Behavioral Skills Training Program to Improve Personal Safety Skills for a Down Syndrome Adolescent with Mild Intellectual Disability

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Abstract

This study investigated the effectiveness of a Behavioral Skills Training program that aimed to improve the personal safety skills of a Down syndrome adolescent with mild intellectual disability. Personal safety was defined as an ability to recognize touch appropriateness, including four self-protective skills; resisting, removing, telling others, and reporting any inappropriate touch experienced. This single-subject design was administered over three days. The results demonstrated that the program was effective at improving the subject’s personal safety skills due to his achieving 97% of the maximum score. The subject was able to master the skills of recognizing, resisting, removing and telling others with a 100% score, while his reporting skill score was 83%. A repetition of this program has been recommended with a specific focus on developing reporting skills. To improve the program’s effectiveness further, in-situ training, training for test administrators, and the provision of reinforcements has been suggested.

Keywords

Behavioral skills training, down syndrome, mild intellectual disability, personal safety skills,

Jakarta as an urban area has been reported to have the highest rate of child sexual abuse cases in Indonesia. The Indonesian Commission for Child Protection found that in early 2018, at least 58 percent of the total cases of child abuse in Indonesia occurred in Jakarta. This finding shows that child sexual abuse is an important issue in urban areas, especially in Jakarta. As explained by Shakeshaft (in Pedgrift, 2009), children often become victims of sexual violence due to their characteristic docility and naivety, coupled with the ease with which they are manipulated and a lack of social support. In addition, these characteristics are shared by individuals with cognitive limitations, commonly known as people with intellectual disabilities. Pedgrift (2009) stated that individuals with intellectual disabilities are easy targets for sexual assault. Similarly, Kim (2010) claimed that people with intellectual disabilities are at the highest risk of being sexually abused, more so than children without intellectual disabilities.

Additionally, Johnston (2010) suggested that the most likely explanation for the relationship between abuse and intellectual disability is the lack of sexual education provided to individuals with intellectual disability compared to individuals without intellectual disability. Therefore, Whitehouse and McCabe (1997) stated that sex education for people with intellectual disabilities should focus on educating them about the various abilities and strategies that can be used to reduce the risk of abuse or sexual assault.

From the standpoint of sex education, it appears that for individuals with intellectual disabilities, sex education functions as a
preventive measure to protect them from ill-informed sexual activities, either as victims or perpetrators. Therefore, to protect individuals with intellectual disabilities from improper sexual activity, sex education should be a top priority (Herbert, 2005). Unfortunately, sex education is more often taught reactively, to solve problems rather than prevent them (Abbott & Burns in Schaafsma, Stoffelen, Kok & Curfs, 2015).

The lack of sex education for individuals with intellectual disability was also Y’s experience, the subject in this study. Y was 12 years old at the time the study was conducted, and a young adolescent with mild disabilities (IQ = 55, Binet scale). By this age, Y had experienced puberty, which was marked by a wet dream. Y’s sexual experience had also been reinforced by his exposure to pornographic videos, which he had seen without the knowledge of his parents. Unfortunately, until now there had been no sex education provided in response. Therefore, due to Y’s experience of seeing pornographic videos and the development of his sexuality at puberty, appropriate sex education had become very important and was required as soon as possible.

Considering that Y was an adolescent with Down syndrome, the sex education program design needed to address the sexual development issues for Down syndrome people. Van Dyke, McBrien, and Sherbondy (1995) mentioned that given the cognitive and language limitations of people with Down syndrome, personal safety is an important issue to address during sex education. Personal safety programs emphasize the three elements of recognizing, resisting, and reporting situations that jeopardize sexual safety (Wurtele, 2008). Therefore, sexual education for Y needed to be precisely directed toward the development of personal safety skills that included the ability to recognize, reject, and report situations that potentially endangered his sexual safety.

Wurtele, Kast, Miller-Perrin, and Kondrick (1989) asserted that Behavioral Skills Training (BST) is an appropriate program for developing the personal safety skills of individuals with cognitive limitations. In addition, Miltenberger (2008) considered BST as one behavior modification technique that can be used to shape a new behavior. BST uses the principles of operant conditioning to teach new behavior.

Operant conditioning is a kind of learning that based on consequences, either reinforcement or punishment (Skinner in Papalia, Olds & Feldman, 2004). Skinner (in Papalia, Olds & Feldman. 2004) found that people, like other organism, will tend to repeat a response that has been reinforced and will suppress a response that has been punished.

Miltenberger (2008) explained that BST procedures, which combine modeling, instruction, training, and feedback, apply the ABC principles (Antecedent-Behavior-Consequences) of operant conditioning. Modeling and instruction are antecedent strategies (A) that are used to develop appropriate behavior. Instruction and modeling are effective discriminatory stimuli to guide the emergence of new behavior. Training involves performing the behavior exemplified or explained by the instructor, so that the exercise embodies a new behavior (B). When the behavior is performed correctly, feedback in the form of reinforcement is provided to strengthen the behavior. Meanwhile, corrective feedback is given if the behavior exhibited is inappropriate. Corrective feedback serves as an antecedent that triggers appropriate behavior in the next exercise so that the correct behavior is strengthened. Both reinforcement and corrective feedback are consequences determined by the behavior (C).

BST procedures include instruction, modeling, practice, and feedback, all of which are used simultaneously in training sessions to help individuals learn new skills, especially those simulated in a role-playing context (Miltenberger, 2008). The BST program accommodates all learning modalities: auditory (with instruction), visual (via pictures), and kinesthetic (through role play).

Methods

Subject. Y was a 12-year-old adolescent with Down syndrome and a mild intellectual disability (IQ = 55, Binet Scale). At his current age, Y had already experienced puberty by having a wet dream. Y’s sexual experiences had also been stimulated by exposure to pornographic videos, which he had seen on the sly. Unfortunately, as a result, no sex education had been provided in response. Therefore,
considering his experiences of watching pornographic videos and his pubertal sexual development, it was crucial for Y to receive sex education as soon as possible.

Procedure. The BST program was designed to be implemented over three consecutive days, during which two materials were provided each day, by observing the subject’s enthusiasm for joining the program. Notably, younger children have an attention span of approximately 15 minutes. According to Wurtele (2007), if a subject appears to be losing interest, the program can be paused and resumed once interest has returned. Therefore, the duration of material delivery should depend on the child’s ability to understand the material.

Material 1 covered the concept of “the boss of the body,” body information, and body safety. Material 2 covered the concept of private parts and occasions when others are permitted to see and touch one’s private parts. Material 3 covered the concept of body safety rules and the application of those rules. Material 4 covered the concept of self-protection skills. Material 5 covered the concept of reporting skills, while material 6 served as a review and provided an opportunity to practice all the new skills. Before and after the implementation of the program, the subject was given a pre-test and post-test, respectively. Detailed information about the design of the intervention program can be seen in Table 1.

As seen in Table 1, materials 2, 3, 4, 5, 6, and 7 were introduced with questions to ensure that the subject had already mastered the previous material. The questions asked depended upon the previous material. For example, with material 2, the subject was asked who is the boss of the body? (as stated in the first module). Further reviews of previous material were provided if needed.

Measurement of Intervention Program. The WIST III developed by Wurtele (2007) was used to assess pre-test and post-test scores to determine the effectiveness of the BST Program. WIST consists of some questions about how to respond in a hypothetically abusive situation. For example, “What if a neighbor who is a big person and lives near you says to you, ‘Hey, Y, let’s play a real fun game! You take off all your clothes and I’ll take pictures of your penis with my camera!’” The internal consistency of WIST-III has already been established (Cronbach alpha reliability index of 0.75 to 0.90). According to the BST indicators published by Wurtele (2007), when the subject has reached at least 62% of the WIST-III maximum score, the program can be considered successful.

Results

This study was conducted to examine the effectiveness of a BST program for an adolescent with Down syndrome and mild intellectual

<table>
<thead>
<tr>
<th>Day</th>
<th>Stage</th>
<th>Description of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre-test</td>
<td>The provision of “What If Situation Test” (WIST) and additional questions about how to respond to the pictures/movies showing pornographic imagery</td>
</tr>
<tr>
<td></td>
<td>Preliminary</td>
<td>Introducing sticker charts, subject gets a sticker that is affixed to the chart provided whenever the subject answers the questions correctly</td>
</tr>
<tr>
<td></td>
<td>Material 1</td>
<td>Submission of material 1 as stated in the module</td>
</tr>
<tr>
<td></td>
<td>Material 2</td>
<td>Asking questions to ensure the subject had already mastered materials 1 and 2</td>
</tr>
<tr>
<td></td>
<td>Material 3</td>
<td>Asking questions to ensure subject had already mastered materials 1 and 2</td>
</tr>
<tr>
<td></td>
<td>Material 4</td>
<td>Delivering material 4 as stated in the module</td>
</tr>
<tr>
<td></td>
<td>Material 5</td>
<td>Asking questions to ensure subject had already mastered materials 1, 2, 3, and 4</td>
</tr>
<tr>
<td></td>
<td>Material 6</td>
<td>Delivering material 6 as stated in the module</td>
</tr>
<tr>
<td>2</td>
<td>Material 3</td>
<td>Asking questions to ensure subject had already mastered materials 1 and 2</td>
</tr>
<tr>
<td></td>
<td>Material 4</td>
<td>Delivering material 4 as stated in the module</td>
</tr>
<tr>
<td>3</td>
<td>Material 5</td>
<td>Asking questions to ensure subject had already mastered materials 1, 2, 3, and 4</td>
</tr>
<tr>
<td></td>
<td>Material 6</td>
<td>Delivering material 6 as stated in the module</td>
</tr>
<tr>
<td></td>
<td>Post-Test</td>
<td>The provision of WIST and additional questions about how to respond to the pictures/movies showing pornographic imagery</td>
</tr>
</tbody>
</table>
disability. The program aimed to improve five personal safety skills, which consisted of the following: recognizing, resisting, removing, telling others, and reporting.

Quantitative Analysis

A quantitative analysis was conducted by comparing the results of the pre- and post-test scores, which can be seen in Table 2.

Overall, the intervention program increased the subject’s personal safety skills, including the ability to recognize touch appropriateness and to display the four self-protection skills (i.e., the ability to resist, remove, tell other people, and report). Table 2 shows that the subject improved his score from 20% pre-test to 97% of the maximum score after completing the program.

Furthermore, referring to the BST indicator manual published by Wurtele (2007), program success requires the subject reach 62% of the possible maximum score on WIST. Based on these indicators, the BST program was successful at developing the subject’s personal safety skills.

According to the post-test results, the subject appeared to master almost all components of personal safety (i.e., the ability to recognize touch appropriateness and three self-protection skills: the ability to resist, remove, and tell other people) at 100%. Meanwhile, the subject’s ability to report score was 83%, because Y’s descriptions of inappropriate touch situations that could occur when telling others were less accurate. Notably, the ability to report requires strong skills in communication and memorization (Wurtele & Owens, 1997).

Table 2. Pre-Test and Post-Test Comparison

<table>
<thead>
<tr>
<th>Ability</th>
<th>Pre-test Score</th>
<th>Post-Test Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognizing Touch Appropriateness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognizing inappropriate touch (Score 0–3)</td>
<td>1 (33.3%)</td>
<td>3 (100%)</td>
</tr>
<tr>
<td>Recognizing appropriate touch (Score 0–3)</td>
<td>3 (100%)</td>
<td>3 (100%)</td>
</tr>
<tr>
<td>Self-Protection Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resist (score 0–6)</td>
<td>2 (33.3%)</td>
<td>6 (100%)</td>
</tr>
<tr>
<td>Remove (score 0–6)</td>
<td>0 (0%)</td>
<td>6 (100%)</td>
</tr>
<tr>
<td>Telling others (score 0–6)</td>
<td>0 (0%)</td>
<td>6 (100%)</td>
</tr>
<tr>
<td>Report (score 0–6)</td>
<td>0 (0%)</td>
<td>5 (83.3%)</td>
</tr>
<tr>
<td>Total Score (0–30)</td>
<td>6 (20%)</td>
<td>29 (97%)</td>
</tr>
</tbody>
</table>

Observation

Due to the limitations in communication and memory that characterize people with Down syndrome, the subject encountered difficulties in his ability to report. Given his limitations, the subject’s demonstrated ability to report was in fact reasonably good. In addition to the questions contained within the WIST-III, the researchers also provided additional questions during the pre-test and post-test about the subject’s supposed responses to pictures or movies of naked people on his mobile phone. Before the intervention program, the subject did not realize that it was inappropriate to view nude picture or movies, and consequently responded by admitting that he would continue to view this material. However, after the intervention program, the subject understood that he should not view such pictures or movies and claimed he would tell his mother if he encountered this material, although he could not accurately describe exactly what he would tell his mother.

During the instruction process, the subject began to understand the instructions accompanied by images. The use of images also enabled the subject to remember the material provided. For example, when providing material on the rules for protecting the body, the subject found it difficult to repeat the rules for protecting the body if the rule was only delivered verbally. However, when the subject was provided with an image representing the rules for guarding the body, the subject could more easily repeat the rules for protecting the
body by looking at the image. The use of images also facilitated the subject’s recall of the material sequence of self-protection skills, that is the ability to resist, the ability to remove oneself, and the ability to tell others. Previously, the subject found it hard to remember the order of self-protection skills, but if the three images representing the three capabilities were displayed, he could remember the sequence.

Also, the use of explicit words helped the subject more easily understand the instructions given. For example, the word "private part" was not used in the delivery of the material, but rather the direct name of the specific private part was stated.

The provision of instruction also considers the hierarchy of material provided. During the implementation of the program, the mastery of the material is staged. To ensure the subject has understood of the materials provided, each session always begins with a review of previous material. According to the review results, the instructor can repeat the less-understood material before providing new material.

According to the implementation of this BST program, participant modeling through roleplay is very helpful to ensure the subject understands the instruction. Without role play activity, Y found it difficult to remember what to do with the situation described, even though instruction had been provided. However, when role play activities were performed the subject found it easier to remember what to do. Participant modeling was also performed with the materials on how to report. During the explanation of how to report, the subject seemed to have difficulty remembering which events he should report. Researchers then invited the subject to play the role in a scripted scenario. The researcher pretend to be a perpetrator and subject pretended to be a victim. This instructional method enabled the subject to demonstrate the ability to resist, remove themselves from the situation, and tell others. The effectiveness of participant modeling compared to symbolic modeling was apparent when the subject was asked to review material on reporting ability. When using symbolic modeling, the researcher needed to repeat the instructions more than five times so that subject could remember them. However, when using participant modeling the researcher only needed to repeat instructions twice to ensure the subject developed the reporting skills required.

**Discussion**

The results of this study demonstrated that there was an increase in the subject’s WIST score following completion of the program. This supports existing evidence that BST programs increase personal safety skills in individuals with cognitive limitations (Wurtele, Kast, Miller-Perrin, and Kondrick, 1989). Moreover, the results of this study have undermined the assumption that individuals with cognitive limitations are unable to learn preventive concepts (Gilbert; Wurtele and Owens, 1997).

Previously, BST has been widely used for children with limited cognitive abilities, such as preschool children and children with intellectual disabilities, as seen from studies undertaken by Wurtele and colleagues from 1986 to present. The results of Lee and Tang (1998) demonstrated that BST was used to effectively teach personal safety skills to individuals with intellectual disabilities in China. The effectiveness of BST was also demonstrated by Kenny, Wurtele, and Alonso’s study (2012) with preschool children from Latin cultures in the United States. In other words, BST programs can be applied effectively in a range of cultural contexts.

The successful implementation of BST personal safety skills programs might depend upon several factors. Firstly, the use of role play activities. During the implementation of BST, the subject was quicker to understand the material given when he was involved in role-playing activities, in line with the findings of Wurtele, Marrs, and Miller-Perrin (in Wurtele, 2008), who compared participant modeling (where self-protection skills were taught through modeling and repetition) with symbolic modeling (where participants’ observational skills were emphasized). The study found participant modeling to be far more effective than symbolic modeling in teaching personal safety skills. Through active repetition, subjects have the opportunity to practice their skills throughout the program, in line with a meta-analysis conducted by Davis and Gidycz (in Wurtele, 2008), who concluded that BST programs that provide an opportunity for active participation in behavioral skills training, such
as modeling, practice, and reinforcement, typically produce the greatest behavioral changes.

In addition, the provision of feedback during the implementation of this program greatly enhanced the subject’s enthusiasm to continue with the program. This finding supports a study by Miltenberger (2008), which indicated that the provision of feedback is essential for the success of BST. There are two types of feedback provided in BST programs, reinforcement feedback and corrective feedback. When the behavior is performed correctly, reinforcement feedback is provided to strengthen the correct behavior. The form of reinforcement used in this program was praise and stickers. Meanwhile, corrective feedback was provided if the behavior remained inappropriate. Corrective feedback serves as an antecedent to elicit correct behavior during the next exercise to reinforce appropriate behavior (Miltenberger, 2008).

Secondly, BST programs use a variety of case studies to exemplify appropriate and inappropriate situations with different types of offenders and victims of sexual abuse. This follows Miltenberger’s (2008) recommendation that training should involve a variety of role-plays that simulate real-life situations. The closer the training scenarios to real-life situations, the more likely the skills will be generalized to a range of similar real-life situations. The diversity of scenarios provided during the role play and case studies was also found to affect the success of BST in this study.

The results of the current study found that reporting skills appeared more difficult for the subject to acquire than other skills. This is consistent with the results of previous studies (Wurtele and Owens, 1997). Furthermore, Wurtele and Owens (2007) suggested that the reporting skills might be more difficult to learn because they require more memory and communication skills than the other self-protection skills. Therefore, more time was needed for the subject to practice what had been learned, especially his reporting skills.

One of the findings obtained in this study implies that BST principles can also be applied to protect vulnerable individuals from images or movies that contain pornography. This finding was observable from the differences in the subject’s responses when asked about his responses to pornography on mobile phones, before and after the implementation of the program. This result was also consistent with Miltenberger’s (2008) claim that the BST is appropriate for teaching various self-protection skills. Furthermore, it is important to note that the scores obtained in this BST program were based on verbal responses, not from observation of the subject’s responses to a dangerous situation. Fryer (in Wurtele and Owens, 1997) maintained that although the assessment of a real situation is needed to measure the actual response, this might not always be feasible in a personal safety program due to the ethical issues that arise during exposure to dangerous situations. Therefore, it cannot be fully ascertained whether the subject in this study would be able to apply the skills acquired from the intervention program if he was faced with a dangerous situation. BST is designed for delivery in a training setting rather than a natural setting. However, it may be possible that skills taught in such an artificial setting might fail to generalize to natural settings (Miltenberger, 2008).

Another issue that we encountered was that despite the existence of a raw script for the BST program, we could not deliver materials by simply reading the existing text. As instructors, the researchers needed to read the case expressively and in a slow tempo. The researchers needed to ensure that subject understood each sentence before switching to another sentence. Sometimes, the researchers also needed to repeat or modify certain sentences to ensure the subject easily understood them. In other words, although the program used a standard script, the instructors’ abilities should be considered before attempting to implement the program. During the present study, the researchers felt that the readability test was a great help, as it allowed them to gain experience in the administration of BST prior to the actual implementation of the program.

Although the material was presented over a relatively short duration (i.e., a maximum of 15 minutes), there were times when Y appeared unable to concentrate, as observed from his answers that remained inappropriate. During such conditions, the researchers provided an opportunity for the subject to relax and to engage in activities he enjoyed. After having
some time to rest, the subject would return refreshed and able to focus on the material provided. This is characteristic of people with Down syndrome who possess a limited attention span. Therefore, the implementation of this program should also consider the subject’s ability to stay engaged in the material provided in the program.

A limitation of the present study was the absence of a follow-up program. This study only focused on the program that was delivered over three days. Although the behavioral changes observed suggested an increase in the personal safety skills of the subject following the completion of the program, it cannot be determined whether these behavioral changes would continue long-term. Miltenberger (2008) mentioned that an acquired behavior could be lost when there is no more reinforcement. Furthermore, Kenny et al. (2012) found that teaching young children about personal safety, especially children with disabilities, required constant repetition and frequent practice. In the same study, Kenny et al. also found that without repetition, a subject who had completed the BST program was unable to maintain their knowledge of the taught program. Therefore, for personal safety skills training to have a lasting impact, repetition of the material (i.e., more frequent BST) is required.

In addition, to help subjects retain personal safety skills over time, parents could be involved in the BST follow-up program. Wurtele and Kenny (in Kenny et al., 2012) found that children who were exposed to programs that involve discussions between children and parents were more likely to make use of the skills taught in the BST program. Parents can also play a role as instructors who repeat the BST material. Wurtele and Kenny (in Kenny et al., 2012) explained that when parents are trained to become instructors in the program, their children are repeatedly exposed to the prevention information in their natural environment. However, before involving parents to follow the BST program, they should first participate in psychoeducation to ensure they understand the importance of teaching children personal safety skills.

Additionally, to enhance the generalization effects following the administration of the BST program, parents can also strengthen the skills that the children acquired from the program (Miltenberger, 2008) by reinforcing their children with feedback, both reinforcement and corrective, whenever the children practice their personal safety skills. Parents can alternatively provide feedback by repeating personal safety issues to a child when the child performs a behavior that undermines their personal safety skills, such as watching pornography on a mobile device. Thus, teaching personal safety skills should not only be limited to the program sessions, but be directly applied in everyday contexts.

Recent studies have also evaluated the effectiveness of BST using a procedure called “in-situ training” (Miltenberger, 2008). With in-situ training, trainers perform the assessment in a natural setting without the children knowing that they are being assessed. If, during the in-situ training, the subjects fail to perform the behaviors that should have been learned from BST, the trainer intervenes and quickly provides feedback. The trainer then repeats the BST skills to increase the likelihood of children applying them should they encounter a similar situation in the future (Miltenberger, 2008). Some studies suggest that in-situ training is effective for children who fail to apply skills following the completion of the program (Gathridge in Miltenberger et al, 2008). Unfortunately, due to the time limitations of the present study, the researchers were not able to conduct in-situ training with the subject. Therefore, in-situ training should be considered in further research to ensure the program’s effectiveness in a natural setting.

Considering there has been no prior research investigating similar BST programs in Indonesia, the BST program applied in subject’s case consisted of an adaptation of a pre-existing program developed outside of Indonesia. During the adaptation process, the researchers applied most of the cross-cultural adaptation procedures proposed by Beaton, Bombardier, Guillemin, and Ferraz (2000), except the back translation phase. The decision to skip the back translation stage was based on the differences in language and cultural context between Indonesia and the country of the original BST program, which suggested that there are no guarantees that the translation would be suitable for the Indonesian cultural context. In
addition, back translation is only one way to assess the validity of the content (Beaton, Bombardier, Guillemin, & Ferraz, 2000). During the BST adaptation process used in the current study, content validity was assessed through a readability test instead. During the readability test phase, the researchers administered the test to people with Down syndrome whose mental ages were equivalent to the subject of the present study, but with chronological ages that were slightly above the subject. Older adolescents were recruited for the readability test because the researchers were unable to find Down syndrome adolescents with both the same mental and chronological age as Y. Consequently, the implementation of the intervention program was much easier than the readability test, as Y’s higher cognitive capacity enabled him to quickly understand the materials he was presented with.

**Conclusion**

Our BST program successfully enhanced the personal safety skills of our subject, a Down syndrome adolescent with mild intellectual disability. However, reporting skills appeared more difficult to learn than the other four personal safety skills taught within the BST program (recognizing, resisting, removing, and telling others). This finding was linked to the subject’s characteristic cognitive limitations. Wurtele and Owens (2007) suggested that reporting skills seem to be the most difficult to learn because they require more memory and communication skills than other self-protection skills. However, during this study, the increase in personal safety skills was only observed in a training situation. Therefore, further in-situ training is required to ensure that subject is able to transfer his skills into the real world.

**Declaration of Conflicting Interests**

The author(s) declared that there were no conflicts of interest with respect to the authorship of the publication of this article.

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