Health Frontiers
A Multidisciplinary Journal for Health Professionals
TARQABIN NUSANTARA GROUP
Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023 E-ISSN : 3024-9740

Differences in Fine Motor Development Before and After Playing Playdough in Children Preschool Children (5-6 Years Old)

Nurwati Ningsih[1*]

[1]Departement of Nursing Science, Sekolah Tinggi Ilmu Kesehatan Kepanjen, Malang, Indonesia

E-mail: nurwati.green@gmail.com

ABSTRACT

Fine motor in preschoolers age 5-6 years old is very important to complete various activities. Stimulus is one of the factors that influence the development of fine motor, one of them is playing playdough. The purpose of this study is to determine the difference in fine motor development before and after playing playdough in preschoolers (5-6 years old). Pre eksperimental with One Group Pretest Posttest Design was used in this research. 30 children age 5-6 years old selected by using Purposive Sampling technic. To collecting data, the researchers use Denver II before and after the given intervention playing playdough. Intervention play playdough is done 3 times a week for 3 weeks with duration of play 60 minutes. The statistic test used in this study was Wilcoxon.The result of the research show that 11 children has an increase fine motor development after given intervention playing playdough. The result of the test statistic showed p value = 0,001, there is the difference in fine motor development before and after playing playdough in preschoolers (5-6 years old). The conclusion in this study is playing playdough can increasing fine motor development. Stimulus given correctly, consistently, and integration can create the development of fine motor children become optimum.

KEYWORDS

Difference,Fine Motor, Playdough, Preschoolers

Received: 21 December 2022
Revised: 20 February 2023
Accepted: 30 June 2023

How to cite: *Ningsih, Nurwati. (2023). Differences in Fine Motor Development Before and After Playing Playdough in Children Preschool Children (5-6 Years Old). Heal Front A Multidiscip J Heal Prof.1(1): 61-68.*

INTRODUCTION

Preschool children, namely children aged 3-6 years, are called golden age because children will experience development and growth in all aspects quickly and are very important for future life and are sensitive to stimuli provided from the environment. The preschool period is short and cannot be turned back (Prasetyanti and Aminah, 2017; Hendrawati, 2014).

Health Frontiers
A Multidisciplinary Journal for Health Professionals
TARQABIN NUSANTARA GROUP
Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023 E-ISSN : 3024-9740

One aspect of child development is fine motor skills. Fine motor is a movement that uses certain body parts and is performed by small muscles (Yuniarti, 2015). Fine motor skills in preschool children are very important and are needed to perform various daily activities such as eating and caring for themselves so that children learn to be independent and are used to master school skills such as drawing and to gain social acceptance (Koenarso, 2017; Ardyatmika et al., 2016). When children's fine motor development is optimized, it can improve the child's creative, psychomotor, intellectual, language, social, communication and personality (Prasetyanti and Aminah, 2017).

Stimulus can be provided through play activities, learning media or games that make children happy and can improve children's fine motor development (Ambarningsih, 2015). Stimulus provision must be continuous, integrated, consistent, in accordance with brain maturation and the child's developmental stage and must be provided with facilities that support fine motor development so that the child is able to master various movements and fine motor skills that must be achieved (Maghfuroh and Putri, 2017; Soetjiningsih and IG.N Gne Ranuh, 2013).

However, in reality, many preschool children in writing and coloring activities are still not neat, holding objects still often fall and finger movements are still stiff (Pangestika and Setiyorini, 2015). In addition, children are not optimal in doing cutting and folding activities according to existing patterns. Also, many preschools are not optimal in fine motor activities due to the lack of using media and tools to support learning and lack of varied learning methods (Koenarso, 2017; Ambarningsih, 2015).

According to WHO, 5-25% of preschool children have impaired fine motor development. Meanwhile, based on data from the Ministry of Health of the Republic of Indonesia (2010), it is found that around 5-13% of preschool children experience motor disorders and as many as 60% of existing problems are found to occur spontaneously in toddlerhood (Medirisa et al., 2015). Based on data from the East Java Provincial Health Office (2008), fine motor disorders in preschool children amounted to 31.25% who experienced fine motor disorders (Yektiningsih and Erviana, 2014).

Based on preliminary studies conducted on October 24, 2017 at Dharma Wanita Persatuan 1 Wonokerso Kindergarten for 10 children aged 5-6 years, it shows that children's fine motor development is still not optimal. It was found that 4 children (40%) still could not write as exemplified. While 4 children (40%) when coloring are still not neat and 6 children (60%) when cutting are not according to the existing pattern.

Each child will go through the same fine motor development process based on the maturity process but the speed in achieving it is different (Maghfuroh and Putri, 2017). Fine motor development is influenced by several factors including heredity, prenatal health, childbirth difficulties, health, nutrition, abnormalities, prematurity, protection and stimulus (Rini et al, 2016). And the use of learning media that is not creative and innovative can make children feel bored and not follow learning well (Ambarningsih, 2015). So that it will cause children's fine motor development to be not optimal.

The impact when children experience fine motor delays includes having difficulty in drawing, writing and coordinating hands and eyes (Pangestika and Setiyorini, 2015). If the delay is not addressed immediately, it will cause the child to be less creative, affect the child's self-concept, cause various behavioral and emotional problems, lack of confidence and difficulty adapting to their environment so that it will affect the child's growth and development process (Prasetyanti and Aminah, 2017; Kusumaningtyas and Wayanti, 2016; Yektiningsih and Erviana, 2014).

Health Frontiers
A Multidisciplinary Journal for Health Professionals
TARQABIN NUSANTARA GROUP
Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023 E-ISSN : 3024-9740

Improving fine motor skills in preschool children can be done through providing stimulus in the form of learning vehicles or fun activities, namely through play (Ardyatmika et al., 2016). When playing, children can develop all aspects of development optimally. Children who are given the opportunity to play will be able to improve the mental development and intelligence of the child even though the child suffers from malnutrition (Adriana, 2011).

One of the stimulations that can improve fine motor development is playing playdough. Playdough is a game made from flour dough that is given various food coloring. Playdough has a soft, flexible and colorful texture so that it is easy to use to create various shapes and make children not easily bored and safe for children (Ardyatmika et al, 2016; Lestariani et al, 2014).

Based on the description above, researchers are interested in conducting research at Dharma Wanita Persatuan 1 Wonokerso Kindergarten with the aim of improving fine motor development in preschool children (5-6 years) through playdough games.

MATERIALS AND METHODS

The research design used in this study is Pre-Experimental Design with a One Group Pre-Post Test Design approach. This research was conducted at Dahrma Wanita Persatuan 1 Wonokerso Kindergarten, Pakisaji District on March 5-26, 2018. The population in this study were 40 children aged 5-6 years. The sample in this study amounted to 30 children with the sampling technique, namely Purposive Sampling. Playdough intervention was carried out 3 times a week for 3 weeks, with the duration of each meeting being 60 minutes.

The instrument in this study used the DDST (Denver Development Screening Test) sheet. Data collection was done through measuring children's fine motor development before (pre test) and after (post test) given playdough intervention. The statistical test used was Wilcoxon.

RESULTS

Table 1. Respondent's characteristics

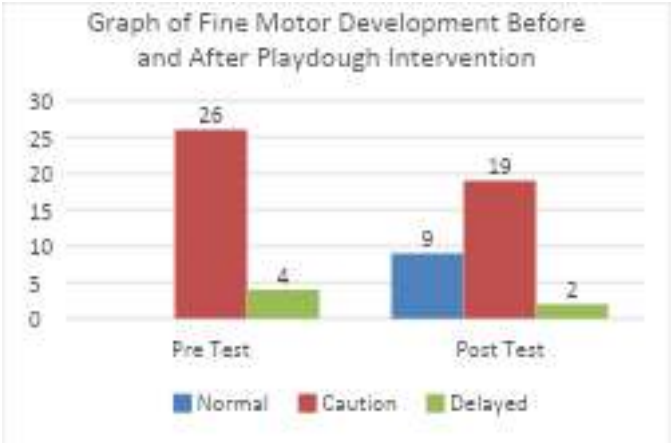
No.	Characteristics	F	%
1	**Age**		
	5-5,3 years old	9	30
	5,4-5,6 years old	10	33,3
	5,7-5,9 years old	10	33,3
	5,10-6 years old	1	3,3
2	**Gender**		
	Girl	17	56,7
	Boy	13	43,3
3	**Parents' occupation**		
	Farmer	4	13,3
	Entrepreneur	9	30
	Private Employee	17	56,7
4	**Last Education of Parents**		

Health Frontiers
A Multidisciplinary Journal for Health Professionals
TARQABIN NUSANTARA GROUP
Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023
E-ISSN : 3024-9740

Elementary School	6	20
Junior High School	14	46,7
Senior High School	10	33,3

Based on the results of table 1 above, it can be seen that the number of children aged 5.4 - 5.6 years and 5.7 - 5.9 years is the same, each of which is 10 children (33.3%). Furthermore, the characteristics of respondents based on gender are more than half of the respondents are female, totaling 17 children (56.7%). In addition, from the table above, it can be seen that more than half of the respondents' parents work privately, totaling 17 people (56.7%). As well as the results of the data above show that almost half of the respondents' parents have the latest educational background of junior high school as many as 14 people (46.7%).

Figure 1. Graph of Fine Motor Development Before and After Playdough Intervention



Based on the data in Figure 1 above, it shows that before playing playdough, most of the respondents whose fine motor development was cautioned amounted to 26 children (86.7%) and a small proportion of delayed amounted to 4 children (13.3%) while after playing playdough fine motor development 9 children (30%) were normal, 19 children (63.3%) were cautioned and 2 children (6.7%) were delayed.

Table 2. Wilcoxon Result

	N	Median (Minimum-Maximum)	P
Pre-test of Fine Motor Development	30	3 (3-4)	0.001
Post-test of Fine Motor Development	30	3 (2-4)	

The statistical test results in table 2 using the Wilcoxon test with a significance level of 0.05 using the SPSS 16.0 for windows program obtained data, namely the p value of 0.001 (0.001 <0.05). So it can be concluded that H0 is rejected, namely there is a difference in fine motor development before and after playing playdough in preschool children (5-6 years).

Health Frontiers
A Multidisciplinary Journal for Health Professionals
TARQABIN NUSANTARA GROUP
Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023 E-ISSN : 3024-9740

DISCUSSION

The results of the pre-test on children's fine motor development before being given the intervention of playing playdough obtained 26 children (86.7%) caution and 4 children (13.3%) delayed. Fine motor is a movement that uses certain body parts and is carried out by small muscles such as finger skills, wrists and requires coordination between eyes and hands (Ambariningsih et al, 2015). There are several factors that can affect children's fine motor development, including heredity, prenatal health, labor difficulties, premature birth, health and nutrition, abnormalities, personality, parental protection, children's learning opportunities, stimulus provision and parents' work and education (Rini et al, 2016; Soetjiningsih and Ranuh, 2013, Adriana, 2011).

In table 1, it is known that more than half of the respondents' parents work privately, totaling 17 people (56.7%). And the table also shows that almost half of the respondents' parents have the last education of junior high school as many as 14 people (46.7%). Sufficient parental employment and income will support the process of child development because parents are able to provide facilities to meet all the basic needs of children. A good education will enable parents to obtain information from outside, especially on how to care for children, maintain their health and educate them (Soetjiningsih and Ranuh, 2013).

The results indicate that parents' employment and education can affect children's fine motor development. Parents with less work and income will not be able to provide and provide stimulus and facilities that support their child's fine motor development. Meanwhile, parents' lack of education can affect the parents' lack of knowledge in how to care for and educate their children. In families like this, it often happens that families are unable, unwilling, or unable to use health facilities and do not understand about providing stimuli to support children's fine motor development according to their age and stage of development. This can be one of the factors that can cause children's fine motor skills to be lacking.

The results of the post test on children's fine motor development after providing playdough intervention 3 times a week for 3 weeks obtained 9 children (30%) normal, 19 children (63.3%) caution, and 2 children (6.7%) delayed. This shows that there is an increase in children's fine motor development after being given playdough intervention, namely 11 children experiencing an increase in fine motor development where previously 9 children who experienced caution became normal and 2 children who experienced delayed became caution. This can be seen from the results of the post test which experienced an increase in percentage.

Playdough is a game made from flour dough that is given a variety of interesting food coloring. Playdough has a soft, flexible and colorful texture so that it can be easily formed into various shapes according to the wishes of children and is safe for children (Ardyatmika et al, 2016; Lestariani et al, 2014). When playing playdough, children perform squeezing, pressing, rolling, leveling, scrolling and cutting movements using finger, wrist and hand-eye coordination skills to create various shapes according to their wishes and imagination (Azmy et al., 2017).

Playing with playdough can expand children's attention span or focus, teach children to understand and carry out the commands that have been given, develop small muscles, train the flexibility of the muscles of the hands and wrists, optimize eye and hand coordination, dexterity and strength and increase children's creativity (Prasetyanti and Aminah, 2017; Ardyatmika et al, 2016).

The results indicated that there was an increase in children's fine motor skills after being given a stimulus in the form of playing playdough. Providing stimulus in the form of playdough games regularly can make children happy and increase children's opportunities to continue learning and practicing fine motor skills without feeling burdened because when playing playdough children do

Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023 E-ISSN : 3024-9740

various activities such as squeezing, pressing and rolling to create various interesting shapes according to the theme by using fingers and eye coordination directly. Through this activity, children can increase the flexibility of hand muscles, eye-hand coordination and skillful use of fingers so that children's fine motor skills increase and provide a sense of pleasure in learning activities.

The results of the statistical test in table 2 using the Wilcoxon test with the help of SPSS 16.0 for windows obtained a significance level (p value) of 0.001. The p value of 0.001 is smaller than 0.05, so H0 is rejected so that there is a difference in fine motor development before and after playing playdough in preschool children (5-6 years).

Playing playdough is one of the factors that can improve fine motor development because playing playdough is included in the stimulus that can develop fine motor development. When playing playdough, children perform various movements such as squeezing, pressing and cutting using finger, wrist and hand-eye coordination skills to create a shape according to the child's wishes and imagination (Azmy et al., 2017). The purpose of playing playdough is to expand the child's attention span or focus, teach children to understand and carry out the commands that have been given, develop small muscles, train the flexibility of the muscles of the hands and wrists, optimize eye and hand coordination, dexterity and strength and increase children's creativity (Prasetyanti and Aminah, 2017; Ardyatmika et al, 2016).

Fine motor development will develop faster and optimally if children get stimulus gradually, continuously, directed, consistent, and in accordance with their developmental stage. In addition, children's fine motor development is also supported by several other factors, including heredity, prenatal health, labor difficulties, premature birth, health and nutrition, abnormalities, personality, parental protection, children's learning opportunities, and parents' work and education (Rini et al., 2016; Soetjiningsih and Ranuh, 2013, Adriana, 2011).

The results indicate that playdough can improve the fine motor skills of preschool children (5-6 years old) so that playdough can be applied to help preschool children develop their fine motor skills. When playing playdough, children perform several movements such as rolling, pressing, cutting and squeezing performed by the fingers to make several shapes according to the theme. Through playdough activities carried out regularly, it can increase the flexibility of hand muscles, eye-hand coordination and skillful use of fingers and increase children's opportunities to continue to learn and practice their fine motor skills without them feeling burdened so as to provide a sense of pleasure when learning activities and children's fine motor skills increase.

The development of children's fine motor skills has increased also supported by the time of implementation, the activeness and participation of children, and cooperation with teaching teachers during the process of providing interventions and providing other stimuli in the learning process so as to improve children's fine motor skills. Active interaction between researchers and children can increase children's activeness in following the instructions given during the intervention. And cooperation with teachers and facilitators is very helpful in conditioning children to stay focused and concentrate and help children who have difficulty in participating in playdough activities. In addition, teachers also provide several other stimuli that support children's fine motor skills in teaching and learning activities such as writing, drawing, folding and others can also improve children's fine motor development.

CONCLUSIONS

Before being given the intervention of playing playdough, the results obtained were 26 children (86.7%) caution and 4 children (13.3%) delayed in fine motor development. After being given the intervention of playing playdough, 11 children experienced an increase in fine motor development, namely 9 children (30%) normal, 19 children (63.3%) caution, 2 children (6.7%) delayed in fine motor development. From the above data it can be concluded that there are differences in fine motor development before and after playing playdough in preschool children (5-6 years).

Conflict of Interest

The authors declare that they have no known financial or interpersonal conflicts that might have looked to have influenced the research presented in this study.

REFERENCES

Adriana, Dian. 2011. Tumbuh Kembang & Terapi Bermain Pada Anak. Jakarta : Salemba Medika

Ardyatmika, I.A Istri Agung dkk. 2016. "Penerapan Metode Bermain Melalui Media Play Dough Untuk Meningkatkan Motorik Halus Anak Kelompok A", E-Journal Pendidikan Anak Usia Dini Universitas Pendidikan Ganesha, Volume 4 Nomor 4

Ambariningsih, Mia. 2015. "Mengembangkan Keterampilan Motorik Halus Anak Melalui Kegiatan Melukis". Antologi UPI

Azmy, Bahaudin dkk. 2017. "Penerapan Metode Permainan Play Dough Terhadap Kreativitas Peserta Didik RA Roudlotul Ulum Desa Metatu Kecamatan Benjeng Kabupaten Gresik", Penamas Adi Buana, Volume 1 Nomor 1

Hendrawati, Ni kadek Mei dkk. 2014. "Penerapan Metode Demonstrasi Melalui Kegiatan Melukis Dengan Cara Inkonvensional Untuk Meningkatkan Keterampilan Motorik Halus Anak", E-Journal PG-PAUD Universitas Pendidikan Ganesha, Volume 2 Nomor 2

Kusumaningtyas, Kharisma & Sri Wayanti. 2016. "Faktor Pendapatan Dan Pendidikan Keluarga Terhadap Perkembangan Motorik Halus Anak Usia 3-4 Tahun", Jurnal Penelitihan Kesehatan Suara Forikes, Volume 7 Nomor 1

Lestariani, Ketut dkk. 2014. "Efektivitas Bimbingan Kelompok Melalui Media Permainan Play Dough Untuk Meningkatkan Kreativitas", E-Journal PG-PAUD Universitas Ganesha, Volume 2 Nomor 1

Maghfuroh, Lilis & Kiki Chayaning Putri. "Pengaruh Finger Painting Terhadap Perkembangan Motorik Halus Anak Usia Prasekolah Di Tk Sartika I Sumurgenuk Kecamatan Babat Lamongan", Jurnal Ilmiah Kesehatan, Volume 10 Nomor 1

Medirisa, Liana Putri dkk. 2015. "Pengaruh Pemberian Stimulus Permainan Puzzel Terhadap Perkembangan Motorik Halus Anak Usia 4-6 Tahun Di Taman Kanak-Kanak Aisyiyah Krasak Teras Boyolali"

Pangestika, Rewinda Avin dan Erni Setiyorini. 2015. "Pengaruh Bermain Plastisin Terhadap Perkembangan Motorik Halus Pada Anak Prasekolah", Jurnal Ners dan Kebidanan, Volume 2, Nomor 2

Health Frontiers: A Multidisciplinary Journal for Health Professionals, Vol 1 Issue 1 2023 E-ISSN : 3024-9740

Prasetyanti, Dhita Kris & Siti Aminah. 2017. "Pengaruh Permainan Lilin Plastisin Terhadap Perkembangan Motorik Halus Pada Anak Prasekolah", Jurnal Penelitihan Keperawatan, Volume 3 Nomor 2

Rini, Oktavia Dwi Puspa dkk. 2016. Pengaruh Permainan Basic Origami Terhadap Perkembangan Motorik Halus Anak Usia 4-5 Tahun Di Paud Miftahul Ulum Desa Sidomulyo, Jurnal Kesehatan Mesencephalon STIKes Kepanjen, Volume 2 Nomer 3

Soetjiningsih dan IG.N. Gde Ranuh. 2013. Tumbuh Kembang Anak Edisi 2. Jakarta : EGC

Yektiningsih, Erwin & Munika Erviana. 2014. "Hubungan Stimulasi Oleh Orang Tua Terhadap Perkembangan Motorik Halus Pada Anak Usia Prasekolah (3-5 Tahun)", Jurnal AKP, Volume 5 Nomor 1

Yuniarti, Sri. 2015. Asuhan Tumbuh Kembang Neonatus, Bayi Balita, Dan Anak Prasekolah Dilengkapi Stimulasi Tumbuh Kembang Anak Melalui Bermain. Bandung : PT Refika Aditama