Jurnal Ners
Jurnal Ners
Vol. 15, No. 2, Special Issue 2020
http://dx.doi.org/10.20473/jn.v15i2.19011

Original Research

Improving the Fine Motor Skills with Embroidery among Children with an Intellectual Disability

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ABSTRACT

Introduction: Children with intelletual disability experience delays infine motor skills compared to normal children, if the child's fine motor skills are not trained and developed, it will affect to the child's growth and development. One of occupational therapies to improve their finemotor skills is through embroidery. The purpose of this study was to analyze the effect of embroidery to the fine motor development of children with moderate mental retardation at the special school, Bangkalan Indonesia.

Methods: The design was pre experimental research with one pre test-post test design group, population of all children with moderate mental retardationas many as 13 children. The research instrument use dwasobservation sheet.

Results: Data analysisby Wilcoxon Signed Ranks Test.The embroidery therapy using cross stitch technique. It was held every Monday and Thursday for eight week, took an hour each session

Conclusion: The results of the study showed that most children after had embroidery had enough finemotor skills (84.6%) and the statistical test value was obtained p<α (0.002<0.05). The students improved their fine motor ability such as how they coloring, scissoring, grasping, and holding up a paper. The conclusion of this study is that there was an effect of embroidery therapy on fine motor skills in children with intellectual disability.

ARTICLE HISTORY

Received: Feb 27, 2020
Accepted: April 1, 2020

KEYWORDS

intellectual disability; fine motor skills; embroidery

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Cite this as: Budury, S., Khamida, K., Nurjanah, S., & Jalaluddin, T. J. (2020). Improving the Fine Motor Skills with Embroidery among Children with an Intellectual Disability. *Jurnal Ners, Special Issues*, 72-74. doi:http://dx.doi.org/10.20473/jn.v15i2.19011

INTRODUCTION

Children are the next generation and the important potential of any nation. They need a good and healthy environment for optimal growth and development. The values that we impart to children will have a great effect on society. This does not only refer to normal children but also to children with an intellectual disability. The United Nations Development Program estimates that globally over 200 million children have an intellectual disability (APA - American Psychiatric Association, 2015) and that 80% of all people with disabilities live in a low income country.

Intellectually disabled children or children with mental retardation are ways to refer to children who experience a physical, mental-intellectual, social and emotional delay with a significant effect on their growth and development processes (KPPPA, 2015). Children who have an intellectual disability experience delays and limitations concerning their adaptive behavior and intellectual functioning (Armatas, 2009). According to DSM-5, their intelligence range is 20 – 70 (Shogren & Turnbull, 2010). In reference to their adaptive behaviors, they have problems in terms of their gross motor and fine motor development, in addition to their speech and social skills. The fine motor abilities of children have an important role, namely to train the small muscles such as the hand and finger movements. The coordination of the fingers, hands and arms plays a vital role in activities such as eating, dressing, grasping and the use of utensils and tools (Suchiporn

Lersilp, Supawadee Putthinoi, 2016). The development of the small muscles facilitates the proper coordination needed to perform daily activities. A mentally retarded child needs moderate training in accordance with their physical, psychological and intelligence condition. Children with mental retardation encounter barriers to their development and growth in the sensory and motor areas, including both gross motor and fine motor skills. The fine motor skills of intellectually disabled children are developing and so there needs to be training to develop the proper coordination (Training, The, & Retarded, 2001).

The National Institute for Mentally Handicapped has developed activities to improve the fine motor skills of intellectual disabled children such as turning a door knob, stacking objects, pasting paper, assembling objects, separating rolls of material, wrapping objects, cutting with scissors, drawing, painting and sewing (Handicap, 2001). Embroidery is occupational therapy that contains of cutting scissors, drawing, and sewing. Embroidery is similar to the plastilinography technique used for promoting fine motor skills (Maria Lapshina, 2019). It can train children with mild and moderate intellectual disability to concentrate, enhancing the strength of their muscles when pulling threads. It enhances their fingers when forming patterns through embroidery. Indirectly, embroidery can make the stiff muscles supple. Embroidery can not only improve the fine motor skills but it can also improve their intellectual functioning including imaginative thinking, logic, accuracy and perseverance (Sadovnika, 2019).

MATERIALS AND METHODS

The research design that was used in this study was pre-experimental with a one group pretest-posttest design. The population consisted of intellectually disabled children at a special school in Bangkalan with 24 students. The sample totaled 13children who were 12 – 14 years old with a moderate intellectual disability taken through simple random sampling. The criteria in this study were that they were boys and girls with a moderate intellectual disability who are able to follow instructions and who went to school regularly. The informed consent form was signed by their parents who accompanied them while the children were at school.

The design was pre-experimental with one pre-post group. The data collection used an observation sheet based on the Madras Developmental Programming System modified and developed by Purna (Purna, 2015). The observation sheet consisted of 5 aspects: drawing, folding, gripping, cutting, squeezing and sticking. The embroidery took place at the school and it was held twice a week for 2 months. Each session took 60 minutes. The embroidery method used the cross-stitch technique. What they sewed was three letters from the alphabet. The data was analyzed using the Wilcoxon Signed Rank test. This research passed the ethical clearance held by Unusa Ethical Board

RESULTS

Table 1. Distribution of the Frequency of the Variables

Variable	N	%
Gender		
Boys	6	46.2
Girls	7	53.8
Age		
12 years old	3	23.1
13 years old	4	30.7
14 years old	6	46.2

Table 2. Distribution of the Fine Motor Skill Level Before and After Embroidery

Fine Motor Skill Level	Pre	%	Post	%	p-value
Less	2	15.4	0	0	0.02
Moderate	8	61.5	2	15.4	
Good	3	23.1	11	84.6	

Table 1 showed that most of the respondents were girls and that most of them were 14 years old. From Table 2, it can be seen that before being given the embroidery intervention, most of the children had moderate fine motor skills (8 children: 61.5%). A small number of children had good fine motor development (3 children: 23.1%). After being given the embroidery intervention, the level of fine motor development overall was good (11children: 84.6).

Before the intervention, more than half of the respondents had fine motor skills in the moderate category of 8 (61.5%) but there was a decrease after the intervention to 2 (15.4%). There was an increase in the number of respondents with fine motoric skills in the good category by 11 people (84.6%). There was a significant difference in the fine motor skills before and after the intervention with a value of p = 0.002.

DISCUSSION

When the embroidery is in process, the children with an intellectual disability are learning how to use their hands and fingers to sew, install a thread, strike and catch the yarn. They are then using the cross-stitch technique to do the embroidery itself. It helps their fine motor skills to improve, especially the 5 aspects of drawing, folding, gripping, cutting, squeezing and sticking. The results show that embroidery has a significant effect when it comes to improving the fine motor skills of children with an intellectual disability.

This result relates to what Boopathi and Umarani found in that facilitating a fine motor activities program can promote fine motor skills (K Ramesh Boopathi, 2019). The playing activity enables the children with a mild and moderate intellectual disability to develop their self-help skills such as dressing, eating and playing. These skills are coordinated by the maturation of the central nervous system and specific motor experiences (Vidoni, McCarley, Edwards, & Boyd, 2009). Embroidery is a

form of occupational therapy using hand muscle strength activity sets. It requires coordination between visual attention on the object and hand-eye coordination. Embroidery not only improved the intellectually disabled children's activities such as grasping and wearing clothes but it also improved their concentration ability and writing and coloring skills.(Islamiyah & Widyana, 2017) Fine motor skills, learning ability, and communication skills all have a relationship to the functioning of the cerebellum that is closely related to learning and social behavior (chen Yu, 2013).

As we can see, fine motor skills are needed as much by intellectually disabled children as they are needed by normal children. If they do not gain any strength in terms of their fine motor skills, the children's activities and independency will be lacking. They will depend on us to do some of their daily task because their inability. That is why we do need to improve their fine motor skills. In addition, this study had the limitation of generalizing to a large population. Future research should involve a larger number of subjects.

CONCLUSION

The objective of this study was to improve the children's fine motor skills using embroidery. It has been found that there is an effect from embroidery on the improvement of the fine motor skills of intellectually disabled children. Children gradually respond to the stimulus and learn to develop their fine motor skills. The intervention condition can also apply in the contexts of coloring, scissoring, grasping and writing

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

ACKNOWLEDGEMENT

Thank you to all of the students with an intellectual disability who participated in this research.

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