



Contents lists available at ScienceDirect

Research in Autism Spectrum Disorders

journal homepage: www.elsevier.com/locate/rasd

Increasing behavior incompatible with catatonia in a young adolescent girl with autism spectrum disorder

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ARTICLE INFO

Number of reviews completed is 2

Keywords:

Autism
 Catatonia
 Prompt fading
 Transfer of training

ABSTRACT

Catatonia is a syndrome of motor disturbances and is characterized as a cluster of abnormalities in speech, movement and overall behavior. A common treatment of catatonic symptoms is lorazepam and/or electroconvulsive therapy. Only three papers were found that reportedly used behavioral interventions. Nevertheless, treatment procedures were often partially described, and outcomes were often based on clinician impressions, as opposed to objective measures. The following is an experimental analysis of the effects of a prompt-fading behavioral treatment package on the daily living skills of an adolescent girl with autism spectrum disorder and catatonia. Data were collected on the completion of four activities: blow drying hair; using a hair barrette; vacuuming a rug; and using a paper shredder. Initially, following the verbal direction to engage in the target activity, the instructor provided full manual guidance to assist the participant to complete each component response in the task analysis. Over time, manual prompts were faded. A functional relation between prompt fading and the percentage of independent responses completed across four activities was demonstrated in this paper. As manual prompts were systematically faded, independent responding emerged. Future researchers will want to investigate the effectiveness of prompt fading across different educational settings and across different individuals with similar profiles or with more or less severe symptoms of catatonia.

1. Introduction

Catatonia is a syndrome of motor disturbances (Wilcox & Duffy, 2015) and is characterized as a cluster of abnormalities in speech, movement and overall behavior (DeJong, Bunton, & Hare, 2014; Kakooza-Mwesige, Wachtel, & Dhossche, 2008). Common features of the disorder include increased slowness in verbal and motor movements, difficulty in initiating actions, difficulty completing tasks, reliance on physical or verbal prompts to complete tasks, increase in passivity, lack of motivation (Wing & Shah, 2000), and deterioration in social-emotional behavior and adaptive functions (Bozhurt & Mukaddes, 2010). In its severe form, it is characterized by an absence of speech, absence of movement, and maintenance of rigid postures (Wing & Shah, 2000). Task engagement and task completion is severely impaired. Catatonia can coexist in individuals with autism spectrum disorder (DeJong et al., 2014; Bozhurt & Mukaddes, 2010). The prevalence of catatonic deterioration in autism spectrum disorder is estimated to be 4–17% in adolescents and adults (Dhossche, 2014).

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<https://doi.org/10.1016/j.rasd.2018.09.006>

Received 13 December 2017; Received in revised form 7 September 2018; Accepted 23 September 2018
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In an interesting study conducted by [Breen and Hare \(2017\)](#), the authors recognized the lack of commonly accepted diagnostic criteria for catatonia in the context of autism spectrum disorder. The number and severity of symptoms vary across individuals. In an effort to better assessment, the authors developed a 34-item questionnaire that allows for a measure of symptoms presented, a measure of severity, and a comparison of symptoms over time. By asking questions regarding current behavior compared with past presentation, the questionnaire can possibly be used to measure the effectiveness of interventions provided.

In the general psychiatric population, a common treatment of catatonic symptoms is lorazepam. Lorazepam belongs to a class of drugs known as benzodiazepines, and benzodiazepines are the most frequently used medications to treat catatonic symptoms ([Mazzone, Postorino, Valeri, & Vicari, 2014](#)).

When individuals are unresponsive, or insufficiently responsive, to lorazepam, electroconvulsive therapy (ECT) is often administered ([Dhossche, 2014](#); [Luchini et al., 2015](#); [Wilcox & Duffy, 2015](#); [Mazzone et al., 2014](#)). The optimal length of ECT treatment to prevent relapse of catatonia is unknown ([Dhossche, 2014](#)). Nevertheless, it has been reported that the death toll from catatonia has decreased considerably since the introduction of ECT as a treatment ([Luchini et al., 2015](#)).

[Dhossche and Wing \(2006\)](#) and [Dhossche \(2014\)](#) stated that although many case studies report a successful reduction in catatonic symptoms following pharmacological and/or ECT treatment, there are a very small number of published cases and a lack of controlled studies. It is unclear from the available literature the extent to which pharmacological treatment and/or electroconvulsive therapy is successful in reducing catatonic features in all cases of autism in which catatonic features are present or only with those very severe forms or catatonia ([Dhossche & Wing, 2006](#)). According to [DeJong et al. \(2014\)](#), the published research provides poor outcome measures and incomplete descriptions of treatment procedures.

[Dhossche \(2014\)](#) also stated that only successful treatments, as opposed to unsuccessful examples of treatments, have been published. At this time, there are no systematic studies of the causes, nature, and treatment of catatonia-like conditions in autism.

In 2014, [DeJong et al.](#) reviewed 22 articles describing the treatment of 28 patients with catatonic features. The articles reviewed found limited evidence that the use of ECT, high doses of lorazepam and behavioral intervention may be beneficial. The quality of the existing literature was found to be generally poor. Treatment procedures were often partially described, and outcomes were often based on clinician impressions, as opposed to objective measures.

[DeJong et al. \(2014\)](#) reviewed only three papers that reportedly used behavioral interventions ([Dhossche & Wing, 2006](#); [Hare & Malone, 2004](#); [Shah & Wing, 2006](#)). A search was conducted, and no additional studies were identified. In 2006, [Shah and Wing](#) emphasized (a) the need for verbal and physical prompts to overcome movement challenges, and (b) the need to maintain a predictable structure and a daily routine. They stated that the amount, level, and type of prompts required varies across different people, situations, and actions for the same person. They also stated that light physical touches should be used initially. If minimal touch is not sufficient in affecting change, the authors suggest using a more intrusive prompt to assist in completing the response. As the person makes progress, it is suggested that the level and type of prompt be adjusted. Unfortunately, data were not presented to support these suggestions.

[Dhossche and Wing \(2006\)](#) reported on the treatment of a 15-year old boy who showed a decline in function across years. By the age of 17, he lost much language function, did not retain food in his mouth, required assistance washing and dressing, stopped using the toilet, and was often uncooperative and unresponsive. He was prescribed diazepam and fluoxetine. The authors stated that “an intensive behavioral intervention was started using the same framework set out by [Shah and Wing \(2006\)](#) for the treatment of catatonia in patients with autism. “In a nine-month follow-up, the authors reported an increase in language, independent walking, and a wider range of emotion. Nevertheless, no description of methodology was provided and data were not presented to support these observations.

[Hare and Malone \(2004\)](#) used verbal prompts and environmental changes to increase speed of stair use by an 18-year old man. The authors propped open the doors on the top and bottom of the stairs, placed mirrors to enable the young man to see around corners, and limited the use of the stairs by others. An instructor provided a verbal instruction prior to each step and used a verbal praise statement (e.g., “Well done!”) following a successful action. The investigation resulted in a reduction in time to ascend and descend stairs. In addition, the authors reported that the treatment gains generalized across locations and maintained 18 months after the completion of the study.

[Hare and Malone \(2004\)](#) reported that structured behavioral interventions appear to be the most appropriate forms of treatment for individuals with catatonic symptoms, and according to [DeJong et al. \(2014\)](#), may be associated with fewer risks than ECT. Although most studies did not report side effects of ECT treatment, one study did report an increase in symptoms following the initial treatment ([Wachtel, Griffin, Dhossche, & Reti, 2010](#)), and another a prolonged seizure during the initial ECT session ([Zaw, Bates, Murali, & Benthon, 1999](#)).

The following is an experimental analysis of the effects of a prompt-fading behavioral treatment package on the daily living skills of an adolescent girl with autism spectrum disorder and catatonia. The principles of applied behavior analysis were employed to ensure a measureable change in socially important behavior ([Baer, Wolf, & Risley, 1968](#)). Each of the skills taught was incompatible with catatonic behavior and was treated in a single-case reversal experimental design.

The behavioral treatment package involved the use of positive reinforcement and the careful fading of full manual guidance. Manual prompts have been used to teach many skills to children with autism. For example, [MacDuff, Krantz, and McClannahan \(1993\)](#), and [McClannahan and Krantz \(1999\)](#) used manual guidance to teach children with autism to follow photographic activity schedules. Across successive sessions, these authors systematically replaced manual prompts with graduated guidance, spatial fading, shadowing, and decreased adult proximity. The present study used a similar prompt-fading sequence. By changing the intensity and location of manual prompts, stimulus control was transferred from the “extra” stimuli to the relevant stimuli in the natural environment ([MacDuff, Krantz, & McClannahan, 2001](#)).

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