EFFECT OF SELF DEVELOPMENT PROGRAM AND TRAINING USING VIDEO MODELING METHOD ON DRESSING SKILLS IN CHILDREN WITH INTELLECTUAL DISABILITY

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Abstract
Background: Children with intellectual disability has adaptation function problem, namely self-care skill dressing. Inability to dressing could affect social relationship and dependency with others. The effort to improve self-care skill could be done through self-development program and training using video modeling.

Objective: This study was to investigate the effect of self-development program and training using video modeling on dressing skills in intellectual disability children.

Methods: This was a quasi-experimental study with pretest posttest control group design. Sixty-two children aged between 6-12 years with intellectual disability were recruited using purposive sampling. Participants were divided into two groups (experimental group=31, control group=31). The experimental group was given training using video modeling in 4 sessions, with each for 50 minutes; and self-development program in 4 sessions, in 50 minutes per each, while control group was given self-development program for 8 sessions, with each for 50 minutes. Observation checklist of dressing skill before and after intervention was adopted from Nursing Outcome Classification in Indonesian version. Data were analyzed using Mann-Whitney to compare posttest score between experimental and control group.

Results: The result showed there was a significant difference after intervention between experimental and control group (p=0.041). Eight dressing skills items increased including getting clothes from upper body, buttons clothing, puts clothing on lower body, uses zipper, uses fastener, and removes clothes from upper body.

Conclusion: Self-development program and training using video modeling could increase dressing skills in intellectual disability children aged 6-12 years.

Keywords: Self-development program and training using video modeling could increase dressing skills in intellectual disability children aged 6-12 years.

INTRODUCTION

Children with intellectual disability have trouble of intellectual and adaptation function. One of the adaptation functions is ability to dressing (American Psychiatric Association, 2013). Dressing skills are one of the limitations of children with intellectual disability and become a complex problem especially in the activities of buttoning clothes, zipping, proper clothing selection, clothing purchase and grooming of clothing (Udonwa et al., 2015). The effort and technique of teaching and proper training enable them to improve their self-care skill (Kaur & Kumar). Self-care training in children with intellectual disability could train child’s sensory, speaking ability, fine motor ability, eye and hand coordination development, and ability to imitate (Akhetzyanova, 2014). A training by
giving stimulus shaping and prompting could improve the dressing skill on children with intellectual disability (Kaur & Kumar).

In 2016/2017 school year, there are 1851 students in Yogyakarta Indonesia who have intellectual disability. Bantul District becomes the district with highest number of students with intellectual disability (33.3%). Public special school 1 of Bantul is a special school with the largest number of students with intellectual disability among Bantul District area. According to preliminary study result in the public special school 1 of Bantul, ten children with intellectual disability get a special program of self-development program that contains about taking care of themselves, helping themselves, communication and environmental adaptation. Dressing skill is one of the learning materials in self-development program. This program in the public special school 1 of Bantul was given to students with intellectual disabilities through demonstration methods by teachers, and then students practiced the skills at the end of session. Methods of demonstration and practice on students refer to the provisions set by the Ministry of National Education. However, although the students have got self-development program, based on the observation of dressing skill in students with intellectual disability, of 10 children, 60% was unable to button their clothes, 50% was unable to tie shoelace, and 40% was unable to use zipper.

Learning process of children with intellectual disability is more effective using audiovisual media compared to using image media (Noori & Farvardin, 2016). A review showed that an intervention using video could increase self-care skill in autism children (Wertalik & Kubina, 2017). New skill learning intervention to autistic children using video modeling could improve their independency. Some previous studies use video modeling to teach skills of daily activity in children with intellectual disability and autism showed that video modeling is effective to improve these skills (Gardner & Wolfe, 2013).

Children with intellectual disability need self-development program and training using video media modeling to improve the dressing skills. The study aims to investigate the effect of self-development program and training using video modeling method on dressing skills in children with intellectual disability in the public special school 1 of Bantul.

METHODS

Study design
This was a quasi-experimental study with pretest posttest with control group design. The independent variable was self-development program and self-care training using video modeling method, and dependent variable was dressing skill on intellectual disability children.

Setting
This study was conducted in the public special school 1 of Bantul, Yogyakarta Province, Indonesia. Data collection was conducted on January 8, 2017 to March 23, 2017.

Sample
Sixty-two children with intellectual disability were recruited using purposive sampling and divided into two groups (experimental=31 participants, control=31 participants). The inclusion criteria were children aged between 6-12 years, and parents allowed their children to be participants. The exclusion criteria were children with physical disability and children who did not follow the entire training session.

Intervention
The procedure of this study was explained to the teachers and informed consent was obtained. The screening of participant's social age used Vineland Social Maturity Scales (VSMS). Research assistant performed a pretest assessment of dressing skill by observation of the control group and experimental group prior to intervention. Observation checklist of dressing skill before and after intervention was adopted from Nursing Outcome Classification in Indonesian
version. Every participant was given the opportunity to practice dressing one by one in turn according to the item of dressing skill assessment, and at the same time the research assistant observed and assessed the participant's skill according to the assessment rubric that the researcher has prepared. One research assistant observed one participant. Pretest and posttest were conducted for 5 days with the number of participants of 10-14 every day. Each participant took 10 - 15 minutes to practice how to dress.

The experimental group was given intervention in the form of self-care training using video modeling method and self-development program for four sessions with the duration each session for 50 minutes. Researchers prepared the equipment needed for dressing practice included cloth buttons, pants, skirts, shoes, socks, belts, hangers, drawer, cabinet or closet. The control group was given a self-development program 8 sessions with the duration each session for 50 minutes. Teachers prepared the equipment of dressing included cloth buttons, pants, and skirts.

The procedures of training using video modeling session were: 1) All participants in experimental group (31 children) gathered in one room that has provided the screen to view video, 2) The trainer showed the video of dressing skill for 8 minutes, 3) Participants were divided into small group, 4) The trainer explained and demonstrated regarding the procedure of dressing skill step by step for 15 minutes, 5) The trainer gave participants the opportunity to practice regarding the procedure of dressing skill for 20 minutes, and 6) The trainer evaluated the dress skills of each participant through observation for 7 minutes. While the procedures of self-development program were: 1) The teacher introduced equipment of dressing through images or concrete objects for 5 minutes, 2) The teacher explained regarding the procedure of dressing skill for 10 minutes, 3) The teacher demonstrated regarding the procedure of dressing skill for 15 minutes, 4) Students tried to practice procedure of dressing skill 15 minutes, and 5) The teacher evaluated dressing skill of participants 5 minutes.

**Instrument**

Vineland Social Maturity Scales (VSMS) and Nursing Outcomes Classification (NOC), especially self-care: dressing in Indonesian version were used in this study. Vineland Social Maturity Scales (VSMS) was used to screening the participant's social age. VSMS consists of 117 questions grouped into 8 categories included self-help general (SHG), self-help eating (SHE), self-help dressing (SHD), self-direction (SD), occupation, communication, locomotion, and socialization. Nursing Outcomes Classification (NOC) of self-care: dressing in Indonesian version was used to observe the dressing skill of children with intellectual disability using a Likert scale (1= very unskillful – 5 = very skillful). Items of dressing skill included: choosing clothes, taking clothes from closet, taking clothes from a drawer, wearing upper clothes, buttoning clothes, wearing lower clothes, using a zipper, using fastening, wearing socks, putting on shoes, tying shoes, removing clothes from upper body, and removing clothes from lower body. Total score was 13 – 65, which indicated that the higher score, the better skill level of dressing skill.

Content validity test involved 2 experts in the field of pediatric nursing and 1 nursing expert and translator of Nursing Outcome Classification in Indonesian language. Based on the results of the content validity, one of 14 items were excluded with reason that it has duplication meaning with other items, then both CVR (Content Validity Ratio) of essential item and content validity coefficient were measured. The result of CVR scores were 0.89 (for 3 items) and 1.00 (for 10 items), and the results of content validity coefficient scores were 0.33 (for 3 items) and 1.00 (10 items). It is indicated that CVR and content validity coefficient showed all items have good category. Interclass correlation coefficient (ICC) was done to compare of observers’ variation, which its result was 0.99 (satisfied category).
Ethical consideration
This study has been approved by the Medical and Health Research Ethics Committee (MHREC), Faculty of Medicine UGM. Permission for the research was issued by the Local Regional Development Planning Agency of Bantul District and local government of Yogyakarta, Indonesia.

Data analysis
Data were analyzed using Mann-Whitney and Wilcoxon test.

RESULTS

Participant’s characteristic
The numbers of male and female in both groups are shown in Table 1. The majority of participants were male (64.5%), while Table 2 showed the social age of control group and experimental group was not difference significantly (p>.05). This result revealed that social age both of groups was similar.

| Characteristic       | Total participants (n = 62) | Gender | % |
|----------------------|-----------------------------|--------|---|
|                      |                             | Male   | 40 | 64.5 |
|                      |                             | Female | 22 | 35.5 |

Data were analyzed using Mann-Whitney and Wilcoxon test.

Table 1 The frequency distribution of participants’ gender

| Characteristic       | Control group (n = 31) | Experimental group (n = 31) | P |
|----------------------|------------------------|-----------------------------|---|
| Social age           | Median | Min-max | Median | Min-max | .54 |
|                      | 9.38   | (6.03 – 12.38) | 8.85 | (6.03 – 12.30) | |

Description of dressing skills in children with intellectual disability
The percentages of the dressing skill items score and mean value of each item before and after intervention are shown in Table 3. The item of tied shoes has highest percentage of very unskillful score prior to the intervention (45.2%), while the item that has the highest percentage of very skillful score before intervention are wearing socks, putting on shoes, and removing clothes from lower body (80.6%). After intervention, item with the highest percentage of very unskillful score is tied shoes (45.2%) and the highest percentage of very skillful are putting clothing on upper body and putting on shoes (90.3%). There were 12 items of dressing skill mean score increased after intervention in the experimental group.

Table 2 Participants’ social age in control group and experimental group

| Characteristic       | Control group (n = 31) | Experimental group (n = 31) | P |
|----------------------|------------------------|-----------------------------|---|
| Social age           | Median | Min-max | Median | Min-max | .54 |
|                      | 9.38   | (6.03 – 12.38) | 8.85 | (6.03 – 12.30) | |

Table 3 Description of dressing skills in children with intellectual disability in experimental group

| Dressing skill item | Pretest score Mean (±SD) | Posttest score Mean (±SD) |
|---------------------|--------------------------|---------------------------|
|                     | 1  2  3  4  5           | 1  2  3  4  5             |
| Selecting clothes   | f (%) t (%) f (%) t (%) f (%) t (%) f (%) t (%) f (%) t (%) | 4.3 2.0 0.0 2.0 0.0 7.0 4.0 4.0 0.9 |
| Getting clothes from closet | f (%) t (%) f (%) t (%) f (%) t (%) | 3.2 6.5 0.0 0.0 0.0 7.1 22.6 22.6 0.9 |
| Getting clothes from drawer | f (%) t (%) f (%) t (%) f (%) t (%) | 2.3 2.9 2.0 2.0 2.0 4.0 3.5 4.0 1.2 |
| Putting clothes on upper body | f (%) t (%) f (%) t (%) f (%) t (%) | 2.5 6.5 0.0 0.0 0.0 6.5 25.0 25.0 1.3 |
| Buttoning clothes   | f (%) t (%) f (%) t (%) f (%) t (%) f (%) t (%) | 3.4 6.5 0.0 0.0 0.0 6.5 25.0 25.0 1.3 |
| Putting            | f (%) t (%) f (%) t (%) f (%) t (%) f (%) t (%) | 4.2 2.0 0.0 2.0 0.0 2.0 1.5 2.0 1.5 |

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Table 4 shows that there was a significant difference in posttest dressing skill score of children with intellectual disability in experimental group and control group (p < .05). It is suggesting that dressing skill score in experimental group was higher than the control group.

Table 4 Comparison of posttest dressing skill score of experimental group and control group using Mann-Whitney

| Dressing skill score | Control group (n = 31) | Experimental group (n = 31) | p  |
|----------------------|------------------------|----------------------------|----|
|                      | Median (Min – max)     | Median (Min – max)         |    |
| Posttest             | 54 (13-64)             | 60 (17-65)                | .04*|

*Statistically significant (p < .05)

Table 5 Comparison of pretest dressing skill score and posttest dressing skill score of experimental group using Wilcoxon test

| Group        | Pretest   | Posttest   | p   |
|--------------|-----------|------------|-----|
|              | Median (min-max) | Median (min-max) |    |
| Experimental | 54 (19-65) | 60 (17-65) | <.01*|

*Statistically significant (p < .05)

Comparison of dressing skill items score before and after intervention in experimental group

Wilcoxon test was carried out to compare pretest and posttest dressing skill items score of experimental group. Table 6 showed that 8 items of dressing skill had significant difference (p < .05) after intervention. There were included: takes clothes from the closet, takes clothes from drawers, puts clothes on upper body, buttons clothes, wears clothing on lower body, uses zippers, uses fastener, and removes clothes from upper body. There were 5 items of dressing skills were not significantly difference, including: selects clothes, puts on socks, puts on shoes, ties shoes, and removes clothes from lower body.
DISCUSSION

The study results showed that there was a significant increase on dressing skill in children with intellectual disability after self-development program and training with video modeling method. The first reason of this result study is because there was an additional training using video modeling on self-development program and done for multiple sessions (4 sessions). The second is some items of dressing skills have gradually increasing in line with additional session on training. And the third reason is there was complete equipment in experimental group. The equipment that are used in experimental group was all of dressing equipment in each dressing skill item. Researcher used Cohen’s formula to calculate the effect size of clinical effect. The result of the effect size between the two groups was 0.54 indicating that clinical effect in the medium category based on Cohen’s categorization.

This study result was accordance with previous study which showed the improvement of dressing skill on children with intellectual disability after given intervention with shaping and prompting stimulus (Kaur & Kumar) and peer play therapy interventions (Tri, Kholisa, & Kep, 2015). A training intervention with prompting procedure was effective to improve the dressing skills of children with autism (ISCAN, 2016).

Improving the dressing skill in children with intellectual disability is assumed because of training methods using audiovisual of video modeling. Children with intellectual disability become more skilled in dressing and show the easy behavior of receiving the material taught after getting a practice learning skill using multimedia media. Audio-visual aids can improve long-term memory, better understanding, increase more motivation to learn and create creative thinking (Youngmee, 2014). Learning using audiovisual is more effective than the picture media in learning foreign language in children with intellectual disability (Noori & Farvardin, 2016). A review showed an intervention using technological methods that is video modeling was effective to practice the skills of daily activities (Gardner & Wolfe, 2013). Children with intellectual disability who get intervention with audio-visual media have a higher score after intervention and significantly different than the experimental group who get intervention with picture (Noori & Farvardin, 2016). Video modeling can improve social game skills in ADHD children (Wilkes-Gillan et al., 2017). Intervention using video modeling for children with developmental disorders and autism is effective for improving self-sufficiency in the fulfillment of daily needs, social skills, and games (Mason, Davis,
Boles, & Goodwyn, 2013). The use of video technology can improve the level of independence and children with intellectual disability (Mechling & Collins, 2012). The learning process in students with intellectual disability using video media provides cognitive and affective experiences for children and helps them in the learning process (Noori & Farvardin, 2016).

Intervention that was given to participants also uses demonstration methods using concrete object. This is accordance with the principle of learning in children with intellectual disability that emphasizes on visual aids. Children with intellectual disability are not able to think abstract so difficult to imagine something. Such limitations can be overcome by using concrete objects or clearly visible and real property. The uses of concrete objects make children interested in learning and facilitate understanding of the material being taught (Smart, 2010). A child with intellectual disability is unable to distinguish 2 or more stimulation due to difficulties in getting to know specific instructions or commands. Demonstration methods can be used in providing training or education in children with intellectual disability (Hoekenberry & Wilson, 2014).

Based on the results of the research, there were significant differences on 8 items of dressing skills and the average of 12 items were increased after the children with intellectual disability received self-care training. The item of tying shoelace in experimental group showed there was no significant difference after intervention. Another research revealed that video intervention influences the shoe-tying skills, but there are other factors such as difficulty levels, props used during the intervention, and the child's motivation to complete the skill (Rayner, 2011). In this study, tying shoelace skill was not increased due to motivational factors of participants. Participant’s motivation is less because they find difficulty when trying to practice shoelaces. Children with intellectual disability in addition to getting training need to get motivation continuously in order to perform daily activities just like another normal children (Udonwa et al., 2015). The use of shoelaces with two different colors would be easier for children with autism in performing the steps of shoe-tying skills (Rayner, 2011). These conditions are different with interventions that used same color shoelaces when participants tied the shoelace.

Limitation of this study included: 1) the psychological condition of participants who can change at any time makes the assessment of dress skills on some participants cannot be done at a time, 2) there was an absence of reporting on the involvement of parents or carers at home in providing assistance to children with intellectual disability in dressing, and 3) posttest and pretest assessments cannot be carried out simultaneously at one time in both groups due to time constraints.

CONCLUSION

Self-development program and training using video modeling could increase dressing skill on intellectual disability children aged 6-12 years. There were 8 dressing skills that were improved after intervention, including: taking clothes from cupboard, taking clothes from drawer, wearing upper clothes, buttoning shirt, wearing lower clothes, using zipper, wearing fastener, and removing upper clothes. Pediatric nursing could plan self-care training program by developing audiovisual usage in giving intervention, especially dressing skill. Public Special School could use audiovisual media (video modeling) in giving self-development program curriculum.

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Declaration of Conflicting Interest

The authors declare no conflict of interest with respect to the research, authorship, and/or publication of this article.

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