

Cognitive-Behavioral Therapy for Olfactory Hallucinations and Associated Delusions: A Case Report

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Olfactory hallucinations (OH) are experienced by a substantial minority of people with schizophrenia, often leading to social anxiety, depression and suffering. Yet, despite their prevalence and clinical significance, OH in schizophrenia are under-researched and poorly understood, with scarce information about potential treatments. To address this gap in the literature, the author describes a case report of successfully using Cognitive-Behavioral Therapy for psychosis (CBTp) to address OH, related delusions, as well as mood and social functioning difficulties in a male patient with schizophrenia. The results provide preliminary support for the feasibility and effectiveness of using CBTp to address OH and related delusions in individuals with schizophrenia.

KEYWORDS: psychosis; triggers, behavioral experiments; CBT for psychosis; delusions; social functioning; depression; anxiety

INTRODUCTION

Olfactory hallucinations (OH) are experienced by a substantial minority of people with schizophrenia, with previous reports indicating a lifetime prevalence of up to 35% (Kopala et al., 1994) and a past-month prevalence of 13–17% (Langdon et al., 2011). While less common than auditory or visual hallucinations, OH may result in significant negative clinical and functional consequences. Previous investigations have found OH to be intrusive and distressing (Kopala et al., 1994), often leading to social anxiety and depression (Langdon et al., 2011). Specifically, OHs linked to perceptions of one's own body smell have been linked with self-deprecation (Langdon et al., 2011). Yet, despite their prevalence and clinical significance, OH in schizophrenia are under-researched and poorly un-

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AMERICAN JOURNAL OF PSYCHOTHERAPY, Vol. 70, No. 1, 2016

derstood (Langdon et al., 2011; Arguedas, Langdon, & Stevenson, 2012), and information about potential treatments for OH is scarce. To address this issue, the present article describes a case report of a treatment of a man (“Roger”) with OH and related delusions using Cognitive-Behavioral Therapy for psychosis (CBTp).

Roger (name and identifying information were disguised for privacy) is a 29-year-old, Catholic, Caucasian male living with his parents. He was referred to treatment for medication-resistant OH, somatic and paranoid delusions, along with social anxiety and depressed mood. Roger was brought up in a strict family environment, in which discipline and tidiness were highly valued. He described himself as a child who did well academically, but was socially anxious and had few close friends. His medical and psychiatric histories were notable for symptoms of depression starting at age 15, for which he saw a therapist briefly. He reported beginning to drink alcohol heavily at age 16, claiming that it helped him feel more comfortable socially, as well as endorsed infrequent use of marijuana, but denied use of any other drugs. He stopped drinking at age 21 following a brief hospitalization for alcohol poisoning. Yet, despite his heavy drinking, social anxiety, and bouts of depressed mood, Roger performed well academically in high school and college and was able to graduate with honors from a highly competitive university. Following his graduation, he easily obtained a job at a leading pharmaceutical company. However, he quit the job after a few months and moved to a new city, stating he did not get along with his coworkers and feared he would be fired. This pattern repeated itself a number of times over the next few years. During this period, he started drinking heavily again, resulting in occasional blackouts.

OLFACTORY HALLUCINATIONS

Starting at age 26, Roger began to experience a smell of feces emanating from himself, which he believed was secondary to the Irritable Bowel Syndrome (IBS) he developed two years earlier. His IBS symptoms included abdominal discomfort, bloating, gas, and infrequent bouts of diarrhea. Initially he believed only he could smell the foul odor. However, over time he became convinced that other people could smell it as well, resulting in increased anxiety and avoidance of social situations. He avoided using elevators and public transportation, and limited his traveling to occasions when a companion could accompany him, as he believed people were less likely to comment on his smell in such circumstances. Although he never had many friends, during this period he withdrew from the few friendships he had managed to establish. He also became con-

vinced that his history of work difficulties were related to coworkers trying to get him fired because of his foul smell. Along with these beliefs, Roger developed a number of obsessive behaviors related to self-hygiene. He took several hour-long showers each day, during which he excessively scrubbed himself. He also changed his clothes after each shower. These beliefs and behaviors resulted in further social isolation and dysfunction, ultimately leading to severe depression, suicidal ideation, and hospitalization. Upon hospitalization, a medical work-up ruled out epileptic activity or tumors as a source of his OH, and Roger was given DSM-IV diagnoses of schizophrenia, undifferentiated type (295.90), depressive disorder NOS (311), and alcohol dependence with physiological dependence in sustained partial remission (303.90). Seven months after his discharge, a second hospitalization followed. Over time, Roger was prescribed a number of medications including haloperidol (Haldol), risperidone (Risperdal), quetiapine (Seroquel), and aripiprazole (Abilify), as well as venlafaxine (Effexor), amitriptyline (Elavil), fluoxetine (Prozac), zolpidem (Ambien), and clonazepam. While the medications helped alleviate some of Roger's depressive symptoms and suicidal ideation, his OH and related delusions remained intact. Following his second hospitalization, Roger was referred for CBT treatment to address his OH, related delusions and social difficulties.

PLANNING TREATMENT

In developing Roger's case formulation, a number of predisposing factors seemed significant—a family environment emphasizing discipline and tidiness, longstanding social anxiety, and difficulty developing and maintaining friendships, which resulted in sensitivity to social rejection. Additionally, Roger reported a family history notable for a maternal uncle with psychosis and a maternal grandmother with depression and anxiety. Specific attention was given to beliefs that mediated the relationship between core schemas and delusional belief (Harper, 2013; TARRIER & Johnson, 2006; Moorhead and Turkington, 2001), including Roger's belief that “*other people don't like me*” and “*I'm not as good as other people*”, along with a tendency to jump to conclusions and to use dysfunctional thoughts (i.e., emotional reasoning—feeling something is true means it must be true).

The triggers of Roger's psychosis included the intense stress he experienced about his interpersonal difficulties at work and the development of his IBS, combined with renewal of heavy alcohol drinking. It was hypothesized that the development of IBS focused Roger's attention on his

self-hygiene—he became highly absorbed in his cleanliness and constantly monitored his smell for potential gastrointestinal “accidents.” It is likely that this elevated self-consciousness, combined with olfactory dysfunction that is often associated with both schizophrenia and alcohol dependence, contributed to the development of his OH. Ultimately, these experiences and concerns coalesced in a belief that others’ responses to his social awkwardness and anxious demeanor were related to a foul odor he believed was emanating from himself. When forced to engage in close social interactions, Roger typically endured the experience with great anxiety, avoided eye-contact, and extracted himself from the event as soon as it was possible. As a result, Roger had diminished attentional resources available to accurately process interpersonal experiences, and his delusional beliefs were maintained by his avoidance of social interactions, which limited his ability to test their veracity.

Upon initiation of CBT, Roger presented as a neatly dressed, articulate, though somewhat apprehensive individual. His hygiene was impeccable, and there was no hint of any foul smell emanating from him. He endorsed a number of goals, including “dealing with my smell problem,” increasing social activities, and obtaining and maintaining a job. Initial work focused on developing rapport, familiarizing Roger with the CBT framework, and exploring the narrative of Roger’s experiences and the phenomenology of his symptoms. Alternative explanations for people’s responses to Roger were explored and he was encouraged to generate as many explanations as possible for his experiences and rate them.

REALITY TESTING

Based on Roger’s history, an alternative narrative of his experiences was developed and presented to him. In this narrative, his olfactory experiences stemmed from the chronic stress related to his IBS and work-related experiences and this was combined with olfactory dysfunction associated with heavy drinking and schizophrenia. A review of the precipitating factors and a detailed account of the Roger’s stressors ensued, followed by a discussion of the impact of stress on perception and thinking. Taking advantage of Roger’s high intelligence and educational background, Roger and his psychologist reviewed selected relevant research articles that linked propensity for olfactory dysfunction to his diagnoses (Moberg et al., 1999; Rupp et al., 2004). This discussion was followed by a review of automatic thoughts and a cost/benefit analysis of Roger’s original view vs. the presented alternative narrative (Tarrier & Johnson, 2006; Wright et al., 2009).

While still endorsing almost complete conviction in his delusional beliefs, Roger agreed to test these competing interpretations. In collaboration with his psychologist, a behavioral experiment was designed to test Roger's belief that a strong foul smell was emanating from him and that others could smell it. He agreed to a plan to ride with his psychologist the elevator at the medical center where the treatment was provided. A lunchtime period was selected, as it was a time of day in which the elevators are often very crowded. The plan included 10 elevator rides—an agreed upon a-priori list of verbal and non-verbal behaviors indicating negative responses to foul smell (e.g., people making comments, holding their noses, moving away from Roger, bolting out of the elevator, etc.) was developed by Roger and his psychologist. Given Roger's tendency to avert his gaze when stressed, he was instructed to actively pay attention to other people's responses while in the elevator. Prior to the behavioral experiment, Roger estimated that in eight out of the 10 rides people would respond negatively to him. A review of the experiment's results indicated only one "questionable" behavior (i.e., a person sneezing while in the elevator). A discussion ensued in which Roger acknowledged that the results did not support his view, but he speculated that the elevator rides may have been too brief for people to experience the foul smell.

A follow-up behavioral experiment was designed to test this new hypothesis. Roger and his psychologist planned to have lunch at a restaurant in the vicinity of the medical center. The lunchtime period was selected, as it was a time the restaurant was often very crowded, and customers typically sat in close proximity to each other. As in the previous experiment, an agreed upon list of verbal and non-verbal behaviors indicating negative responses to foul smell was utilized, and Roger was instructed to actively pay attention to other people's responses. The plan included spending at least 30 minutes seated in close proximity to other customers; Roger estimated that more than five people would respond negatively to him. The experiment resulted in no reports of negative behavior. Discussion of the reasons for the discrepancy ensued, including reiteration of the impact of stress on cognition, the influence of allocation of attentional resources and jumping to conclusions, as well as use of emotional reasoning (Tarrier & Johnson, 2006; Wright et al., 2009).

Opportunities to conduct additional reality tests were encouraged: An extended family gathering afforded one such opportunity, providing further evidence of no rejecting behavior by others due to foul odor. Similarly, Roger's enrollment in a cooking class provided additional opportunities to conduct reality testing, again, with successful results. In

parallel, Roger's beliefs about schizophrenia were explored and modified. As a normalizing strategy, Roger and his psychologist explored news and magazine reports describing individuals with histories of mental health disorders and/or IBS who were professionally and interpersonally successful. Finally, explorations of future situations that could trigger concerns about his hygiene were discussed, along with ways to address such situations.

CONCLUSION

At the end of treatment, Roger had made considerable gains in his functioning and symptom management. He still perceived foul smells occasionally, but his delusional conviction was substantially reduced and he was aware that others did not share his hallucinatory experiences. At initiation of treatment, Roger's baseline psychosis scores (as indexed by the Psychotic Symptom Rating Scales [PSYRATS]; Haddock *et al.*, 1999) for amount of preoccupation with the delusions, duration, conviction, amount of distress, intensity of distress and disruption of life, were all maximal (=4). At treatment's end, the scores dropped to 1 (amount of distress, intensity of distress, disruption of life) or 2 (amount of duration, duration, and conviction). Additionally, while still somewhat anxious socially, Roger's depressed mood was greatly reduced, along with much of self-hygiene related behaviors. The symptomatic change also resulted in significant functional improvements—Roger started to explore part-time jobs, continued to engage in initiation of social activities (i.e., cooking class), made some tentative attempts to date, and overall reported increased hopefulness about his professional and interpersonal future. In summary, the results provide preliminary support for the feasibility and effectiveness of using CBTp to address OH and related delusions in individuals with schizophrenia.

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