Evaluating toilet training outcomes for individuals with autism spectrum disorders

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ABSTRACT

Persons with autism spectrum disorders often have difficulties with independently performing essential toilet skills. Current research has not identified the treatment components that reliably result in positive toilet outcomes for individuals with ASD. In this study, we evaluate the effectiveness of the Toilet Training Treatment Protocol (TTTP) developed at The Vista School. Identifying essential elements of the research protocol and variables predictive of treatment success constitute the study’s long-term goals. Preliminary results show the TTTP as an effective procedure to teach independent toilet skills.

INTRODUCTION

In addressing toilet training, current research has offered limited treatment options, the most frequently used consisting of rapid method (Azrin & Fox, 1971), response restriction training (Avnerick, Meleen, & Duker, 2005), and interval training (Chung, 2007). This and other research has not identified the necessary and sufficient treatment components, including all of these components, which reliably result in positive toilet outcomes for individuals with ASD. Further, the common criticisms of existing literature and the current standard of care suggest further research as warranted.

Too often, toilet training is ignored or not addressed by those working with individuals diagnosed with autism. The reasons for this include: (1) lack of identified component skills; (2) effective training techniques are not well known; (3) instructors lack knowledge or skills to design and/or implement a program; (4) the demands of an effective program are perceived to be incompatible with the individual’s natural environment (i.e., home or school); (5) independent toileting is seen as “unimportant” past a certain age, and (6) use of diapers or pull-ups is perceived to be more efficient or economical than toilet training.

Research is needed in order to identify personal skills and characteristics/traits of individuals who are predictive of successful toilet training or indicate “readiness” for toilet training as well as identify the training conditions and variables that affect the rate and outcome of toilet training.

METHOD

Participants and Setting

Data were collected from four participants with a primary diagnosis of ASD ranging in age from 7-20. Three of the participants attend a private school for children with Autism (i.e., The Vista School); and the remaining participant is attending a full-time special education classroom in his neighborhood school district. See Table 1 for other descriptive statistics.

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age</th>
<th>VABS Teacher Composite Score</th>
<th>VABS Parent Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>Male</td>
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<td>60</td>
<td>61</td>
</tr>
<tr>
<td>Participant 2</td>
<td>Male</td>
<td>17</td>
<td>66</td>
<td>68</td>
</tr>
<tr>
<td>Participant 3</td>
<td>Male</td>
<td>20</td>
<td>62</td>
<td>63</td>
</tr>
<tr>
<td>Participant 4</td>
<td>Male</td>
<td>7</td>
<td>30</td>
<td>26</td>
</tr>
</tbody>
</table>

Data collected included frequency of accidents in the students’ undergarments (urine and feces), frequency of staff prompting use of the bathroom, frequency of spontaneous requests for the bathroom (initiating to the bathroom without being prompted by staff to do so), and latency to void in the toilet.

Interoobserver agreement was only collected for the off-site participant occurred on 10% of treatment days and averaged 98%. Fifty monitoring occurred for participants 2-4 with scores for the three participants averaged 98% (participant 2), 93% (participant 3), and 98% (participant 4).

Procedure

Baseline 1 and 2. Baseline occurs for a minimum of 3 days and includes two phases: without and with increased fluid intake. Data generated include frequency, nature, and time of voids.

Treatment Phase. Participants were taught to request or access the bathroom independently without prompts from staff (using reinforcement and prompt fading procedures), independently manipulate clothing (through reinforcement, chaining, and prompt fading), sit on the toilet to allow sufficient time for voiding without attention from staff, and complete age appropriate self hygiene skills such as cleaning self or washing hands. All voids that occurred in the toilet were reinforced using an item or activity that was restricted across environments. The participants were prompted at set intervals to check their pants for accidents and were reinforced for remaining dry during that interval. Following accidents/incident episodes, participants engaged in behaviors aimed at restoring the environment and over-practicing toilet skills to build behavioral fluency.

As the participants met treatment criteria, dimensions such as amount or complexity of clothing, proximity to the toilet, delivery of reinforcement, volume of fluid intake, and dry pants checks were systematically manipulated to reduce treatment variables slowly without decreasing performance (see Figure 1). The phases include:

- Phase 1: Begin to spend time in classroom
- Phase 2: Fully in classroom
- Phase 3: Non-training bathroom
- Phase 4: Reduce restriction of reinforcer
- Phase 5: Activities outside classroom
- Phase 6: Social praise only for voids
- Phase 7: Reinforcement of volume of fluids
- Phase 8: Discontinue use of sensor

RESULTS AND DISCUSSION

Data for four participants presented in Figures 1 through 3 depict acquisition of urinary continence skills. Participants have all met criteria for mastery of urinary continence. Figure 1 shows each student having similar patterns of acquisition. Progress is slowest in the beginning of training and becomes more rapid as training progresses, suggesting that skills covered in later phases of training are well learned and retained in the earlier phases. Ultimately, parents and teachers want to know when their child or student is “toilet trained.” Data presented in Figures 2 and 3 suggest that for each subject, skills are acquired in the same order. Though not depicted in these figures, it was found that each subject first learns to void when placed on the toilet. This is reflected in the relatively immediate reduction in “accidents” shown by each subject at the beginning of training. Subsequently, each subject learned to request access to the toilet. Initial rates of requesting diminished as subjects learned to reliably void on the toilet after each request. Figure 3 shows, in fact, that after some period of training, each subject begins to urinate after each request to do so (depicted by 100% Success).

The data presented propose to answer to the practical question, “When can we say that a child is toilet trained?” Specifically, data suggest that when all three of the following criteria are present, we may be confident that toilet training has been achieved. These criteria include:

- Fewer than one accident per week.
- Greater than one spontaneous request to access the toilet per school day.
- No voids following requests at least 90% of the time.

Using these criteria, all subjects were successfully toilet trained (Subject 1 by day 82, Subject 2 by day 87, Subject 3 by day 56, and Subject 4 by day 73). Besides adding rigor to the determination of successful toilet training, these criteria may be used as a basis for designating success criteria to guide experimental or clinical interventions.

Figure 2. Frequency of Accidents and Successful Requests for Bathroom

SELECTED REFERENCES


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