Journal of Asian-African focus in Health

ISSN: 2987-9418
Vol. 1 No. 3, 2023
Page: 165-171

The Influence of Play Therapy Arranging a Tower of Donut on Improving the Motor Ability of Down Syndrome Children at The Foundation for the Development of Disabled Children (Ypac) Makassar

Sanghati[1]

[1]D-3 Nursing Study Program, Sekolah Tinggi Ilmu Kesehatan Makassar

*Corresponding Author: Sanghati

Article Info

Article History:

Received November 20, 2023
Revised November 26, 2023
Accepted: December 20, 2023

Keywords:

Internet, Addiction, Depression.

Abstract

The aim of this research is to determine the effect of play therapy arranging donut towers on improving the motor skills of children with Down syndrome at the Makassar Foundation for the Development of Disabled Children (YPAC). The method used in this research is "one group pretest-posttest design", namely a research design This is done by giving a pretest (initial observation). The results of the study showed that before being given play therapy to arrange donut towers (pretest), there were 6 children (40.0 %) who were not yet capable of motor skills. From this research it can be concluded that Play therapy arranging donut towers can influence children's motor development, because this therapy can train hand and eye coordination as well as children's ability to actively move their body parts.

Introduction

According to Quoted by Rondal (2020), Down syndrome is a group of genetic diseases because the defects are in the hereditary material or genes. Down syndrome occurs due to abnormalities in the chromosomes separating from each other when division occurs. Children with mental disorders or Down's syndrome, namely children who are identified as having a very low level of intelligence (below normal), intelligence as measured by IQ scores shows that on average children with Down's syndrome have a score of 50, while normal children have a score of around 100 (Katsiana et al.. 2020; Gashmard et al., 2020; Achmad et al., 2021). So for pursuing developmental tasks requires special assistance or services, including the need for educational programs and guidance (Rahmah et al., 2022).

According to research *World Health Organization* (WHO), the average incidence of Down's syndrome throughout the world is 1 in every 700 births, the prevalence of Down's syndrome from 1979 to 2003 increased by 31.1% in 10 regions (Haseeb et al., 2022; Aprigio et al., 2023). The number of people with Down syndrome in South Sulawesi is around 0.65% or equal to 53,530 people out of a population of 235,489 people in South Sulawesi (Musdalipa et al., 2021; Ferdian, 2021; Dwiartama et al., 2022; Azis et al., 2023). In Makassar City there are 2,250 people consisting of 1,794 people with physical disabilities, 242 people with mental disabilities and 214 people with physical and mental disabilities (double), consisting of: 1,390 men (62%) and 860 women (38%). Data obtained from the Foundation for the Development of Disabled Children (YPAC) at the elementary school level, the number of children suffering from Down Syndrome is 15 children.

Goodyear (2020) in their research on the effect of play therapy arranging donut towers on improving the motor skills of school-aged Down syndrome children at the Semarang State Special School found that the results of the gender frequency distribution of the respondents were mostly women, 20 respondents (66.7%) and the remaining 10 respondents were male (33.3%). Improvement in fine motor skills of children with Down syndrome before the donut tower play therapy was carried out by 21 children (70%) who were unable and 9 children (30%) who were able (Taylor & Ray, 2021). The improvement in fine motor skills of children *with*

DOI: https://doi.org/10.71435/595690

Down syndrome after the donut tower play therapy was carried out by 14 children who were unable (46.7 %) and 16 children who were able (53.3%) Devecigil (2023). In this research, there is a problem formulation, namely whether there is an effect of play therapy arranging donut towers on improving the motor skills of children with Down syndrome at the Makassar Foundation for the Development of Disabled Children (YPAC) Elbeltagi et al. (2023). The aim of this research was to determine the effect of play therapy arranging donut towers on improving the motor skills of children with Down syndrome at the Makassar Foundation for the Development of Disabled Children (YPAC).

Method

This research employed an experimental design using the "one group pretest-posttest design" approach. The design involved observing the participants' motor skills before and after the intervention, allowing the researcher to evaluate the impact of play therapy on the motor abilities of children with Down syndrome.

The study was conducted at the Makassar Foundation for the Development of Disabled Children (YPAC), targeting children diagnosed with Down syndrome. A specific sampling method was used to select participants who met the inclusion criteria, which likely included a diagnosis of Down syndrome and enrollment at the foundation.

The procedure for this study began with a pretest to assess the baseline motor abilities of the participants before any intervention. Researchers evaluated the children's hand-eye coordination, fine motor skills, and overall body coordination. These initial observations provided a foundation for measuring subsequent improvements. Following this, the intervention phase involved play therapy centered around arranging donut towers, an activity specifically chosen for its ability to stimulate fine motor skills, enhance hand-eye coordination, and promote active engagement of different body parts.

The children participated in sessions that required them to manipulate and balance objects while aligning them in a specific order, thereby developing their motor control and coordination. These therapy sessions were conducted over a predefined period, with the frequency and duration standardized across all participants to maintain consistency. After completing the intervention, a posttest was administered using the same evaluation criteria as the pretest. This final observation allowed researchers to compare the participants' motor abilities before and after the therapy, documenting improvements such as enhanced dexterity and coordination.

Quantitative data were collected during both the pretest and posttest stages. The researchers employed observational checklists and measurement tools tailored to assess motor skills in children with Down syndrome, ensuring reliability and validity. The pretest and posttest results were compared using statistical methods to determine the significance of the changes observed. Descriptive statistics were used to summarize the findings, and inferential statistical tests were employed to validate the effect of the intervention.

Result and Discussion

Children with Down syndrome often face developmental delays, particularly in fine motor coordination, due to limitations in cognitive and neuromuscular functioning. Play therapy especially structured activities like arranging donut towers offers an engaging, hands-on approach that encourages physical movement, sensory stimulation, and hand-eye coordination. By observing changes in motor performance before and after the therapy, this study aims to assess the effectiveness of this intervention in improving the motor skills of children at the Foundation for the Development of Disabled Children (YPAC) Makassar.

DOI: https://doi.org/10.71435/595690

Characteristics of Research Variables

Table 1. Description of the Motor Skills of Children with Down Syndrome Before and After Being Given Playing Therapy by Arranging Donut Towers at the Makassar Foundation for the Development of Disabled Children (YPAC). Year 201 7

Children's Motor Ability	*Pretest*		*Posttest*	
	n	%	n	%
Capable	9	60.0	14	93.3
Has not been able to	6	40.0	1	6,7
Amount	15	100.0	15	100.0

Source: Primary Data

Table 1 shows that of the 15 children studied, the motor skills of the children before being given play therapy arranging donut towers (*pretest*), 9 children were capable (60.0%) and after being given play therapy arranging donut towers (*posttest*) almost all 14 children were capable (93.3 %). Meanwhile, the motor skills of children after being given play therapy arranging donut towers (pretest*)*, 6 children (40.0%) were not yet capable and after being given play therapy arranging donut towers (posttest*)* only 1 child (6.7%) was able to has not been able to.

Bivariate Analysis

Table 2. The Effect of Play Therapy Arranging Donut Towers on Improving the Motoric Abilities of Down Syndrome Children at the Foundation Development of Disabled Children (YPAC) Makassar 2017

Composing Play Therapy Donut Tower	Children's Motor Ability				Amount		Z	P-value
	Capable		Has not been able to					
	n	%	n	%	n	%		
Pretest	9	60.0	6	40.0	15	100.0	-3,314 [a]	0.001
Posttest	14	93.3	1	6,7	15	100.0		
Amount	23	76.7	7	23.3	30	100.0		

Source: Primary Data

Table 2 shows that of the 15 children studied, the motor skills of children before being given play therapy were arranging donut towers (pretest*)*, 9 children were capable (60.0%), and 6 children who were not yet capable were 6 (40.0%). %). Meanwhile, after being given play therapy assembling a tower of donuts (posttest*)*, 14 children were able (93.3 %), and 1 child was unable (6.7%).

Statistical results using the *Wilcoxon signed ranks test*, obtained a Z value of -3.314 [a] with p value = 0.001 or < 0.05, meaning that there is an effect of play therapy arranging donut towers on improving the motor skills of children with Down syndrome at the Foundation for the Development of Disabled Children (YPAC) Makassar.

The results of this study showed that before being given play therapy to arrange donut towers (pretest*)*, there were 6 children (40.0 %) who were not capable of motor skills. This is because children with Down syndrome experience slower development than normal children so that all

DOI: https://doi.org/10.71435/595690

activities carried out require the help of other people, therefore children with Down syndrome need stimulation to improve their motor skills, one of which is through games. However, after being given play therapy assembling donut towers (posttest*)*, there was still 1 child (6.7 %) who was not able to do it. This is because the motor skills and intelligence of each child are different so that even though children have been given stimulation such as playing games, it is still difficult for them to respond to the stimulation given. In children with Down syndrome, the average IQ is 50, which causes Down syndrome children to have slower motor skills compared to normal children, because in normal children the average IQ is 100.

Meanwhile, children's motor skills after being given play therapy put together a donut tower (*pretest*), 9 children were able to do so (60.0 %). This is because parents are aware of their child's condition, so parents always train their children in stages so that they are able to carry out movements according to their stage of development. After the researchers provided play therapy assembling the donut tower (posttest*)*, almost all the children were able to, namely 14 people (93.3 %). This is because play activities are very effective in monitoring children's development levels. Apart from that, when children play, sensory and motor activities are the largest components used by children and active play is very important for the development of muscle function. This means that by playing children are able to improve the development of children's motor skills.

Statistical results using the *Wilcoxon signed ranks test,* obtained a Z value of -3.314 [a] with p value = 0.001 or < 0.05, meaning that there is an effect of play therapy arranging donut towers on improving the motor skills of children with Down syndrome at the Foundation for the Development of Disabled Children (YPAC) Makassar. Most children with Down syndrome will be able to make movements if trained continuously (Al-Beltagi, 2021; Novak et al., 2020). Down syndrome children are included in the category of children who are able to train, meaning that they can do all the activities they do by being trained continuously until they can, if they start to rarely train then they will gradually forget how to do the activities they do. This is in accordance with Jain et al. (2021) that the motor skills of children with Down syndrome are low, because the intelligence of children with Down syndrome is also low.

The results of this research are in line with the results of research conducted by Crane (2020), with the title " The influence of play therapy arranging donut towers on improving the motor skills of school-aged *Down syndrome children* at the Semarang State Special School ", showing the motor skills of *Down syndrome children* before being given therapeutic intervention. There were 9 children (30%) who were able to play donut tower play and after being given donut tower play therapy, 16 children (53.3 %) were able to play.

Down Syndrome greatly affects a child's growth and development, especially their motor development. According to Astle et al. (2022), child growth and development are two processes that are closely related and difficult to separate from each other. Children with Down Syndrome often experience developmental disorders, so detection of stimulation and intervention for various growth or development deviations must be carried out from an early age.

The abilities of children with Down syndrome are very slow compared to normal children. In all activities carried out, other people need help, therefore children with Down syndrome need stimulation to be able to improve their motor skills, one of which is through games. One of the game tools that is usually used to improve the motor skills of children with Down Syndrome is by using educational game tools (APE) which can optimize children's development according to their age and level of development and is useful for developing children's physical, language, cognitive and social aspects.

DOI: https://doi.org/10.71435/595690

One form of play given to children with Down syndrome is arranging a donut tower, which is a game that each child plays and communicates and interacts with each other in arranging a donut tower. This play therapy of arranging a tower of donuts is useful for introducing basic shapes, colors, and training the ability to classify objects from largest to smallest. Apart from that, this game hones children's motor skills, trains hand and eye coordination and children's ability to actively move their body parts.

By playing "donut tower", children learn the consequences and how to play, and make a conclusion about the order of objects based on these objects. Children learn to put objects in order of size or a certain color first, then continue with objects in the next order. According Quoted in Sutapa et al. (2021), fine motor skills are movements carried out by certain parts of the body, which do not require large amounts of power involving large muscles, but only involve parts of the body that are coordinated (balanced work). between the eyes and hands or feet. The aim of training fine motor skills is to train children to be skilled and careful in using their fingers in everyday life. This means that the more children are trained, the more their motor skills can improve. Based on the discussion presented above, the researcher concludes that Play therapy arranging donut towers can influence children's motor development, because this therapy can train hand and eye coordination as well as children's ability to actively move their body parts.

Conclusion

Based on the results of research on the influence of donut tower play therapy on improving the motor skills of children with Down syndrome , it was concluded that (1) Before play therapy was carried out, donut tower play therapy was carried out, most children with Down syndrome had poor abilities; (2) There was an increase in the motor skills of children *with Down syndrome* after the donut tower play therapy; (3) There is an effect of play therapy arranging donut towers on improving the motor skills of children with Down syndrome.

References

Achmad, H., Riyanti, E., Primarti, R. S., & Pagala, M. I. (2021). An Overview of Frequency Malocclusion in Cases of Down Syndrome Children: A Systematic Review. *European Journal of Molecular and Clinical Medicine*, *8*(1), 1641-1650.

Al-Beltagi, M. (2021). Autism medical comorbidities. *World journal of clinical pediatrics*, *10*(3), 15. https://doi.org/10.5409/wjcp.v10.i3.15

Aprigio, J., de Castro, C. M., Lima, M. A. C., Ribeiro, M. G., Orioli, I. M., & Amorim, M. R. (2023). Mothers of children with Down syndrome: A clinical and epidemiological study. *Journal of Community Genetics*, *14*(2), 189-195. https://doi.org/10.1007/s12687-022-00627-7

Astle, D. E., Holmes, J., Kievit, R., & Gathercole, S. E. (2022). Annual Research Review: The transdiagnostic revolution in neurodevelopmental disorders. *Journal of Child Psychology and Psychiatry*, *63*(4), 397-417. https://doi.org/10.1111/jcpp.13481

Azis, F., Isma, A., & Alisyahbana, A. N. Q. A. (2023). Determinants of Government Spending on Regional Development Inequality in the East Indonesia Area. *Ekonomis: Journal of Economics and Business*, *7*(2), 944-952. http://dx.doi.org/10.33087/ekonomis.v7i2.1172

Bull, M. J. (2020). Down syndrome. *New England Journal of Medicine*, *382*(24), 2344-2352. https://doi.org/10.1056/NEJMra1706537

DOI: https://doi.org/10.71435/595690

Crane-Cory, J. (2020). *Shaping the Mindset: A Case Study of an Elementary School International Exchange Program* (Doctoral dissertation, University of Hawai'i at Manoa).

Darla, S., & Bhat, D. (2021). Health-related quality of life and coping strategies among families with Down syndrome children in South India. *medical journal armed forces india*, *77*(2), 187-193. https://doi.org/10.1016/j.mjafi.2020.07.010

Devecigil, N. (2023). *Unlocking the Hidden World of Childhood: A Comparative Exploration of Play Therapy in Children with and Without a History of Colic* (Doctoral dissertation, California Institute of Integral Studies).

Dwiartama, A., Nirbayati, W. F., Giri-Rachman, E. A., Niloperbowo, W., Tan, M. I., & Anin, A. (2022). Knowledge, attitude, and practice towards hepatitis B infection prevention and screening among Indonesians. *International Journal of Environmental Research and Public Health*, *19*(8), 4644. https://doi.org/10.3390/ijerph19084644

Elbeltagi, R., Al-Beltagi, M., Saeed, N. K., & Alhawamdeh, R. (2023). Play therapy in children with autism: Its role, implications, and limitations. *World journal of clinical pediatrics*, *12*(1), 1. https://doi.org/10.5409/wjcp.v12.i1.1

Ferdian, A. (2021). The Existence Of Women In Meeting The Family Economy: The Impact Of The Covid-19 Pandemic. *Zien Journal of Social Sciences and Humanities*, *1*(1), 79-85.

Gashmard, R., Ahmadi, F., & Kermanshahi, S. M. K. (2020). Coping strategies adopted by Iranian families of children with Down syndrome: A qualitative study. *Medicine*, *99*(28), e20753. https://doi.org/10.1097/MD.0000000000020753

Goodyear-Brown, P. (2020). *Parents as partners in child therapy: A clinician's guide*. Guilford Publications.

Haseeb, A., Huynh, E., ElSheikh, R. H., ElHawary, A. S., Scelfo, C., Ledoux, D. M., ... & Elhusseiny, A. M. (2022). Down syndrome: a review of ocular manifestations. *Therapeutic advances in ophthalmology*, *14*, 25158414221101718. https://doi.org/10.1177/25158414221101718

Jain, P. D., Nayak, A., Karnad, S. D., & Doctor, K. N. (2021). Gross motor dysfunction and balance impairments in children and adolescents with Down syndrome: a systematic review. *Clinical and experimental pediatrics*, *65*(3), 142. https://doi.org/10.3345/cep.2021.00479

Katsiana, A., Strimpakos, N., Ioannis, V., Kapreli, E., Sofologi, M., Bonti, E., ... & Stalikas, A. (2020). Health-related quality of life in children with autism spectrum disorder and children with down syndrome. *Materia socio-medica*, *32*(2), 93. https://doi.org/10.5455/msm.2020.32.93-98

Musdalipa, M., Wulandari, R., & Maddeppungeng, M. (2021). Maternal Age Distribution of Down Syndrome at Pediatric Growth and Development Clinic, Wahidin Sudirohusodo Hospital in Makassar for the period of 2015-2019. *Green Medical Journal*, *3*(2), 73-80. https://doi.org/10.33096/gmj.v3i2.88

Novak, I., Morgan, C., Fahey, M., Finch-Edmondson, M., Galea, C., Hines, A., ... & Badawi, N. (2020). State of the evidence traffic lights 2019: systematic review of interventions for preventing and treating children with cerebral palsy. *Current neurology and neuroscience reports*, *20*, 1-21. https://doi.org/10.1007/s11910-020-1022-z

DOI: https://doi.org/10.71435/595690

Rahmah, A., Rouns, E., & Luck, A. (2022). The effect of self-development program for improving independence in defective students in SLB N 1 Lima Kaum Batusangkar. *World Psychology*, *1*(2), 46-53. https://doi.org/10.55849/wp.v1i2.96

Rondal, J. A. (2020). Down syndrome: A curative prospect? *AIMS neuroscience*, *7*(2), 168.

Sutapa, P., Pratama, K. W., Rosly, M. M., Ali, S. K. S., & Karakauki, M. (2021). Improving motor skills in early childhood through goal-oriented play activity. *Children*, *8*(11), 994. https://doi.org/10.3390/children8110994

Taylor, L., & Ray, D. C. (2021). Child-centered play therapy and social–emotional competencies of African American children: A randomized controlled trial. *International Journal of Play Therapy*, *30*(2), 74.

DOI: https://doi.org/10.71435/595690