CONGKLAK MODIFICATION TO IMPROVE FINE MOTOR SKILLS IN CHILDREN WITH DOWN SYNDROME

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ABSTRACT

This study aims to determine the effects of the Congklak modification on fine motor skills in children with Down Syndrome at Yayasan Mentari Fajar. The importance of this study stems from the developmental problems typically faced by children with Down Syndrome, one of which is the development of fine motor skills which results in a lack of ability to perform daily activities. Fine motor skills on the wrist and fingers need to be optimized so that children can perform activities independently and help prepare the child's skills, so that the quality of life of children with Down Syndrome will be further improved. Giving interventions with play therapy methods in the Congklak was used to optimize fine motor skills to form functional activities in children with Down Syndrome. The game of Congklak was modified using three sizes of seeds and different ways of playing. This study is a pre-experimental using pretest-posttest design with a sample of 11 children with Down Syndrome sampled by purposive sampling method. The Congklak modified was given for four weeks and conducted at the Mentari Fajar Foundation. Sollermann Test was used to measure tghe fine motor skills. Calculation of data normality test using Shapiro-Wilk test results obtained $p > 0.05$ and the data is said to be normal. Hypothesis testing using paired sample t-test results obtained $p = 0.001$ ($p < 0.05$). Based on the findings, the study concludes that there is an increase in fine motor skills in children with Down Syndrome upon treatment, with percentage increase of 20.28%. It can be concluded that the Congklak modification can improve fine motor skills in children with Down Syndrome.

Keyword: Fine Motor, Down Syndrome and Congklak Modification

INTRODUCTION

Down Syndrome is a genetic disorder caused by trisomy 21 and is one of the problems in child development. Children with Down Syndrome have characteristics and problems, namely muscle tone abnormalities, laxity ligaments, head tend to be mild microcephaly, lack of coordination of movement and development problems that result in lack of ability to perform daily activities. Hypotonus will make muscle pressure in children with Down Syndrome when moving is not good. Muscle pressure is needed to make movements, one of which is fine motor movements. Every fine motor movement requires good coordination, circumstances tend to be less coordinated in children with Down Syndrome can cause children to experience changes in fine motor skills such as grasping an object firmly and reaching objects by pinching. This will result in the inability of children with Down Syndrome to complete their daily activities properly.

Fine motor skills are the use of small muscles involved in movements that require limb function to manipulate objects (Aslan & Aslan, 2016: 188). Perfecting fine motor skills, coordination and balance of the eyes and hands increases with the maturity and practice. At school age the use of children's hand abilities is more increased and independent, also the manipulative abilities of children are almost perfect (Ricci and Kyle, 2009: 858). Fine motor skills in school-age children will develop and find their functions. Fine motor skills will be more coordinated, so that children can perform fine motor activities that require good hand control and coordination (Murti, 2018: 24).

Fine motor skills require good hand movements. Optimizing the ability of the hands is needed so that children with Down Syndrome can perform activities

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independently and to prepare skills in children, so that the life quality of children with Down Syndrome will improve. Optimizing fine motor skills can be done by playing. One of the functional play activities can use traditional games which generally give joy to children who do it (Kurniati, 2016: 2). According to Conny Semiawan in play activities all stages of child development can function and develop properly. Play will encourage children to practice their skills which direct to cognitive development, language, psychomotor and physical development of children. Congklak is one of the traditional games that can develop the ability of the hands and fingers when holding and playing Congklak seeds (Hasanah, 2016: 727).

The purpose of training fine motor skills in children with games is to move the limbs, make children creative and explore with their fingers and coordinate the eyes and hands (Samosir, 2018: 12). The Congklak can be modified using different seed sizes to play and different play procedures. The smaller size of the seeds to be played, the more effort will be made by children with Down Syndrome to play the seeds. The game uses seeds measuring 2 cm, 1.7 cm and 1.5 cm. The first game is done with the biggest seeds. The seeds placed in each parent hole will be played to fill 7children hole on each side of the Congklak board. Vidya Pitaloka, et al (2015: 86-87) conducted a similar study using the Ball's Melody technique in children with Down Syndrome. This technique is a round shape media that is made more than one with a variety of sizes, colors, materials and outside textures that will make a sound when played. The use of different ball sizes can optimize fine motor skills in children with Down Syndrome. Juli Maini Sitepu and Sri Rahayu Janita (2016: 78-82) found that there was an increase in children's fine motor skills with mosaic techniques. This technique uses one hand to pinch a pattern that has been cut before by the child. This is similar to the game of Congklak that uses hands and fingers to grab Congklak seeds. Therefore, on this occasion the researchers were interested in bringing up the research with the title "Congklak Modification to Improve Fine Motor Skills in Children with Down Syndrome".

METHODS

The research method used in this study is a quantitative method with a Pre-Experimental using One Group Pretest-Posttest Design. The value of fine motor skills will be measured before and after giving the game. The game is given 4 times a week for 4 weeks with 14 meetings where the game is carried out for 10 minutes. The criteria used are subjects who are Down Syndrome children according to the diagnosis at the Yayasan Mentari Fajar, subjects are clients at the Yayasan Mentari Fajar, subjects have value of fine motor skills less than 60 with the Sollermann Test, the age of subject is school age 6-12 years, able to communicate 2 directions.

FINDINGS AND DISCUSSIONS

Descriptive Statistical Analysis

In this study descriptive statistical analysis data is shown through the mean value, minimum value and maximum value.

Variable	N	Mean	Min	Max
Pre-test	11	50.64	44	59
Post-test	11	60.91	52	68

The table above shows the average value of fine motor skills through the Sollermann test before being given a game is 50.64 points with the lowest score of 44 points and the highest score of 59 points. Fine motor skills after giving the game showed an average score of 60.91 points with the lowest score of 52 points and the highest score of 68 points.

Normality Test

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Normality test is performed on the data that has been obtained to determine the distribution of data.

Variable	N	*P*
Pre-test	11	0,366
Post-test	11	0,505

Based on the normality test table with the Shapiro Wilk test above, it is known that the p value> 0.05 in the pre-test and post-test, so it is said that fine motor ability data is normally distributed.

Hypothesis Testing

Hypothesis testing with Paired Sample T Test is carried out on data with a normal distribution on the results of the normality test. Paired Sample T Testis used to determine the presence or absence of differences in the average value of the data during pre-test and post-test.

Data	Df	T count	*P*
Pre-test Post-test	10	-15,522	0,001

The table above shows the results of the value of fine motor skills p = 0.001 or p <0.05 in children with Down Syndrome at the Yayasan Mentari Fajar. These results indicate a significant difference in the value of pre-test and post-test fine motor skills.

In this study, taking a sample of children with Down Syndrome with ages of 7-12 years, where the age is included in the school age. The use of the ability of the hands will be more increased and independent at school age. Almost perfect manipulative abilities also occur at school age (Ricci and Kyle, 2009: 858). In their activities school-age children will make movements with better hand and finger control (Bergin and Bergin, 2014: 55-57). In general, the age of elementary school children is the age where they are able to do activities using motor skills better and children are easier to accept a command.

According to Raffi et al (2018: 3) children with Down Syndrome at the age of 9-18 years are very dependent on their parents or those around them to do food independence tasks. Fine motor problems of children with Down Syndrome are influenced by hypotonus, microcephaly and laxity ligaments are some of the characteristics of Down Syndrome children. Hazmi et al (2014: 60) children with Down Syndrome have delayed motor development associated with the presence of muscle hypotonus and laxity which are characteristic in children.

Kawanto et al (2012) explain the factors of nutrition, head size, economic status of parents and early stimulation are factors that make intelligence in children with Down Syndrome differ.

According to Burhaein (2017) functional movements such as physical activity and play can stimulate and support the development of motor skills in children. Same with children in general, the game will support fine motor skills in children with Down Syndrome. According to Irdawati and Muhlisin (2009) games can help children's understanding of life and with games also children with Down Syndrome will try to understand interrelated relationships. According to Gokhale's research, Solanki and Agarwal (2014: 41) through playing children will explore and develop physical and social skills. Play is a part of a child's life, so the method of play therapy needs to be applied by physiotherapy to form functional activities in developing the abilities of children with Down Syndrome. The element of play therapy in dealing with children with Down Syndrome is needed so that the therapeutic process runs more pleasant, so that children will be motivated to move, think and be creative independently.

Hasanah (2016), that one of the traditional games is Congklak can develop fine motoric aspects in children. The hands and fingers will move when grasping and

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playing with Congklak seeds. Moreover, there will be movements in the elbows and shoulders when the fingers take seeds and play them.

In this study using Congklak modification using 3 different seed sizes. According to research by Pitaloka et al (2015), Ball's melody games are effective in improving fine motor skills of children with Down Syndrome. After being given theBall's melody games the research sample shows the development of being able to hold tightly to an object, being able to move objects from the right hand to the left hand and being able to master up to 3 types of Ball's melody. Ball's melody game is similar to Congklak modification because the game also uses different ball sizes.

Rahmayanti, Angriyani and Kulsum (2018) research was conducted on 16 samples of children with Down Syndrome using different games, namely Puzzles. Puzzle games are effective in influencing the fine motor skills of children with Down Syndrome. The movement when taking a puzzle is the same as the movement when taking a Congklak seed. There will be a pincer grasp or precision grasp movement when the hand and fingers pick up the puzzle piece.

CONCLUSION

Based on the results of this study it can be concluded that the giving of the Congklak modification can improve fine motor skills in all samples of children with Down Syndrome in the Yayasan Mentari Fajar with an increased percentage of 20.28%.

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