**The Effectiveness of Behavioral Skills Training (BST) Program to Improve**

**Personal Safety Skills for Down syndrome Adolescent with Mild**

**Intellectual Disability**

Dewi Kumalasari1, Farida Kurniawati2

1. Faculty of Psychology, YARSI University, Jakarta, Indonesia, 10510
2. Faculty of Psychology, Universitas Indonesia, Depok, Indonesia, 16424

email: [dewi.kumalasari@yarsi.ac.id](mailto:dewi.kumalasari@yarsi.ac.id)

This study aimed to examine the effectiveness of Behavioral Skills Training (BST) program in improving personal safety skills for a Down syndrome adolescent with mild intellectual disability. Personal safety is defined as an ability to recognize touch appropriateness, including four self-protective skills, consisting of resisting, removing, telling others, and reporting about any inappropriate touch she/he experiences. The single-subject design was administered in three days. The results show that the program was effective to improved subject’s personal safety skills and reached 97 % of the maximum score. The subject was able to master the skills of recognizing, resisting, removing and telling others with 100% score, while on the reporting skill, the obtained score was 83%. Rerunning the program, specifically with reporting skill as the target, has been recommended to improve reporting skill. Overall, to improve the effectiveness of the program, in situ training, training for trainers, and providing reinforcements are suggested.

*Keywords: behavioral skills training, personal safety skills, Down syndrome, mild intellectual disability.*

**Introduction**

In recent years, Indonesia has been shocked by the revelations of many child sexual abuse cases. In line with the explanation by Shakeshaft (in Pedgrift, 2009), children often become victims of sexual violence due to the characteristics they are associated with: docile, naive, easy to be controlled and have no social support. In addition to children, these characteristics are also possessed by individuals who have cognitive limitations, also commonly known as people with intellectual disabilities. Pedgrift (2009) even stated that individuals with intellectual disabilities could be an easy target for sexual assault. Similarly, Kim (2010) claimed that persons with intellectual disabilities have the highest risk of being sexually abused of children without intellectual disabilities.

Johnston (2010) additionally suggested that the most likely explanation for the relationship between abuse and intellectual disability is a lack of sexual education obtained by individuals with intellectual disability in comparison with 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 the strategies that can be used to reduce the risk of abuse or sexual assault.

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

The phenomenon of the lack of sexual education in individuals with intellectual disability is also experienced by Y, the subject in this study. Y is currently 12 years old is a young adolescent with mild disabilities (IQ = 55, Binet scale). At his current age, Y has experienced puberty that is marked by a wet dream. Y's sexuality experience was also reinforced by the exposure of pornographic videos he had seen without the knowledge of his parents. Unfortunately, until now there has been no sexual education given in response to it. Therefore, with Y's experience of seeing pornographic videos and the development of his sexuality that has entered the puberty phase, sexual education becomes very important to be given as soon as possible on Y.

Consider that Y is a person with Down syndrome, the design of sexual education programs needs to be addressed to the issue of sexual development in Down syndrome people. Van Dyke, McBrien & Sherbondy (1995) mentioned that given the cognitive and language limitations of people with Down syndrome, an important issue about Down syndrome adolescent sexuality is personal safety. Personal safety program emphasizes the three elements of recognizing, resisting and reporting situations that jeopardize sexuality (Wurtele, 2008). Thus, sexual education for Y is more precisely directed to aspects of personal safety abilities that include the ability to recognize, reject and report situations that potentially endanger his sexuality.

Wurtele, Kast, Miller-Perrin, and Kondrick (1989) asserted that the Behavioral Skills Training (BST) is an appropriate program for developing the personal safety skills of individuals with cognitive limitations. Miltenberger (2008) additionally considered BST as one behavior modification technique that can be used to shape a new behavior. BST procedures include instructions, modeling, practices, and feedback, all of which are used simultaneously in training sessions to help individuals perform useful abilities, especially those that could be 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 with mild intellectual disability (IQ = 55, Binet Scale). At his current age, Y had already experienced puberty by having a wet dream. Y’s sex experiences were also stimulated by exposures to pornographic videos, which he had seen on the sly. Unfortunately, no sexual education was provided to him in response. Therefore, considering both the experience of watching pornographic videos and his pubertal sexual development, it is crucial for Y to receive sexual education as soon as possible.

***Procedure***The BST program was designed to be implemented throughout three days, during which two materials were given each day. Material 1 covers the concepts of the boss of body, body information and body safety. Material 2 covers the concepts of private parts and time that it’s allowed for others to see and touch his private parts. Material 3 covers the concepts of body safety rules and the application of those rules. Material 4 covers the concepts of self-protection skills. Material 5 covers the concept of reporting skills. Material 6 serve as a review and practice of all the skills. Before and after the implementation of the program, the subject was given a pre-test and post-test. The detailed information regarding the design of the intervention program can be seen in Table 1 below:

**Table 1.Intervention Program Draft**

|  |  |  |
| --- | --- | --- |
| Day | Stage | Description of Activities |
| 1 | Pre-test | The provision of "What If Situation Test" (WIST) and additional questions about how to respond the pictures/movies showing pornography exposure |
|  | Preliminary | Introducing Sticker charts, Y will get a sticker that will be affixed to the chart that has been provided whenever Y can answer the questions correctly |
|  | Material 1 | Submission material 1 as stated in the module |
|  | Material 2 | Asking questions to ensure Y already mastered the material 1 Delivering material 2 as stated in the module 2 |
| 2 | Material 3 | Asking questions to ensure Y already mastered the material 1 and 2 Delivering materials 3 as stated in the module |
|  | Material 4 | Asking questions to ensure Y already mastered the material 1, 2 and 3 Delivering materials 4 as stated in the module |
| 3 | Material 5 | Asking questions to ensure Y already mastered the material 1, 2, 3 and 4 Delivering materials 5 as stated in the module |
|  | Material 6 | Asking questions to ensure Y has mastered all the previous materials Delivering materials 6 as stated in the module |
|  | Post-Test | The provision of "What If Situation Test" (WIST) and additional questions about how to respond the pictures/movies showing pornography exposure |

**Measurement of Intervention Program**

The What If Situation Test (WIST) III developed by Wurtele (2007) was used to assess pre-test and post-test scores to determine the effectiveness of the BST Program. The internal consistency of the WIST-III had already been established (Cronbach alpha reliability index of 0.75 to 0,90). By BST indicators published by Wurtele (2007), when the subject 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 Behavioral Skills Training (BST) program in improving personal safety skills, that consists of five skills: recognizing, resisting, removing, telling others and reporting skills, for Down syndrome adolescent with mild intellectual disability.

**Quantitative analysis**The quantitative analysis was done by comparing the results of the pre- and post-test scores, which can be seen in Table 2.

**Table 2. Pre-Test and Post-Test Comparison**

|  |  |  |
| --- | --- | --- |
| Ability | Pre-test Score | Post-Test Score |
| **Recognizing Touch Appropriateness** | | |
| Recognizing inappropriate touch (Score 0-3) | 1 (33.3%) | 3 (100%) |
| Recognizing appropriate touch (Score 0-3) | 3 (100%) | 3 (100%) |
| **Self Protection Skills** | | |
| Resist (score 0-6) | 2 (33.3%) | 6 (100%) |
| Remove (score 0-6) | 0 (0%) | 6 (100%) |
| Telling Others (score 0-6) | 0 (0%) | 6 (100%) |
| Report (score 0-6) | 0 (0%) | 5 (83.3%) |
| **Total Score (0-30)** | **6 (20%)** | **29 (97%)** |

In general, it can be said that the intervention program was found to increase personal safety skills, including the ability to recognize touch appropriateness and to display four abilities of self-protection (i.e., the ability to resist, remove, tell other people, and report). Table 2 shows that Y improved his score from 20% to 97% of the maximum score.

Furthermore, referring to the BST indicator manual published by Wurtele (2007) success of the program requires that the subject reach at least 62% of the possible maximum score on WIST. Based on these indicators, the BST program was found to be successful in building Y's personal safety skills that consisted of the ability to recognize touch appropriateness and to demonstrate self-protection skills, as indicated by a score of 97% of the maximum score.

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

**Observation**

Due to the limitations in communication and memory that characterize people with Down syndrome, Y consequently encountered difficulties in his ability to report. Given his limitations, Y’s mastery of the ability to report is in fact quite decent. In addition to the questions contained within the WIST-III, the researchers also provided additional questions in the pre-test and post-test regarding the subject's supposed responses to view pictures or movies of naked people on the mobile phone. Before the intervention program, Y did not realize that it was inappropriate to view the nude picture or movie and consequently responded by admitting that he would continue to view it. However, after the intervention program, Y knew that he should not see the picture or movie and claimed he would proceed to tell his mother, although he could not accurately describe what exactly he would tell his mother.

In the process of giving instructions, Y can more easily understand the instructions accompanied by images. The use of images is also a hint that allows the subject to remember the material provided. For example, on the provision of material on the rules of protecting the body, Y difficult to repeat the rules of protecting the body if the rule is only verbally delivered. When subjects are given an image representing the rules of guarding the body, the subject can more easily repeat the rules of looking after the body by looking at the image. The use of images also facilitates the subject in recalling the material sequence of self-protection capability that is the ability to resist, the ability to remove themselves and the ability to tell others. Previously, the subject is hard to remember the third order of the ability, but if the three images representing the three capabilities are displayed, he can remember it.

Also, the use of explicit words also makes the subject more easily understand the instructions given. For example, the word "private part" is not used in the delivery of the material, but directly on the name of the private part.

Also, the provision of instruction also considers hierarchy of material provided. In the implementation of the program, the mastery of a material is a must-have before moving on to the next material. To be able to ensure the subject's understanding of the materials provided, each session always begins with the previous material review activity. From the results of the review, the instructor can repeat the less-understood subject before giving new material.

From the implementation of the BST program, the participant modeling, through roleplay, is very helpful to make Y more understand the instruction. Without role play activity, Y is difficult to remember what to do with the situation described even though the instruction has been given. Through role play activities, Y is easier to remember what to do. Participant modeling is also done on materials on how to report. In the explanation of how to report, Y seems to have difficulty remembering what things he should report. Researchers then invite Y to play the role with the scenario in the script. The researcher pretends to be the actor and Y pretends to be the victim. In this role-playing activity, Y looks very enthusiastic. Through role-playing activities, Y can demonstrate the ability to resist, remove and tell others. The effectiveness of the participant modeling compared with the symbolic modeling appears in the material of reporting ability. Through symbolic modeling, the researcher needs to repeat the instruction for more than 5 times so that Y remembers it while through the participant modeling the researcher only needs to repeat twice so Y can display the reporting ability as taught.

**Discussion**The aim of the research was to examine the effectiveness of Behavioral Skills Training (BST) program in improving personal safety skills for Down syndrome adolescent with mild intellectual disability. The results of the present study further strengthen the evidence that the BST program is increasing personal safety skills in individuals with cognitive limitations (Wurtele, Kast, Miller-Perrin, and Kondrick, 1989). Moreover, the results of this study have broken the assumption that individuals who have cognitive limitations are unable to learn preventive concepts (Gilbert; Wurtele and Owens, 1997).

Previously, BST has also been widely used for children with limited cognitive abilities, such as preschool children and children with intellectual disabilities, that is seen from studies undertaken by Wurtele and colleagues from 1986 to present. The results of Lee and Tang (1998) show that BST can be effectively used in teaching personal safety skills in individuals with intellectual disabilities in China. The effectiveness of BST has also been demonstrated in the research of Kenny, Wurtele, and Alonso (2012) who use preschool children from Latin cultures in the United States. In other words, it can be said that the BST program can be applied both in the context of western and eastern cultures.

The successful implementation of BST on personal safety skills might be related to several factors. Firstly, the using of role play activities. In the implementation of BST, Y was quicker in understanding 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 (wherein self-protection skill was taught through modeling and repetition) with symbolic modeling (wherein 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 get a chance to practice their skills throughout the program, in line with a meta-analysis conducted by Davis and Gidycz (in Wurtele, 2008), who concluded that the program that provides an opportunity for active participation and the use of behavioral skills training, such as modeling, practice, and reinforcement, typically produces the largest performance level changes.

In addition, in the implementation of this program, the feedback greatly enhanced the enthusiasm of the subject in continuing with the program. This finding is in line with Miltenberger (2008) that giving feedback is also an important part of the success of BST.There are two types of feedback given in the BST program, reinforcement feedback and corrective feedback. When the behavior is done correctly, feedback in the form of reinforcement is given to reinforce the correct behavior. The form of reinforcement used is praise and stickers. Meanwhile, corrective feedback is provided if the behavior raised is not appropriate. Corrective feedback serves as an antecedent that elicits correct behavior in the next exercise so it can be strengthened (Miltenberger, 2008).

Secondly, BST program uses a variety of case studies exemplifying appropriate and inappropriate situations with different types of offenders and victims of sexual abuse, in line with Miltenberger's (2008) statement that training should involve a variety of role-plays that simulate the actual situations the learner is likely to encounter in real life. The closer the training scenarios to the real-life situations, the more likely the skills are to be generalized to the real situations. The diversity of variations in the provided role play and case studies was also found to affect the success of BST in this study.

Results of the current study also indicate that out of the five personal safety skills taught within the BST program, the reporting skill received the lowest scores compared to the other skills, consistent with results of previous studies in which the reporting skill is often achieved with the lowest scores in comparison with other skills (Wurtele and Owens, 1997). Furthermore, Wurtele and Owens (2007) suggested that the reporting skill seems to be the most difficult to learn because it requires more memory and communication skills than the other components of self-protection. Therefore, more time was needed for the subject to practice what had been learned, especially about his reporting skill.

In this study, one of the findings obtained implies that the BST principle can also be applied to protect oneself from images or movies that contain pornography. This finding is observable from the differences in Y’s responses before and after the implementation of the intervention when asked about how to respond to pornography on mobile phones. The result is 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 the BST program are based on verbal responses, and not from observation of the subject's response 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 may not always be feasible in a personal safety program due to the ethical issues brought about by 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. Considering that BST is designed for the setting in training, not for a natural setting, therefore opening the possibility that the taught skills might fail to generalize to natural settings (Miltenberger, 2008).

Recent studies have also evaluated the effectiveness of BST through a procedure called ‘in situ training‘ (Miltenberger, 2008). Within in situ training, trainers design 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 have been learned from BST, the trainer would intervene and quickly provide feedback. The trainer would then repeat the skills taught in BST to increase the likelihood of the children demonstrating the skills when they encounter a similar situation in the future (Miltenberger, 2008). Some studies suggest that in situ training is effective for children who fail to use the taught skills after the program has ended (Gathridge in Miltenberger et al, 2008). Unfortunately, due to the time limitation of the present study, the researchers did not conduct in situ training with subject Y.

In this study, the BST intervention program was conducted in 3 days. Although behavioral changes suggested an increase in the personal safety skills of the subject after the intervention program, it cannot be determined whether these behavioral changes would persist forever. Miltenberger (2008) mentioned that an acquired behavior would be lost when there is no more reinforcement. Furthermore, Kenny et al. (2012) wrote that teaching young children, especially children with disabilities, about personal safety would require constant repetition and more frequent practice. In the same study, Kenny et al. also found that without repetition, a subject who has completed the BST program would not be able to maintain their knowledge of the taught program. Therefore, for personal safety skills to have a lasting impact, repetition of the material (i.e., more frequent BST) is required.

To retain subject’s personal safety skills over time, parents can also be involved in the BST follow-up program. Wurtele and Kenny (in Kenny et al, 2012) stated that children who are exposed to programs that involve discussions between children and parents are 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 of the program, the child will repeatedly be exposed to the prevention information in their natural environment. However, before involving parents to follow BST program, they should first be provided with psychoeducation to advise them of the importance of teaching children personal safety skills.

Additionally, to enhance 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 the personal safety skills taught in the program. Parents can alternatively provide feedback by repeating personal safety issues to a child when the child performs a behavior that does not conform to personal safety skills, such as watching pornography on a mobile device. Thus, the teaching of personal safety skills is not only limited to the context of the sessions of the program but also directly applied in everyday contexts.

Taking into account the fact that there had been no prior research involving similar BST programs in Indonesia, the BST program applied in Y's case is an adaptation of a pre-existing program developed outside of Indonesia. In 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 consideration behind the decision to skip the back translation stage is based on the differences in language and cultural context between Indonesia and the original country from which the BST program was adapted, suggesting that there are no guarantees that the translation would be suitable for the Indonesian cultural context. In addition, the back translation is only one way to look at the validity of the content (Beaton, Bombardier, Guillemin, & Ferraz, 2000). In the process of adaptation of the BST program used in the current study, the validity of the content was assessed through a readability test instead.  
In the readability test phase, the researchers administered the test to people with Down syndrome whose mental ages were equivalent to Y but with chronological ages that were slightly above Y. Older adolescents were recruited for the readability test because the researchers were unable to find persons with Down syndrome with both the mental age and the chronological age same with Y. Consequently, this made the implementation of the intervention program much easier compared to the readability test, as Y's higher cognitive capacity allowed him to more easily and quickly understand the materials he was presented with.

Another issue that we encountered was that despite the existence of a raw script for the BST program, the delivery of materials could not be done simply by 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 Y understood each sentence before switching to another sentence. Sometimes, the researchers also needed to repeat or modify certain sentences to be more easily understood by the subject. In other words, although the program used a standard script, the effects of the instructors' abilities should be considered before attempting to implement the program. In the present study, the researchers felt that the readability test was a great help, as it allowed the researchers to gain experience in the administration of BST prior to the actual implementation of the program.

Although the material was presented in 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 were not appropriate. During such conditions, the researchers provided an opportunity for Y to relax and to engage in activities he enjoyed. After having some time to rest, Y would come back refreshed and able to focus on the material provided. This is in line with the characteristic of people with Down syndrome who possess a limited attention span. Therefore, the implementation of this program should additionally consider the subject's readiness to stay engaged in the material provided in the program.

**Conclusion**

Behavioral Skills Training (BST) program is effective in improving personal safety skills for Y, a Down syndrome adolescent with mild intellectual disability. From the five personal safety skills taught within the BST program (recognizing, resisting, removing, telling others and reporting), the reporting skill received the lowest scores compared to the other skills. This finding linked with the Y’s characteristic who has cognitive limitation. Wurtele and Owens (2007) suggested that the reporting skill seems to be the most difficult to learn because it requires more memory and communication skills than the other components of self-protection. However, in this study, the increase in personal safety skills only seen in training situation. Therefore, in situ training is needed to make sure that Y can apply his skills in the real world.

**Reference List**

Beaton, D.E., Bombardier, C., Guillemin, F., & Ferraz, M.B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *SPINE, 25*(24), 3186–3191.

Herbert, M. (2005). *Developmental problems of childhood and adolescence: Prevention, treatment, and training*. USA: Blackwell Publishing.

Johnston, M. (2010). *Teaching sexual abuse prevention skills to two children with intellectual disabilities through game play.* Thesis. Ontario: Centre for Applied Disability Studies, Brock University.

Kenny, M. C., Wurtele, S. K., & Alonso, L. (2012). Evaluation of a personal safety program with Latino preschoolers. *Journal of Child Sexual Abuse, 21*, 368-385*.* Doi: 10.1007/s10826-012-9671-4.

Kim, Y. (2010). Personal safety programs for children with intellectual disabilities. *Education and Training in Autism and Developmental Disabilities, 45* (2), 312–319.

Miltenberger, R.G. (2008). *Behavior modification: Principles and Procedures* (4th ed.). USA: Thomson Learning, Inc.

Pedgrift, K. (2009). *Sexual abuse prevention program for people with intellectual disabilities*. Dissertation. San Francisco: Faculty of The California School of Professional Psychology, Alliant International University

Schaafsma, D., Stoffelen, J. M. T., Kok, G., & Curfs, L. M. G. (2015). Identifying effective methods for teaching sex education to individuals with intellectual disabilities: A systematic review. *Journal of Sex Research, 52*(4), 412–432, 015. doi: 10.1080/00224499.2014.919373.

Whitehouse, M. A., & McCabe, M. P. (1997). Sex education programs for people with intellectual disability: How effective are they?. *Education and Training in Mental Retardation and Developmental Disabilities, 32* (3), 229-240.

Wurtele, S.K., Kast, L. C., Miller-Perrin, C. L., & Kondrick, P. A. (1989). Comparsion of programs for teaching personal safety skills to preschoolers. *Journal of Consulting and Clinical Psychology, 57*, 505-511.

Wurtele, S.K & Owens, J.S. (1997). Teaching personal safety skills to young children: An investigation of age and gender across five studies. *Child Abuse & Neglect, 21*(8), 805-814*.*

Wurtele, S. K. (2007). *The body safety training workbook: A personal safety program for caregivers to teach their children*. Colorado Springs.

Wurtele, S.K. (2008). Behavioral approaches to educating young children and their parents about child sexual abuse prevention. *JOBA-OVTP, 1* (1), 52-64.

Van Dyke, D. C., McBrien, D. M., & Sherbondy, A. (1995) Issues of sexuality in *Down syndrome*. *Down syndrome Research and Practice*, *3*(2), 65-69. doi:10.3104/*review*s.53.

**Bionote:**

**Dewi Kumalasari**

Dewi Kumalasari is a graduate of the Master's program at the Faculty of Psychology, Universitas Indonesia, specializing in Educational Psychology. She currently works as a lecturer in faculty of psychology, YARSI university.

**Farida Kurniawati**

## Farida Kurniawati is a Doctor of Philosophy from University of Groningen with research for doctoral thesis entitled ‘Teachers’ attitudes, knowledge, and teaching strategies towards students with special educational needs in primary inclusive education in Indonesia’. She currently works as a lecturer in faculty of psychology, Universitas Indonesia.