A Case Study On Audio Sensitivity In Asd Child

Ms. Gurbani Kohli¹, Dr. N.K. Chandel², Dr. Anant Agarwal³

¹Ph.D Scholar, SGT UNIVERSITY, Gurgaon-Badli Road Chandu, Budhera, Gurugram, Haryana122505

²Professor & Dean, M.A., M.Phil., Ph.D. Dept of Clinical Psychology at SGTHospital & University, Gurgaon, Haryana -122505

³MBBS, DNB – Psychiatry DMC/R/12207 Delhi Medical Council, 2015

Abstract

Exposure therapy along with positive reinforcements were used reduce toilet phobia of a 4 year old boy who was diagnosed by a pediatrician as moderate ASD. In order to do the root cause analysis functional behavior assessment was performed that highlighted child’s auditory hypersensitivity, low cognitive and communication skills. Exposure therapy was performed on the child at the home to work on auditory sensory concerns to reduce the toilet phobia. The training program resulted in significant reduction in auditory sensory concerns while significant progress in the start of toilet training. The findings suggest that exposure therapy, a form of ABA, is an effective tool in solving auditory hypersensitivity in ASD children.

Keywords: ASD, Toilet Training, Exposure therapy, ABA, Auditory hypersensitivity, Toilet phobia, Autism, Early Intervention

Introduction

Anxiety disorders are a common comorbidity for children with autism spectrum disorder (ASD). Specifically, phobia is the most common out of all type anxiety disorders, ranging as frequently as 31% to 64% (Mayes, 2013). Unusual fears have long been associated as a feature of autism
and “toilet phobia” (fear of using the toilet) is one of them (Mayes, 2013). In this study we focus on toilet phobia caused by audio sensitivity.

Auditory hypersensitivity/audio sensitivity is defined as unusual sensitivity to certain sounds but not toothers. (Griffin, 2020). Hearing sensitivity can be due to a medical condition but when there is no medical condition, autism might be the cause of auditory hypersensitivity (Griffin, 2020). Individuals with auditory sensitivity tend to develop phobic conditions, in which a mere possibility of hearing a painful sound could cause fear and anxiety (R. Koegel, 2004).

Exposure therapy that was used in this case is one of the many methods of applied behavior analysis(ABA) (Marks, 1978). In ABA, phobia treatment begins with a detailed analysis of the antecedents, or conditions in which the phobia arises, followed by the problematic behaviors and finally the consequences of those behaviors (Haynes, 2000). These are the ABCs of behavior analysis and understanding them is crucial to successful treatment of any phobia (Haynes, 2000). Exposure therapy is an intervention that encompasses gradually re-introducing the disturbing stimulus at gradually closer ranges until acclimatization occurs (Wiederhold, 2002).

**Ethical Considerations**

1. Prior informed consents were signed by the parents/guardians.
2. Parents/guardians were briefed on the objective and treatment of the research. No pressure was put on them to participate in it.
3. All the sessions were conducted in the presence of the parents.
4. Confidentiality and privacy of the participant was maintained.
5. There was no physical and mental damage made on the participant.
6. All the sessions were conducted when the child was in a playful mood. Small breaks were offered to release stress if any.

**Case report**

A 4 year old boy with no medical condition except an ASD diagnosis was referred to a therapist with specific concern of ASD caused audio hypersensitivity in which the child was fearful of the sound of toilet flush that prevented him from using the toilet. Functional Behavior assessment (FBA) was performed which is an invaluable tool to understanding troubling behaviors in people with autism spectrum disorders (ASDs) (Glasberg, 2006). The tactile sensations related to swirling water were eliminated based on the function assessment of the child as parents reported that the child enjoys playing water. The analysis revealed that the child suffers from ASD induced audio hypersensitivity in which he shuts his ears upon hearing toilet flush and therefore regression behavior is evident in running away from the toilet.

Based on the functional behavior assessment and post approval from parents/ clinic based on http://www.webology.org
ethical considerations stated above, exposure therapy was used as the treatment of choice. The child was exposed to his favorite video game (positive reinforcer) to keep him engaged whilst simultaneously introducing toilet flush sounds in a gradual, hierarchical fashion in the middle of the game. The volume was raised in a step-wise fashion, but the duration of the sound remained constant at 5s throughout. The flush sound was divided into 8 levels with Level 0 being $1/8$th of the actual flush sound, Level 1 as $2/8$th of the actual flush sound and so on with Level 7 as the actual flush sound. Twelve bursts of sound were introduced in a span of 5 minutes of playing time, thus a total of 60s of exposure of sound was done. Parents were trained to perform the intervention 3 times a day for 5 mins each and observe the comfort level of the child. Each volume level was continued for at least 7 days or more depending on the number of fearful episodes of the child with current level of flush sound volume. Interobserver agreement was 95%. The weekly decision on the gradual increase in volume is taken based on the parents’ observations about child’s comfort level in that week.

As per the baseline (fig1), the fearful episodes on entering the toilet were around 14 times week. After the first week of exposure therapy the comfort level with lowest level i.e., Level 0 of flush sound was achieved with just 3 episodes as per fig2, and the decision was made to increase the volume for the next week. At the end of first month, after 84 interventions, the child became comfortable with level 3 of the flush sound. In the 5th week, when volume was further increased to Level 4 ($5/8$th of the normal flush sound) there was a peak in the number fear episodes but as we moved to the 6th week the child became comfortable with the volume level. Finally, in the 10th week normal flush sound or level 7 was introduced. In 12th week the parent was trained to take the child to the toilet, using actual toilet flush sound. Parents reported that the child expressed significantly less fear and did not try to run away from the toilet or shut his ears when hearing the sound of the toilet flush.

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Sound level</th>
<th>Number of fearful episodes per week with increase in sound level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>
To identify problem behaviors in an ASD child with limited speech and cognitive skills, functional behavioral assessment is the first step (Glasberg, 2006). The objective of the study is to eliminate toilet phobia by using a form of ABA therapy. The antecedent that caused the behavior which is audio sensitivity to the toilet flush sound was identified and exposure therapy was used as an intervention to eradicate the audio sensitivity for a period of 12 weeks with a gradual increase in volume in a step wise fashion. The study shows that exposure therapy, a form of ABA therapy, is effective in reducing phobias related to ASD at 4-5 years in a span of around 12 weeks and role of parents in intervention efforts is crucial for extermination of problem behaviors in ASD children. (Burrell, 2012). More studies can be undertaken to generalize the use of Exposure therapy with different phobias, age groups and duration of therapy.

References


