Clinical Case Studies
1–17

DOI: 10.1177/1534650116672006
ccs.sagepub.com
SAGE

Modified Exposure and Response Prevention for the Treatment of Comorbid OCD-Like Repetitive Behavior and Developmental Disability: A Case Study

Rodney Benson[1], Laurie Stickney[2], Joseph Smetter[2], and Jeremy Steglitz[1]

Abstract

Adults with developmental disabilities are particularly vulnerable to experiencing obsessive-compulsive disorder (OCD). However, the application of evidence-based treatments such as Exposure and Response Prevention (ERP) to individuals with comorbid OCD and developmental disabilities is a relatively new and emerging field of study. The present article presents a case study of modified ERP for the treatment of an adult woman with comorbid OCD-like repetitive behavior and developmental disabilities. Target behaviors, including OCD-like repetitive behavior, verbal agitation, and physical aggression, decreased over the course of the 7-month active treatment phase, and reductions in physical aggression and verbal agitation were maintained during follow-up. This case study provides important lessons about the individual-level and systems-level assessment and treatment of comorbid OCD-like repetitive behavior and developmental disabilities.

Keywords

exposure and response prevention, obsessive-compulsive disorder, developmental disabilities, cognitive behavioral therapy

1 Theoretical and Research Basis for Treatment

Adults with developmental disabilities (DD) are particularly vulnerable to experiencing mental health problems, with approximately 40% meeting diagnostic criteria for a mental health disorder, a rate 6 times higher than that of the general population (Reid, Smiley, & Cooper, 2011). Obsessive-compulsive disorder (OCD) and related disorders are particularly comorbid with DD, including intellectual disability, autistic disorder, Asperger's disorder, and pervasive developmental disorder not otherwise specified (Davis, Saeed, & Antonacci, 2008; Hagopian & Jennett, 2008; Reid et al., 2011). Indeed, some studies suggest that as many as 80% of young adults with OCD have at least one comorbid psychiatric disorder, including speech/DD and pervasive

[1]Depression and Anxiety Specialty Clinic of Chicago, IL, USA
[2]Illinois Institute of Technology, Chicago, USA

Corresponding Author:
Rodney Benson, Depression and Anxiety Specialty Clinic of Chicago, 3047 N Lincoln Ave., Chicago, IL 60657, USA.
Email: rbenson@dascchicago.com

developmental disorders (Pallanti, Grassi, Sarrecchia, cantisani, & Pellegrini, 2011). Psychophysiological and neuroimaging studies suggest that DD may be associated with abnormal autonomic reactivity and brain function implicated in OCD. Structural and functional abnormalities in the amygdala and other limbic system structures have been found in both individuals with DD and OCD, suggesting a common dysfunction in emotional processing (Holzschneider & Mulert, 2011).

The most common treatment for OCD in individuals without comorbid DD is Exposure and Response Prevention (ERP), an empirically based intervention that utilizes values-based graded exposures to feared stimuli to improve self-efficacy and willingness to approach objects or situations that were previously avoided (Abramowitz, 2006; Foa, Yadin, & Lichner, 2012; International OCD Foundation, 2016). ERP has been shown to reduce OCD symptoms and improve quality of life among individuals without DD (Olatunji, Davis, Powers, & Smits, 2013). The research showing the possible effectiveness of an ERP intervention for individuals with comorbid OCD and DD is limited due to this population's unique set of cognitive, behavioral, and social needs, which need to be concurrently addressed in the intervention (Arthur, 2003). A review of the literature published in the past 35 years on tailored treatments for individuals with comorbid OCD and DD revealed only 48 studies largely comprised of single group pharmacological interventions with short-term outcomes related to anxiety symptoms, rather than OCD or quality of life (Hagopian & Jennett, 2008). Several others have examined the effectiveness of alternatives to cognitive behavioral therapy (CBT) and ERP, such as narrative therapy (Foster & Banes, 2009), software therapies (Herbst et al., 2014; O'Connor, 2009), and abbreviated progressive relaxation techniques (Twohig et al., 2010), with mixed findings.

Klein-Tasman and Albano (2007) described the effectiveness of a short-term, intensive CBT intervention for OCD-like behavior in a man with Williams syndrome. The authors reported modest treatment gains using both behavioral and cognitive techniques (i.e., cognitive restructuring). This portion of the intervention required a higher level of intellectual functioning that is not present for all individuals with DD.

Treatment also can be informed indirectly by examining studies of DD and comorbid disorders other than OCD, including specific phobias, anxiety, attention deficit hyperactivity disorder (ADHD), and depression (Hassiotis et al., 2013; Lindsay, Baty, Michie, & Richardson, 1989; Suveg, Comer, Furr, & Kendall, 2006; Wright, 2013). For example, Lang, Mahoney, Zein, Delaune, and Amidon (2011) tested an adapted CBT intervention with individuals diagnosed with autism spectrum disorder, intellectual disabilities, and co-occurring anxiety disorders (not including OCD). Short-term findings revealed that systematic desensitization with an emphasis on social skills training, visual aids, and family involvement reduced self-reported anxiety symptoms (Lang et al., 2011). Davis and colleagues (2008) found that cognitive-behavioral and behavior-analytic techniques led to a reduction in behavioral avoidance, phobia symptoms, and subjective fear in a 7-year-old boy suffering from specific phobias, DD, and severe behavior problems. Collectively, these adapted treatments incorporated visual aids and family involvement. Interventions involving abstract concepts, visualization, and discussion of emotions may be less useful due to the difficulties with abstract reasoning and communication inherent in many developmental disabilities.

Behavioral interventions have been used effectively with individuals across a range of intellectual functioning. For example, case studies have found behavioral reinforcement to be effective in treating people with mild intellectual disability who present with problems not specifically related to OCD (Kozlowski, Mahan, & Matson, 2010; Radstaake et al., 2011). Behavioral interventions have also been applied successfully to treat individuals with DD who are more severely impaired. For example, Vogl and Rapp (2011) reported a study of a 52-year-old woman with Down's syndrome and Alzheimer's type dementia. The treatment consisted of differential reinforcement of a preferred alternative behavior and extinction to reduce problematic behaviors

(Vogl & Rapp, 2011). In another study of an individual with a Down's syndrome and Alzheimer's dementia, Horovitz, Kozlowski, and Matson (2010) reported positive outcomes following "reinforced compliance with a combination of edible reinforcers, verbal praise, and physical contact" (p. 211). A case series by Pence, Aldea, Sulkowski, and Storch (2010) concluded that ERP modified for young adults with OCD and below-average IQ has the potential to significantly reduce OCD symptoms. The modified treatment emphasized parental involvement, simplified language, less reliance on cognitive techniques, use of contingency management techniques, and role modeling by caregivers (Pence et al., 2010). Several additional studies have adapted evidence-based interventions for treatment of comorbid anxiety disorders and DD (Allen, 1989; Boyd, Woodard, & Bodfish, 2013; Singh et al., 2013). However, the literature for comorbid OCD and DD is sparse and generally limited to case studies. Therefore, there continues to be a need for evidence-based modified treatments for comorbid OCD and DD, particularly for adult cohorts. This case study seeks to examine the utility of a modified version of ERP in the treatment of an adult woman with comorbid OCD-like repetitive behavior and DD.

2 Case Introduction

The following case study illustrates a modified ERP approach to the treatment of comorbid OCD-like repetitive behavior and DD in adulthood. Paula (pseudonym) was a 47-year-old Asian American woman living in a residential facility for individuals with DD. She presented with OCD-like repetitive behaviors that were interfering with her daily functioning and jeopardizing her residency at the facility. During treatment and all other interactions with Paula, the treatment team followed all state and professionally mandated ethical standards of treatment and research. Written consent was obtained from both Paula's legal guardian and from the residential treatment facility for all interventions, and the facility confirmed compliance with all ethical and legal standards. State laws did not require additional consent from other governing bodies or Institutional Review Boards.

3 Presenting Complaints

Paula displayed a variety of compulsive and aggressive behaviors that had become increasingly rigid and disruptive to her living environment that she shared with 11 other women. The behaviors had become so overwhelming for staff and other residents that the agency was recommending her removal from the facility. Paula displayed extreme rigidity in her behaviors and preferences regarding her scheduled activities and her physical environment. She wore the same pieces of clothing every day and insisted on washing her clothes and her bedroom floor multiple times per day. She had a fixed routine of chores she had designated for herself every day, such as emptying the dishwasher, putting dishes away, and setting the table that often interfered with the other residents. Paula had strict preferences regarding the time, order, and method in which her chores could be performed regardless of others, as well as who should be allowed to assist her (e.g., housemates). She would monopolize the communal television and other functional living items, and even bar other residents from certain areas of the living space.

Some of Paula's preferences were consistent, while others were more erratic, such as suddenly insisting on rearranging furniture. If she was prevented from completing the tasks or structuring the environment as she wished, Paula often responded with angry verbal outbursts in the form of shouting and crying, and physical aggression in the form of slamming doors and cabinets. Paula's compulsive and aggressive behaviors caused tension among staff and residents because additional time and effort were required to accommodate her preferences and avoid conflict among the residents. The clinical team was contacted by Paula's family and asked to provide services to improve her functioning and treat specific behaviors that threatened the availability of continued care at her residential facility.

4 History

The information provided to the researchers about Paula's disability was limited to what records were still available at the facility. A complete record was not provided. The historical information that was available revealed that Paula displayed developmental delays shortly after birth and experienced failure to thrive during her first year of life. After missing several developmental milestones, she was eventually diagnosed with a Y chromosome abnormality; she is genotypically male and phenotypically female, with a lack of sexual development. Paula also presented with a severe intellectual disability and language impairment. Individuals with Paula's condition may exhibit a range of phenotypic characteristics depending on the type and extent of the Y chromosome deficiency/deletion (Fukui, Watanabe, & Yoshino, 2015). Although of a different etiology, individuals with this condition may have features similar to Turner syndrome, a disorder characterized by a woman born with only one X chromosome.

Paula had been living in the residential facility for the past 25 years in a house with 11 other women and an on-site rotating staff of caregivers. Paula spent most of her time at the house during evenings and weekends. She spent weekdays at her work engaging in daytime programming designed to promote independence, consisting of educational, leisure, and work activities for the residents. Paula's work consisted of life skills training designed to promote competence in activities of daily living and also production skills training, where she learned how to assemble and package products. In addition, Paula visited her sister and parents off-site once per month.

In addition to her developmental disability, Paula had a history of OCD-like repetitive behavior in multiple settings during the duration of her stay at the facility. She displayed rigid and ritualized behavior both at the residential facility and when visiting her parents' home. Paula's history of OCD-like behavior before her admission to the residential facility is unknown. Paula's behavior had increasingly interfered with her daily functioning and jeopardized her residency at the facility. A group of staff members at the facility was formed specifically to address Paula's increasingly disruptive behavior. This diverse group included three members of the facility's executive administrative staff, social workers, residential administrators, and on-site staff caregivers. Based on collateral information provided by the family, Paula had not previously received treatment by health care professionals specifically targeting her inflexible behaviors. Treatment to that point had consisted of case management, monitoring of behavior, medication management, and crisis-aversion techniques.

5 Assessment

The clinical team had access to an assessment of Paula's intellectual functioning that was conducted in 2008 when Paula was 42 years old. Based on the Leiter International Performance Scale performed at that time, Paula's IQ score was 36, which indicates severe intellectual disability (Roid & Miller, 1998). The clinical team also had access to records mentioning a previous psychological evaluation that resulted in a diagnosis of OCD, although it was unclear what type of assessment was used to produce this diagnosis. Although Paula's intellectual disability left her unable to function independently, past reports indicated that she required limited support and supervision in completing tasks of daily living. Despite her ability to function with limited support, she continued to require consistent supervision as a result of the maladaptive behaviors described previously.

Paula displayed significant deficits in expressive language, cognition, and social functioning. Although she was able to understand spoken language, her expressive language was very concrete, and she showed difficulties with verbally communicating thoughts and emotions. She spoke directly only to familiar individuals and took a long time to trust new individuals. Paula was able to behaviorally exhibit a range of emotion, including sadness, happiness, anger,

frustration, and contentment. She expressed these emotions through crying, smiling, laughing, slamming doors, stomping her feet, and exhibiting relaxed behavior. She had difficulty controlling negative emotions when asked by staff to change her preferred behavior. Her behavior was a source of conflict in her residential living environment, and she often clashed with the other residents by forcing them to adhere to her rigid behavioral expectations.

Although Paula had previously received a diagnosis of OCD from a health care professional, there are limitations to accurately diagnosing OCD in populations with impaired verbal functioning. Several elements of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) criteria for diagnosing OCD require the individual to verbally self-report elements of her inner experience. This includes criteria such as, "Recurrent and persistent thoughts, urges, or images that . . . cause marked anxiety or distress" and "attempts to ignore or suppress such thoughts urges or images, or to neutralize them with compulsions" (American Psychiatric Association, 2013). Although there are guidelines from the American Association on Intellectual and Developmental Disabilities (AAIDD) on how to diagnose this population (Schalock et al., 2010), researchers have not reached a consensus about how to diagnose OCD in populations with limited verbal ability, or even whether a diagnosis of OCD is appropriate for this population. Some researchers consider OCD as a dimensional rather than categorical diagnosis, which may aid in the diagnosis of repetitive behaviors in individuals with DD (Barnhill, 2008). Individuals with an intellectual disability can display OCD-like behavioral compulsions that interfere with their daily life and functioning, even if the presentation of the disorder varies from OCD diagnostic criteria outlined in the *DSM* (King, Stavrakaki, & Gedye, 2007). When there is the presence of limited language ability in an individual with ID, the Diagnostic Manual-Intellectual Disability (DM-ID) recommends reducing reliance on self-report questionnaires, scales, or clinical interviews, and instead encourages reliance on structured interviews with knowledgeable informants (Fletcher, Loschen, Stavrakaki, & First, 2007). The clinical team followed these guidelines by interviewing family members and facility caregivers and with the use of primarily behavioral observations, rather than those that relied on Paula's verbal report.

6 Case Conceptualization

Paula's case was conceptualized primarily using information from collateral reporters and behavioral observation. Her limited verbal ability made it difficult to elicit information from Paula about her experience of her symptoms and behavior. Paula's family and the staff members at the residential facility were able to give information about her behavior and her reactions to changes in her environment.

Paula was observed at her living environment and her work environment engaging in compulsive, rigid, and disruptive behaviors regarding her scheduled activities and her physical environment. Again, these behaviors included maintaining a fixed routine of repetitive chores, such as clearing the water pitcher from lunch before others had finished, or strictly controlling the environment, such as monopolizing the appliances in the house or demanding that a light not be turned on. These behaviors had been maintained over time due to crisis management techniques of the staff. When Paula exhibited an OCD-like behavior, such as wanting to use the washing machine multiple times per day at the same time each day, the staff worked to accommodate Paula's requests. However, these accommodations often interfered with other residents' ability to wash their clothes. The staff had difficulty refusing to accommodate Paula's requests due to her severe reactions to being inhibited in her chosen activities. Paula exhibited extreme distress when faced with the inability to control aspects of her environment and engage in her compulsions. Paula's distress manifested as verbal and behavioral agitation and rage. Her verbal agitation included shouting, defiance of requests, and begging to change the situation to her liking. She

would sometimes exhibit physical aggression in the form of slamming doors and cabinets, leading to damage.

As Paula had deficits in cognition and language expression, it was extremely difficult to understand Paula's behavior from her perspective. However, it could be speculated that these behaviors may be connected to biological vulnerabilities that made Paula more likely to have OCD-like behavioral rigidity due to her DD. OCD has been shown to be linked to biological factors (Baxter, 1992). We can also speculate that her environment had a role in the development of her specific set of symptoms. Possibly, the structured environment of the residential facility designed for individuals with developmental disabilities could exacerbate Paula's inclination for more extreme rigid behavior. We know that Paula became distressed if she was not able to complete her chosen task to her liking. Based on this, it could be concluded that engaging in her chosen task served to reduce psychological and physiological distress. In addition, certain social factors may have exacerbated or maintained Paula's behaviors over time. Paula took a long time to get used to people, including her caregivers. Residential staff had historically maintained Paula's behaviors over time, to avoid an emotional outburst and be able to care for multiple residents simultaneously. Although a trusted caregiver might have had an easier time mitigating an emotional outburst due to the increased level of trust, over time, Paula may have learned to expect the trusted staff member to allow her to control the environment to her liking, based on past experiences. Also, the majority of the other residents did not challenge Paula directly when she demanded something in the environment, leading to further behavioral maintenance through social means.

Despite limitations in OCD assessments for Paula, the clinical team used behavioral observations and collateral information to conceptualize Paula as exhibiting OCD-like repetitive behaviors. Based on the wishes of the family and the residential facility, the goal of the treatment was to plan a workable behavioral intervention to improve Paula's flexibility and rigidity of behavior. The secondary goal of the treatment was to improve Paula's relationships with others so that she would no longer be in danger of being forced to leave the residential facility.

7 Course of Treatment and Assessment of Progress

The clinical team consisted of a licensed clinical psychologist, a doctoral student extern, and a social work extern operating out of a private practice in the Chicago area, specializing in the treatment of depression and anxiety disorders. The clinical team consulted with senior facility administration staff at the residential facility who were integral to the decision-making process of Paula's care to determine the desired outcomes of treatment for Paula. The stated goals of treatment were to increase Paula's flexibility so she could continue to live at the residential facility and to decrease target behaviors outlined by the agency, including OCD-like repetitive behavior, verbal agitation, and physical aggression. *OCD-like repetitive behavior* was defined as excessive fixation on obtaining, hoarding, or rearranging items, as well as adhering to routines in completing tasks. *Verbal agitation* was defined as any manner of loud argument, yelling, screaming, threatening, teasing, or crying. *Physical aggression* included physical force directed toward objects (e.g., throwing items, slamming doors) or people (e.g., hitting, kicking, pushing).

Residential staff consisted of daily care workers who functioned as supportive caretakers of daily living in the residential facility that housed Paula and 11 other women with DD. Residential staff members spent the most face-to-face time with Paula and the other residents. Their main responsibilities were to cook meals, work with residents on learning goals, assist in hygiene activities, and maintain order in the house. In addition, residential staff collected daily data on the frequency of certain behaviors of the residents, including goals met, good behavior, and target behaviors (OCD-like repetitive behavior, verbal agitation, and physical aggression). Paula also interacted with a residential coordinator who worked closely and maintained relationships with

Paula and her housemates. All residents attended an occupational center (referred to as "work"), which functioned as a day program where they learned skills and engaged in many rewarding tasks. Paula was close to her teachers at work, and these staff members were also directly involved in her treatment. The social workers for the facility were available to assist the treatment team. Staff also included facility administrators who did not interact with Paula often but were involved in Paula's care and treatment planning.

The treatment plan was composed primarily of behavioral interventions aimed at treating Paula's OCD-like repetitive behavior. Treatment consisted of a modified version of ERP (Foa et al., 2012) that emphasized positive behavioral reinforcement and de-emphasized cognitive techniques to accommodate Paula's limited intellectual abilities and language use. Treatment consisted of leading Paula through exposure tasks that involved prompting her to inhibit target behaviors by waiting or engaging in another task. Positive behavioral reinforcement would be offered as an incentive to engage in the task and a way to reinforce increased flexibility of behavior. As behavioral interventions require frequent implementation for effective behavior change, the clinical team visited Paula at her residence 3 times per week for the duration of the treatment. Therapist-led treatment sessions took place over the course of 7 months 3 times per week and lasted 60 to 90 min.

Due to her intellectual disability, the standard OCD symptom measures were not feasible for use as outcome measures. The treatment team considered behavioral outcomes to be the most reliable way to measure and assess progress. The behavioral outcomes of OCD-like repetitive behavior, verbal agitation, and physical aggression the staff used on an internal basis were well-established targets of documenting and tallying behavioral issues of the residents. Caretaker staff was trained by the residential facility to recognize and record these behaviors as they occurred. The clinical team considered this as a valid indication of her functioning, as the staff was present with Paula 24 hr per day and would be able to notate most behavioral outbursts that occurred to create a comprehensive snapshot of her behavior. Every time Paula would have a behavioral outburst, it would be recorded in her file and made available to the clinical team. The clinical team also collected qualitative data, including reports from staff about Paula's functioning and mood, observations of successes and failures at exposure tasks during interventions, and reports from Paula's family.

Treatment Phase 1: Observation, Rapport Building, and Treatment Planning

The clinical team began interacting with Paula on an observation basis only. Observation consisted of monitoring Paula's daily routines and interaction with staff, residents, and family members. During this time, much care was taken to establish rapport with Paula. It had historically been difficult to gain her trust, as she primarily communicated and interacted only with individuals with whom she had an established relationship. Rapport was built by being present frequently during set times of her daily routine. During observation, information was gathered from staff members about her typical rigid behavioral pattern to get a clearer idea of areas for possible intervention. The clinical team used these data to plan exposure hierarchies to implement ERP paired with positive reinforcement.

Treatment Phase 2: Modified Exposure and Response Prevention

Treatment hierarchies were developed to target specific areas of Paula's behavioral rigidity that interfered with other residents at the facility. Paula had set tasks that she accomplished every day at the same time. Paula performed some of these so often (e.g., washing her clothes 3 times per day) that they interfered with other residents' ability to use the facilities. Some areas that were targeted for intervention included (a) allowing another resident into the kitchen while Paula

emptied the dishwasher; (b) delaying tasks such as emptying the dishwasher, cleaning her room, or doing her laundry; (c) delaying/letting another resident fill/empty the water pitcher at work; (d) delaying emptying trash at work and eventually giving up this task; (e) letting another resident finish tasks at a preferred seat at work; and (f) letting other residents help set the table for dinner. The goal of these tasks was to increase psychological flexibility (and by extension, daily functioning) by exposing her to the discomfort of not being able to complete tasks as desired. After observation, the treatment team discovered that the optimal time to request a task from Paula was before she moved to start her desired behavior. If the team asked Paula to delay her chosen behavior after she had already moved to begin, there was a high likelihood of failure of the task. For example, Paula cleaned her room every day after she came home from work and emptied the dishwasher. To request that Paula attempt to delay this task, the request needed to be given before she moved to gather the cleaning supplies to increase the likelihood of successful task completion.

The therapists offered Paula the option of receiving a reward if she waited to complete her desired behavior, instead of immediately engaging in the behavior. If she chose not to engage in a specific exposure exercise, the exposure was discontinued, and the exposure was attempted again during another visit. The researchers found that even if a task was "failed" on one attempt (i.e., Paula did not wait, went forward with her desired behavior, and received no reward), there was a good chance that she would succeed at the task the next time it was requested of her.

Among the several different rewards that were examined, Paula was most responsive to receiving a cookie, verbal praise, and/or high-fives following completion of exposure tasks. Using food as an incentive was agreed upon by the treatment team based on an established method of token economy already used by the residential staff: Paula would gain points for good behavior, and when she gained enough points, she was allowed to go out for fast food. Food had historically been a strong motivator for Paula. At the beginning of the treatment phase, the cookie reward was offered for every task to increase her interest in the task, and to establish a strong incentive to comply with the request. High-fives and verbal praise were offered each time Paula successfully completed a task. Over time, Paula responded very favorably to the high- fives and praise, and the cookie reward was used less often. The goal was to reduce the cookie incentive and rely mostly on verbal praise and high-fives. The rationale for this was to reduce the burden on the staff to maintain and provide the cookie reward for every task they ask Paula to complete. It was suggested to the residential staff that they could use the cookie reward occasionally as a way to maintain treatment gains long-term.

Overall, the task implementation consisted of the following steps: (a) Talk to Paula about the task we want her to attempt. (b) Verbalize the request to Paula and ask for a verbal assent back. She may or may not give her assent verbally, so it is not required, but helpful. If we are offering a reward for this task, mention that at this time. (c) During the task, if she goes against what is asked of her, gentle reminders and redirection can be used to try to get her back on track. (d) During waiting tasks, it is helpful to brainstorm with her things she can do in the meantime. (e) If she refuses to do the task, no reward should be given and no high-fives. Talk to her about what she did not do, and what will be expected of her in the future (e.g., "We will try again next time"). (f) If she completes the task, reward her with high-fives and praise, and a cookie reward, if a cookie award was offered. Verbalize to her what she did well, and if possible, ask her to verbalize back to you what she did well.

Treatment Phase 3: Consultation and Psychoeducation

Paula's treatment additionally consisted of psychoeducation of residential staff, which was contingent on staff communication and collaboration. Psychoeducation involved information about OCD and basic principles of behavior change. The tasks and the reinforcement system that the

clinical team had implemented were described and discussed, including the rationale for all interventions. Behavior change principles that were discussed included the basis for exposure therapy as well as aspects of behavioral reinforcement, primarily how positive reinforcement strengthens a behavior by providing a consequence that an individual finds rewarding. The clinical team and residential staff also discussed a maintenance plan that focused on integrating Paula's treatment with the staff's daily routine.

To promote buy-in from residential staff, consultant therapists stressed the importance of staff members' roles in Paula's success and encouraged open communication between the therapists and the residential staff. Staff members were responsible for rewarding flexible behaviors outside of therapist-led exposure sessions, monitoring progress, and providing recommendations for emerging target behaviors. Staff collected daily data on the frequency of OCD-like repetitive behaviors, verbal agitation, and physical aggression as partial measures of treatment effectiveness. Staff was also encouraged to offer positive reinforcement rewards prior to Paula's engaging in a routine task as a means of avoiding conflict, rather than diverting Paula's attention after she had initiated the task.

Following the active treatment phase, therapists took on a consultant role for approximately 2 months, in which they facilitated the transfer of treatment tasks to the residential staff and continued to monitor Paula's case in person. The clinical team facilitated the transfer of treatment tasks to the residential staff by organizing psychoeducational meetings to explain the principles and operational procedures used to facilitate change. During this consultation phase, the treatment team coached staff one-on-one during task implementation. Over time, the therapists stepped back from the tasks to observe the staff's implementation of the tasks, providing guidance where needed. The residential staff was instructed on how and when to implement the rewards, including verbal praise and high-fives, and how to reintroduce the cookie reward during maintenance if undesired behavior returned. During and after this phase, the residential staff continued to monitor Paula's progress by noting instances of OCD-like repetitive behavior, verbal agitation, and physical aggression.

Treatment Outcomes

Early in treatment, Paula was successful in completing some tasks involving residents, such as letting others help set the table for dinner, and letting another resident into the kitchen while she was emptying the dishwasher. Early exposure tasks that were focused on delaying a desired behavior were generally successful over time, with Paula demonstrating increased capacity to wait to complete chores and share responsibilities with others at home and at work. It became apparent that using high-fives and verbal praise were as effective as offering a cookie, especially when it came from a trusted staff member. During waiting tasks, Paula was provided with an alternative, enjoyable activity. However, this presented a challenge because many of her preferred activities involved engaging in household chores, which were the targets of intervention. There were mixed results when attempting to introduce alternate activities during the delay tasks. Paula begrudgingly engaged in alternate tasks, such as playing cards or engaging in art projects, preferring to simply wait, eat a snack, or talk to staff while waiting during the delay task.

Over the course of the 7-month active treatment phase, Paula demonstrated encouraging outcomes in OCD-like repetitive behaviors, verbal agitation, and physical aggression (Figures 1-3). Treatment progress stalled during the holiday season when routines were disrupted, although these issues abated when schedules returned to normal, suggesting the importance of consistency in treatment. Concerning OCD-like repetitive behavior, there was a downward trend across the 7-month duration of active treatment, with a spike during the 2-month consultation phase in April 2014 (Figure 1). During the follow-up phase, when staff was required to continue the exposures and reinforcements on their own, there was an observed increase in Paula's OCD-like repetitive

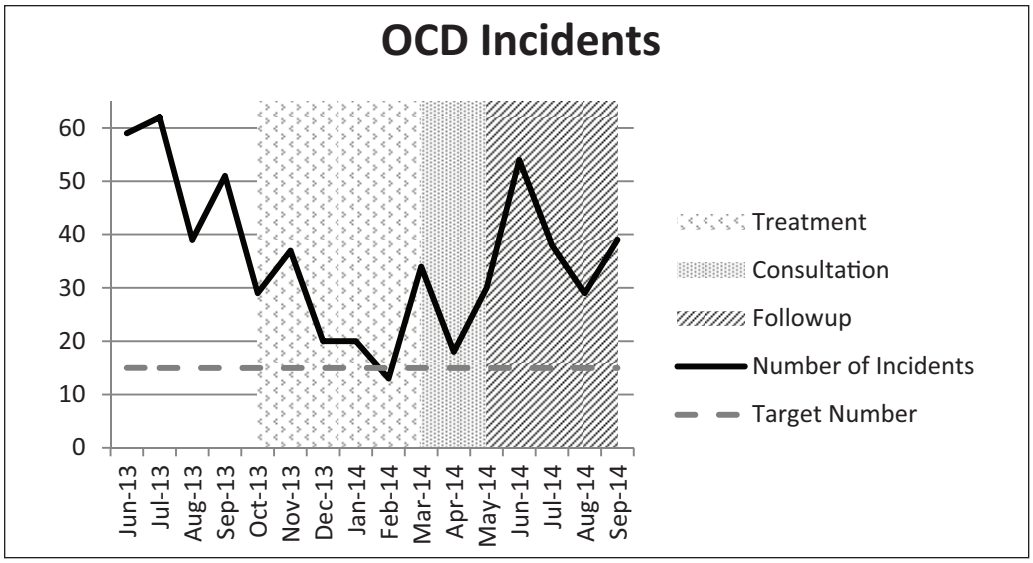

Figure 1. Number of monthly OCD incidents during treatment, consultation, and follow-up.
Note. OCD = obsessive-compulsive disorder.

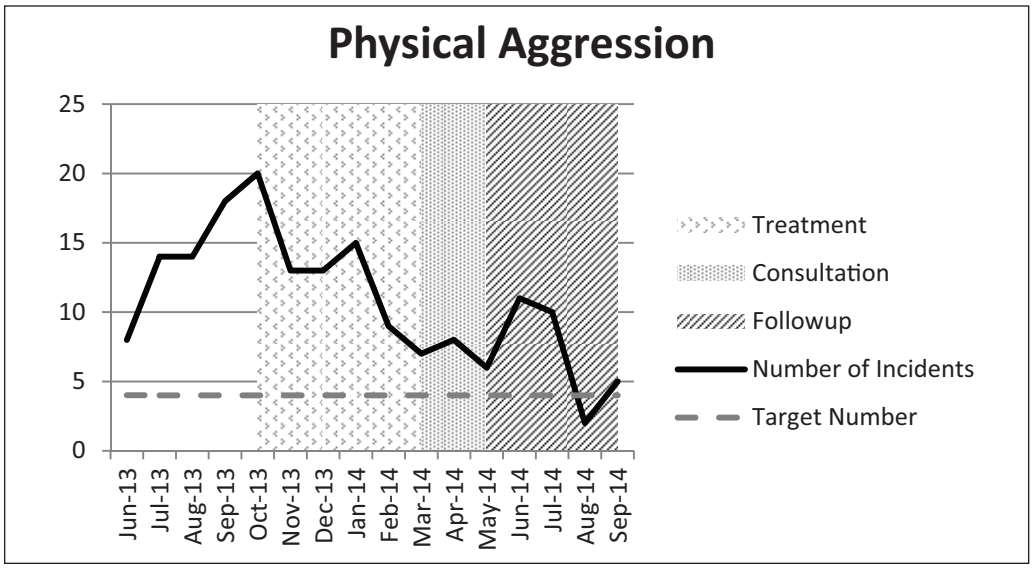

Figure 2. Number of monthly physical aggression incidents during treatment, consultation, and follow-up.

behavior (Figure 1). The number of incidents of physical aggression decreased during the treatment and consultation phases (Figure 2). At one point during the follow-up phase, physical aggression incidents dropped below the target number set by the residential facility for the first time in the measurement period, but then increased again slightly. Results for verbal agitation were mixed, as incidents increased sharply at the beginning of the treatment, decreased through the active treatment phase, and increased during follow-up, representing a loss of treatment gains through the follow-up period (Figure 3).

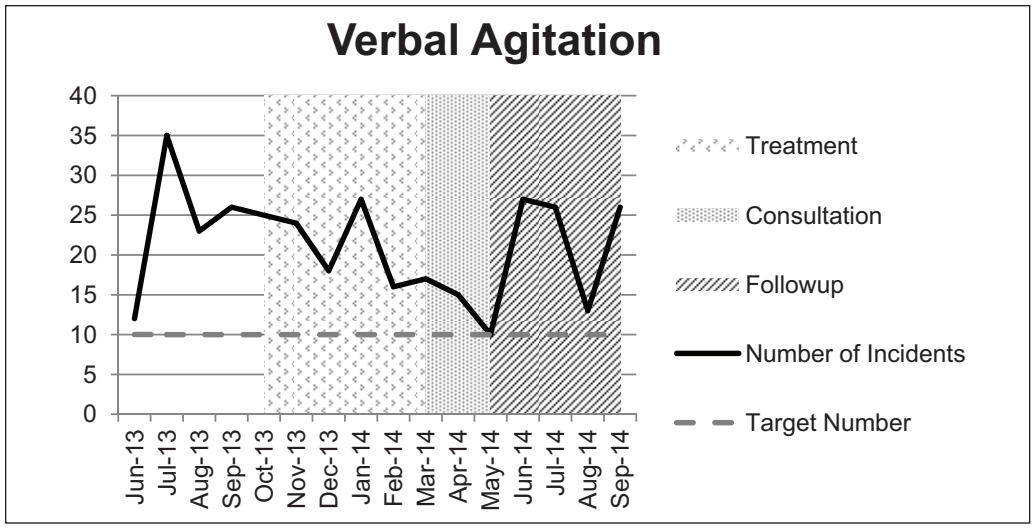

Figure 3. Number of monthly verbal agitation incidents during treatment, consultation, and follow-up.

In general, Paula showed increased flexibility over time. Qualitative data, which included observations by the clinical team and verbal report from staff and family members, also provide evidence of Paula's increased flexibility. Staff members described Paula as being calmer and more willing to listen. Likewise, the family members reported greater flexibility in Paula's ability to change her schedule and to wear different types and colors of clothing. They also reported that she was exhibiting fewer emotional outbursts. Throughout the duration of the intervention, staff and therapists noticed increased flexibility in Paula's approach to specific target tasks (e.g., washing clothes), as well as generalization to other areas of her environment that had not been specifically targeted for intervention, such as letting other residents in the household have access to towels that she had identified as "hers." Before treatment, Paula would have difficulty letting another resident use one of the towels she had designated for herself.

During the treatment phase, inhibiting Paula's desired response after she had begun moving toward her preferred behavior was found to be unconstructive, and the clinical team found that offering a reward was more effective, especially when repeated over several visits. If a task was not completed successfully, discussing the event calmly with Paula about trying again next time also seemed effective in future successes. The clinical team also determined that requesting the behavior change well in advance of Paula's desire to engage in her preferred behavior appeared to increase the likelihood of behavior change. Over time, the completion of early successes made it more likely that Paula would have successes in the future.

8 Complicating Factors

As previously noted, a significant complicating factor in this case was the difficulty in diagnosing Paula's disorder as OCD given the dearth of non-traditional OCD assessment methods. Because the intervention was designed to primarily rely on behavioral components of Paula's presentation, behavioral assessment of her outcomes were needed to monitor progress. The clinical team was not able to be present with Paula during the majority of her day, and thus relied upon the staff's behavioral observations of notating all incidents of aggression, OCD-like repetitive behavior, and verbal agitation. However, there may be individual differences in the types of behaviors each staff member classified as an "incident" and thus could confound the results, although the interrater reliability

was not measured to corroborate this argument. The interrater reliability was not measured due to the limitations the treatment team had with regard to the quantitative data collection as well as the outlined function of the treatment team. The researchers did not collect the quantitative data personally, as they were collected by the staff at the residential facility who were with Paula at all times. Although it would have been preferable to instruct and verify that all residential staff responded and reported Paula's incidents comparably, it was outside the scope of the treatment team's defined responsibilities. However, the residential facility did train its staff internally to perform this function. In addition, the quantitative information provided to the treatment team consisted of number of incidents only. Information was not provided about why each of Paula's incidents was recorded. The researchers were confident that the number of incidents that were reported by residential staff was a good indicator of Paula's actual behavior.

During the treatment phase, the clinical team ran into difficulties due to the significant time it took to establish rapport with Paula. It is difficult to clarify whether early intervention failures were due to lack of trust from Paula and/or to the inherent difficulty in changing rigid behavioral patterns. As the intervention was novel, the clinical team also experienced a learning curve in the way interventions were carried out. As previously mentioned, the clinical team learned that the timing of the request was instrumental to the probability of success of the task.

The time-limited nature of the intervention revealed complicating factors in the types of interventions that could be carried out. The time frame of the intervention was over the fall, winter, and early spring of a midwestern section of the United States. Due to weather concerns, interventions primarily focused on Paula's rigid behaviors that took place indoors. The treatment team was not able to address outdoor rigid behaviors that took place during the summer, such as picking up pinecones in the yard, concern about the placement of the grill cover, or refusing to let other residents change the position of the chairs on the patio.

Finally, the consultation and education of the staff members who interact with Paula day-to-day were complicated due to several factors. To maintain treatment gains achieved by the clinical team, the staff members had to continue the behavioral reinforcement of the delay tasks. This required buy-in, time commitment, and a basic understanding of the behavioral procedure by the staff members. Although the clinical team conducted several training sessions for the staff members, the team was able to individually train only the few staff who were available during the times the clinical team was present at the facility.

9 Access and Barriers to Care

Paula had access to a team of individuals at the residential facility who were dedicated to her treatment and were hopeful for successful resolution of the main issues disrupting the household. However, resources that were diverted for Paula's care took away from the care of the other residents. Namely, the house staff consisted of one to two individuals whose primary function was to provide care to the 11 house residents. The additional burden of requesting the house staff to perform behavioral reinforcements of the ERP intervention to maintain treatment gains may have resulted in low buy-in, burnout of staff, and difficulties disseminating the behavioral intervention among the staff.

Likewise, the mental health professionals working at the residential facility were tasked with providing ongoing training to house staff on the modified ERP intervention for Paula. However, these social workers had a high caseload of individuals for whom they provided care. This diversion of resources for one out of many residents may represent a barrier to Paula's care, if the intervention is not continued effectively to maintain treatment gains.

Last, Paula's family experienced financial burden for this treatment, paying out-of-pocket for the additional treatment resources of the clinical team on top of the Paula's care at the residential facility. Treatment access and duration were shaped partly by access to financial resources for the treatment.

10 Follow-Up

After the consultation phase, the clinical team fully transferred the duties of maintaining Paula's treatment gains through regular ERP interventions to the staff at the residential care facility. The clinical team obtained follow-up data directly from Paula's case manager detailing the number of problematic behavioral incidents that occurred after the clinical team completed their involvement in her care.

11 Treatment Implications of the Case

This case study illustrates the use of a modified ERP treatment for a 47-year-old woman with comorbid OCD-like repetitive behavior and DD. During the active phase of treatment (Phase 2), Paula experienced mixed results in her three target behaviors, including OCD-like repetitive behavior, verbal agitation, and physical aggression. Although gains for physical aggression were maintained somewhat during follow-up with some slight increases, verbal agitation increased, decreased, and increased during follow-up, representing an overall loss of treatment gains through the follow-up period. In addition, there was an observed increase in Paula's OCD-like repetitive behavior during follow-up. The increase in Paula's OCD-like repetitive behavior and mixed results in the verbal agitation and physical aggression were conceptualized by the team to be due to several factors. First, the clinical team ended the active treatment phase during the late winter/early spring of March, and the consultation phase ended during the spring in May. Based on the clinical team's inability to target outdoor summer-specific OCD-like repetitive behaviors, there may have been resurgence in problematic behaviors after the change in season. Second, the effectiveness of the staff members' ability to maintain the gains in flexibility achieved by the clinical team may have also been limited. The staff members may have not implemented the behavioral interventions adequately over the follow-up period to maintain the level of treatment gains achieved by the clinical team. Last, the targeted intervention tasks may have not generalized to Paula's other rigid behaviors. As many of Paula's physical and verbal outbursts were directly linked to her OCD-like repetitive behavior, an increase in her OCD incidents could be associated with increases in verbal agitation and physical aggression incidents. Overall, in spite of the mixed results from the reported data, staff and family reports showed that Paula demonstrated increased flexibility and was able to achieve her goal of remaining in the care of the residential facility.

A notable aspect of the treatment implementation was the type of reward offered to Paula after successful task completion. It may not be possible in all cases to offer a tangible reward to a client as was done in this case. Paula, in particular, was allowed to have a sweet food reward due to the freedoms allowed by a private residential facility. Furthermore, Paula did not have any medical problems (e.g., obesity or diabetes) that would prohibit her from additional sugar consumption. However, over the course of the treatment, the researchers found that Paula responded favorably to the verbal praise and high-fives offered for successful task completion. It could be concluded that using only those rewards could result in good treatment outcomes if future treatment teams are unable to rely upon food as a form of reinforcement.

The present case study is consistent with the current literature (Hagopian & Jennett, 2008) that suggests ERP can be adapted to effectively treat individuals with comorbid OCD and DD. Several studies have demonstrated that varying core elements of ERP, such as augmenting parental involvement, simplifying language, reducing the reliance on cognitive strategies, and increasing the use of contingency management techniques, can significantly reduce short-term OCD-like symptoms in individuals with DD (Pence et al., 2010). Similarly, the present study provides evidence that emphasizing behavioral strategies in an adapted ERP framework can improve OCD-like symptoms in the short term by adding an element of positive reinforcement. Flexibility,

creativity, and experimentation in the treatment approach appear to be crucial for patient engagement and symptom reduction, particularly in identifying salient reinforcers, anticipating target behaviors to prevent conflict, and modifying the target behaviors and reinforcers over the course of treatment.

Although Paula's overall improvement illustrates the progress of only one individual using modified ERP for comorbid OCD and DD, it serves as additional evidence that modified ERP can be a feasible and effective treatment for comorbid OCD and DD in adults that can lead to clinically significant improvements in symptoms and functioning. Emphasis on operant conditioning of flexible behavior, in particular, can improve OCD-like symptoms in the short term. This case study also supports the importance of accurate identification and measurement of target behaviors, while addressing systems-level factors of treatment implementation, such as residential staff buy-in and psychoeducation.

12 Recommendations to Clinicians and Students

The findings of this case study support three specific recommendations for those considering modified ERP for an adult with comorbid OCD and DD. First, the appropriateness and effectiveness of the ERP adaptations are largely reliant on the accuracy of the instruments used for assessing the target behaviors. Existing assessment instruments for OCD symptomatology, given their focus on cognitive content, may be insufficient for individuals with comorbid DD where behavioral elements are the focus of treatment and assessment. Assessment instruments may need to be amended such that target behaviors are operationally defined to allow for regular progress monitoring, which can serve as a basis for decision making for treatment modifications.

Second, findings from the present case study highlight systems-level factors of treatment implementation that are in line with the assess and adapt, convey basics, consult, evaluate, study outcomes, sustain (ACCESS) model of implementation (Stirman et al., 2010). This model emphasizes context-specific training and consultation, session review and feedback, and ongoing support to facilitate sustained use of empirically supported treatments. Given the high morbidity of co-occurring OCD and DD, these individuals often reside in managed residential facilities where a multi-disciplinary team manages their care. It then becomes crucial to consider aspects of trans-disciplinary collaboration when designing, implementing, and monitoring adapted ERP treatments. The team needs to be adequately educated on the basic principles underlying the interventions, particularly the behavioral principles that are the foundation of ERP. Furthermore, given the often demanding schedules of staff of residential facilities, time demands need to be discussed to ensure that adequate effort can be devoted to treatment implementation and progress monitoring. The input of the team is also essential in designing interventions as the team is likely most familiar with the patient's daily schedule and function as well as the time constraints of staff.

Third, staff compliance and treatment fidelity, two significant elements of treatment effectiveness, can be promoted by ensuring a consultation and treatment environment where staff can freely voice their concerns and needs. In terms of sustainability and dissemination, it is important to identify team leaders who demonstrate exceptional treatment knowledge, adherence, and stability in the residential facility. Staff at residential facilities can change during the course of treatment, so the identified team leaders ideally serve as a stable element during the course of treatment, acting as continuous educators and progress monitors. Moreover, given the need for treatment flexibility, ongoing assessment using accurate assessment measures and consultation with team members will increase the likelihood of accurate treatment modifications and improved outcomes.

When the treatment team first conceptualized this case and possible treatment, several treatment options were considered. Habit Reversal Training (HRT) was considered, as this treatment

works to inhibit and replace intrusive behaviors using a standard protocol of increasing awareness, development of a competing response, building motivation, and skill generalization (Woods & Miltenberger, 1995). However, it is generally thought to require a certain level of cognitive ability on the part of the individual to achieve awareness of target behaviors and the ability to self-imposed replacement behaviors. The treatment team thought that Paula would not be able to achieve this level of awareness based on her cognitive abilities. More research is needed to determine whether HRT could be adapted and used as an appropriate treatment option for individuals with DD.

Although the present study provides important lessons about the assessment, planning, and treatment implementation for comorbid OCD and DD, the results need to be considered in the context of several limitations. First, our findings are limited by our study design, which contains a single case without a control condition. It will be important for future research in this area to measure treatment effectiveness using randomized controlled trials (RCTs) with larger sample sizes. RCTs with larger samples can be powered to detect the effectiveness of specific treatment components as well as measure significant effects of various treatment dosages. Second, although our follow-up assessments were longer than those of other current studies, future research needs to address the lack of long-term follow-up assessments using accurate and clinically meaningful instruments. Despite these limitations, the present case study emphasizes the importance of patient-level and systems-level factors in the assessment and treatment of comorbid OCD and DD. It provides further evidence for the effectiveness of ERP modifications to treat OCD symptoms in individuals with DD, and underscores the importance of accurate and regular behavioral assessments. Finally, the present study highlights the critical role of systems-level factors in fostering the sustainability and effectiveness of treatment.

Acknowledgments

The authors would like to thank Paula's family and the residential staff for their support, cooperation, and appreciation through this process. They would also like to thank the anonymous reviewers and editor for their helpful comments and suggestions. Finally, they would like to thank Laurie Stickney, PhD and Chelsy Castro, JD, MA, MSW, for coordinating the on-site delivery of care for this project.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

Abramowitz, J. S. (2006). The psychological treatment of obsessive-compulsive disorder. *The Canadian Journal of Psychiatry-In Review*, *51*, 407-416.

Allen, E. A. (1989). Behavioural treatment of anxiety and related disorders in adults with mental handicaps: A review. *Mental Handicap Research*, *2*, 47-60.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Arthur, A. R. (2003). The emotional lives of people with learning disability. *British Journal of Learning Disabilities*, *31*, 25-30.

Barnhill, L. J. (2008). The diagnosis and treatment of individuals with mental illness and developmental disabilities: An overview. *Psychiatric Quarterly*, *79*, 157-170.

Baxter, L. R. (1992). Neuroimaging studies of obsessive compulsive disorder. *Psychiatric Clinics of North America*, *15*, 871-884.

Boyd, B. A., Woodard, C. R., & Bodfish, J. W. (2013). Feasibility of exposure response prevention to treat repetitive behaviors of children with autism and an intellectual disability: A brief report. *Autism*, *17*, 196-204.

Davis, E., Saeed, S. A., & Antonacci, D. J. (2008). Anxiety disorders in persons with developmental disabilities: Empirically informed diagnosis and treatment. *Psychiatric Quarterly*, *79*, 249-263.

Fletcher, R., Loschen, E., Stavrakaki, C., & First, M. (Eds.). (2007). *Diagnostic Manual-Intellectual Disability (DM-ID): A textbook of diagnosis of mental disorders in persons with intellectual disability*. Kingston, NY: National Association for the Dually Diagnosed Press.

Foa, E. B., Yadin, E., & Lichner, T. K. (2012). *Treatments That Work. Exposure and response (ritual) prevention for obsessive-compulsive disorder: Therapist guide* (2nd ed.). New York, NY: Oxford University Press.

Foster, C., & Banes, J. (2009). Use of a narrative therapy approach with a man with a learning disability: An alternative to cognitive behavioural therapy? *Advances in Mental Health and Intellectual Disabilities*, *3*(1), 52-55.

Fukui, S., Watanabe, M., & Yoshino, K. (2015). 45,X mosaicism with Y chromosome presenting female phenotype. *Journal of Pediatric Surgery, 50*, 1220-1223.

Hagopian, L. P., & Jennett, H. K. (2008). Behavioral assessment and treatment of anxiety in individuals with intellectual disabilities and autism. *Journal of Developmental and Physical Disabilities*, *20*, 467-483.

Hassiotis, A., Serfaty, M., Azam, K., Strydom, A., Blizard, R., Romeo, R., . . . King, M. (2013). Manualised Individual Cognitive Behavioural Therapy for mood disorders in people with mild to moderate intellectual disability: A feasibility randomised controlled trial. *Journal of Affective Disorders*, *151*, 186-195.

Herbst, N., Voderholzer, U., Thiel, N., Schaub, R., Knaevelsrud, C., Stracke, S., & Kuelz, A. K. (2014). No talking, just writing! Efficacy of an Internet-based cognitive behavioral therapy with exposure and response prevention in obsessive compulsive disorder. *Psychotherapy and Psychosomatics*, *83*, 165-175.

Holzschneider, K., & Mulert, C. (2011). Neuroimaging in anxiety disorders. *Dialogues in Clinical Neuroscience*, *13*, 453-461.

Horovitz, M., Kozlowski, A. M., & Matson, J. L. (2010). Compliance training in an adult with dementia of the Alzheimer's type and Down syndrome. *Clinical Case Studies*, *9*, 95-105.

International OCD Foundation. (2016). *What you need to know about obsessive compulsive disorder*. Retrieved from https://iocdf.org/wp-content/uploads/2014/10/What-You-Need-To-Know-About-OCD.pdf

King, R., Stavrakaki, C., & Gedye, A. (2007). Obsessive compulsive disorder. In R. Fletcher, E. Loschen, C. Stavrakaki, & M. First (Eds.), *Diagnostic Manual-Intellectual Disability (DM-ID): A textbook of diagnosis of mental disorders in persons with intellectual disability* (pp. 349-364). Kingston, NY: National Association for the Dually Diagnosed Press.

Klein-Tasman, B. P., & Albano, A. M. (2007). Intensive, short-term cognitive-behavioral treatment of OCD-like behavior with a young adult with Williams syndrome. *Clinical Case Studies*, *6*, 483-492.

Kozlowski, A. M., Mahan, S., & Matson, J. L. (2010). Decreasing work refusals in an adult with intellectual disability. *Clinical Case Studies*, *9*, 399-410.

Lang, R., Mahoney, R., Zein, F. E., Delaune, E., & Amidon, M. (2011). Evidence to practice: Treatment of anxiety in individuals with autism spectrum disorders. *Neuropsychiatric Disease and Treatment*, *7*(1), 27-30.

Lindsay, W. R., Baty, F. J., Michie, A. M., & Richardson, I. (1989). A comparison of anxiety treatments with adults who have moderate and severe mental retardation. *Research in Developmental Disabilities*, *10*, 129-140.

O'Connor, E. (2009). The use of Social Story DVDs to reduce anxiety levels: A case study of a child with autism and learning disabilities. *Support for Learning*, *24*, 133-136.

Olatunji, B. O., Davis, M. L., Powers, M. B., & Smits, J. A. (2013). Cognitive-behavioral therapy for obsessive-compulsive disorder: A meta-analysis of treatment outcome and moderators. *Journal of Psychiatric Research*, *47*, 33-41.

Pallanti, S., Grassi, G., Sarrecchia, E. D., Cantisani, A., & Pellegrini, M. (2011). Obsessive-compulsive disorder comorbidity: clinical assessment and therapeutic implications. *Frontiers in Psychiatry, 2*, 70.

Pence, S. L., Aldea, M. A., Sulkowski, M. L., & Storch, E. A. (2010). Cognitive behavioral therapy in adults with obsessive–compulsive disorder and borderline intellectual functioning: A case series of three patients. *Journal of Developmental and Physical Disabilities*, *23*, 71-85.

Radstaake, M., Didden, R., Bolio, M., Lang, R., Lancioni, G. E., & Curfs, L. G. (2011). Functional assessment and behavioral treatment of skin picking in a teenage girl with Prader-Willi Syndrome. *Clinical Case Studies*, *10*, 67-78.

Reid, K. A., Smiley, E., & Cooper, S. (2011). Prevalence and associations of anxiety disorders in adults with intellectual disabilities. *Journal of Intellectual Disability Research*, *55*, 172-181.

Roid, G. H., & Miller, L. J. (1998). Leiter International Performance Scale–Revised [Measurement instrument]. Wood Dale, IL: Stoelting.

Schalock, R. L., Borthwick-Duffy, S. A., Bradley, V. J., Buntinx, W. H., Coulter, D. L., Craig, E. M., & Shogren, K. A. (2010). *Intellectual disability: Definition, classification, and systems of supports*. Washington, DC: American Association on Intellectual and Developmental Disabilities.

Singh, A., Satheesan, S., Nagpal, A., Nitturkar, A., Shetty, P. H., Nanjundaswamy, M. H., & Math, S. B. (2013). Behavioural therapy in persons with intellectual disability and OCD: An effective augmentation strategy. *Australian and New Zealand Journal of Psychiatry*, *47*, 883-884.

Stirman, S. W., Bhar, S. S., Spokas, M., Brown, G. K., Creed, T. A., Perivoliotis, D., & Beck, A. T. (2010). Training and consultation in evidence-based psychosocial treatments in public mental health settings: The access model. *Professional Psychology: Research and Practice*, *41*(1), 48-56.

Suveg, C., Comer, J. S., Furr, J. M., & Kendall, P. C. (2006a). Adapting manualized CBT for a cognitively delayed child with multiple anxiety disorders. *Clinical Case Studies*, *5*, 488-510.

Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A randomized clinical trial of acceptance and commitment therapy vs. progressive relaxation training for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology*, *78*, 705-716.

Vogl, M., & Rapp, J. T. (2011). Differential reinforcement of other behavior and extinction to reduce loitering and stealing for an adult with an intellectual disability and dementia. *Clinical Case Studies*, *10*, 229-235.

Woods, D. W., & Miltenberger, R. G. (1995). Habit reversal: A review of applications and variations. *Journal of Behavior Therapy and Experimental Psychiatry*, *26*, 123-131.

Wright, K. P. (2013). Cognitive behavioural therapy for anxiety in a man with autism spectrum disorder, intellectual disability, and social phobia. *Advances in Mental Health and Intellectual Disabilities*, *7*, 284-292.

Author Biographies

Rodney Benson, PhD, is the executive director of the Depression and Anxiety Specialty Clinic of Chicago. He is a certified diplomate with the Academy of Cognitive Therapy (ACT) and an assistant professor of psychology at The Feinberg School of Medicine at Northwestern University in Chicago. His primary clinical interests include evidence-based treatment for anxiety and mood disorders.

Laurie Stickney, PhD, is a psychology postdoctoral resident at the Battle Creek VA Medical Center. Her primary interests include post-traumatic stress disorder, anxiety and depressive disorders.

Joseph Smetter, MS, is a clinical psychology PhD candidate at the Illinois Institute of Technology in Chicago. His primary interests involve cognitive behavior therapy and cognitive modeling of mood and anxiety disorders.

Jeremy Steglitz, MPH, MS, is a clinical psychology PhD candidate at Northwestern University in Chicago. His clinical interests include evidence-based treatment for serious mental illness and personality disorders, and his primary research interest include optimizing web-based didactic programs for transdisciplinary evidence-based practice.