively.

Cognitive-Behavioural Exposure Treatment

The treatment, 4 weekly sessions followed by 4 bi-monthly sessions, included training in relaxation, cognitive restructuring, and guided exposure. After working to establish strong rapport with

the patient, the therapist provided a biopsychosocial explanation for MCS. Diaphragmatic breathing and progressive muscle relaxation were employed to enhance coping with somatic reactions to odors. Cognitive restructuring was utilized to help the patient revise her interpretation of symptoms and combat dysfunctional cognitive tendencies. Once relaxation was mastered and the patient was receptive to the biopsychosocial model of her symptoms, gradual exposure to "dangerous" chemicals was introduced, both in session and between sessions.

The Case

The patient, "Sarah," 58-year-old Caucasian women, was referred for treatment from a physician specializing in Occupational Medicine. She lived alone with her husband and worked full-time in a clerical position. One year before seeking treatment, she noticed feeling severely hypersensitive to cleaning products used at her office. A few months later, after finding rotting food in the office, a co-worker sprayed a significant amount of various air fresheners in their work area to cover up the smell of the rotting food. The

patient reported feelings of malaise and discomfort in her chest soon after encountering her work area. Since that day at work, the patient reported various chemicals, such as scented cleaning products, scented soaps, perfumes, and car exhaust, set off various severe somatic symptoms, including coughing, burning in her chest and nose, gastrointestinal discomfort, dizziness, and fatigue. The symptoms became so distressing that the patient began avoiding work as well as many household chores and activities outside her home to prevent exposure to chemicals and her related physical symptoms.

At the pre-treatment assessment, Sarah scored a 14 on the PHQ scale. Her score indicated modestly severe MCS. Her Catastrophizing Scale score of 23 indicated a significant tendency to worry and think catastrophically about her physical symptoms. She reported relatively low scores on the Beck Depression Scale (7 out of 63) and Beck Anxiety Scale (12 out of 63). One week after treatment ended, Sarah reported experiencing a significant decrease in her somatic symptoms (PHQ score of 7) and catastrophic thinking (Catastrophizing Scale score of 12). Her Beck Depression Scale and Beck Anxiety Scale scores also had dropped, but not significantly in part due to their low initial values. Six-months following the conclusion of treatment, Sarah continued to report significant relief from her MCS symptoms (PHQ = 8) and had returned to work and resumed most of her household chores and pleasurable activities.

Discussion and Conclusion

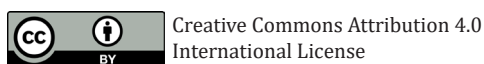
An 8-session individual cognitive-behavioral treatment combined with exposure therapy coincided with a significant and lasting improvement a patient's sensitivity to chemicals and related somatic symptoms. Clinically meaningful reductions were observed in somatic symptoms as well as in catastrophic worries and thinking. No changes in medical or supplemental treatment occurred during the course of the study. The effect of the treatment itself, the passage of time, a therapist's attention, or other factors may account for our findings.

What might be the mechanism of action of cognitive-behavioral exposure therapy for MCS? The relaxation component of treatment

has been hypothesized to reduce central sympathetic activation, which may elicit and/or exacerbate symptoms. The exposure therapy and cognitive component may provide insight into and tools to modify behaviors and thoughts that trigger MCS symptoms. These insights and skills may give patients a greater sense of control over their symptoms and related worries. A multi-faceted behavioral exposure therapy may be a safe and effective treatment for MCS. Treatment trials using a controlled study design are needed to determine the efficacy of this treatment.

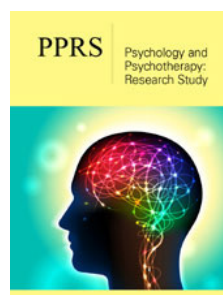
References

1. Terr AI (1986) Environmental illness: a clinical review of 50 cases. *Arch Intern Med* 146(1): 145-149.
2. Kreutzer R (2000) Idiopathic environmental intolerance: case definition issues. *Occup Med* 15(3): 511-517.
3. Gibson PR, Elms ANM, Ridding LA (2003) Perceived treatment efficacy for conventional and alternative therapies reported by persons with multiple chemical sensitivity. *Environ Health Perspect* 111(12): 1498-1504.
4. Das-Munshi J, Rubin GJ, Wessely S (2007) Multiple chemical sensitivities: review. *Curr Opin Otolaryngol Head Neck Surg* 15(4): 274-280.
5. Woolfolk RL, Allen LA (2007) Treating somatization: a cognitive-behavioral approach. Guilford, New York, USA.
6. Allen LA, Woolfolk RL, Escobar JI, Gara MA, Hamer RM (2006) Cognitive-behavioral treatment for somatization disorder: a randomized controlled trial. *Arch Intern Med* 166(14): 1512-1518.
7. Kroenke K, Spitzer RL, Williams JB (2002) The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. *Psychosom Med* 64(2) : 258-266.
8. Sullivan MJL, Bishop SR, Pivik J (1995) The Pain Catastrophizing Scale: Development and validation. *Psychol Assess* 7(4): 524-532.
9. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J (1961) An inventory for measuring depression. *Arch Gen Psychiat* 4: 561-571.
10. Beck AT, Epstein N, Brown G, Steer RA (1988) An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol* 56(6): 893-897.



For possible submissions Click Here

Submit Article



Psychol Psychother Res Stud

Benefits of Publishing with us

- High-level peer review and editorial services
- Freely accessible online immediately upon publication
- Authors retain the copyright to their work
- Licensing it under a Creative Commons license
- Visibility through different online platforms