

The Effect Of Puzzle Game Therapy On Fine Motor Development In Children 3-5 Years In Play Group Aisiyah 27 Surabaya

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ABSTRACT

Delays in the development of fine motor skills in early childhood make children less confident and creative, this occurs due to a lack of effort due to excessive parental protection. Pre-school children are called the golden age, it is important to provide the right stimulation in order to support the development of children's fine motor skills which include hand muscles and can focus the child's vision in an optimal way. This study aims to determine the effect of puzzle games on the fine motor development of children aged 3-5 years at KB Aisiyah 27 Surabaya. This study uses a quantitative method with a pre-experimental approach. The research population consisted of 52 children in groups A and B, and the research sample amounted to 30 respondents using the purposive sampling technique. Variables of fine motor development in children aged 3-5 years observed with the DDST II instrument. The results of the study showed that almost all respondents experienced fine motor delays (delayed) before being given puzzle game therapy as many as 23 respondents (77%). After being given puzzle game therapy, almost all respondents experienced an increase in fine motor development with a normal category of 28 (93%) while the caution category was 2 respondents (7%). From the results of the Wilcoxon test, the value of $p = 0.000$ ($p < \alpha = 0.05$) was obtained, then H_1 was accepted. This means that there is an influence of puzzle games on the fine motor development of children aged 3-5 years at the Aisiyah 27 Surabaya KB (Play Group). The analysis of this study uses the Wilcoxon test from SPSS VERSION 26 software. Puzzle games include correctly fixing images according to their shape, color and size to stimulate fine motor development in developing intelligence and problem-solving skills. In addition to puzzle games, parents can also stimulate playdough and coloring games

Keywords: Puzzle games Therapy, Fine Motor Development, Children

INTRODUCTION

Fine motor development in early childhood is often delayed due to lack of learning opportunities, excessive parental protection, and lack of stimulation (Adimayanti and Siyamti, 2020) (Almadani *et al.*, 2022). Preschool children (3-6 years) are in the golden phase, so it is important to provide stimulation so that their skills develop well. Lack of stimulation or therapy can result in delays in writing and drawing abilities, as well as affecting children's fine motor development (Yanti, 2022) (Erlina *et al.*, 2024) (Yu, 2021). Based on WHO data (2019), 43% of children in developing countries experience developmental delays. In Indonesia, around 16% of children face developmental disorders such as fine and gross motor skills, hearing loss, low intelligence, and speech delays, which are caused by a lack of early detection and stimulation (RI, 2024) (Fatmawati, Wulandari and Karim, 2022) (Harmila, Fetriyah and Nito, 2023). In East Java Province, the prevalence of fine motor development disorders in preschool children reached 24.5%. At Dr. Soetomo Hospital Surabaya, 10.2% of all cases of developmental disorders received were fine motor disorders (RI, 2024) (Elizya, Subandijah and Gayatri, 2022) (Anggraini and Maya, 2024). The impact of fine motor disorders in preschool children is that it will cause disorders of the nervous system or cerebral palsy, such as unsteady walking, difficulty making fast and precise movements, such as difficulty writing or buttoning clothes. This developmental problem affects the ability to coordinate the flexibility of hand and finger movements. This action can be caused by a lack of stimulation in children (Saputri, Ramdhan and Baktiar, 2021) (Xue *et al.*, 2025) (Rachmat *et al.*, 2023).

The golden age is the right time to develop children's potential in fine motor, motor, gross, social, emotional and cognitive aspects. Delays in development in several aspects can occur, especially in

fine motor skills, which are often experienced by preschool-aged children (Ahmadin *et al.*, 2023) (Ramadhan *et al.*, 2022). Providing educational games such as puzzles can help preschool children overcome the problem of fine motor delays and make it easier for them to complete puzzles. Puzzle games involve pictures according to their shape, color and size. This activity can stimulate fine motor development and is very useful for developing intelligence and problem-solving abilities in children. Based on this, researchers are interested in investigating the effect of puzzle game therapy on fine motor development in children aged 3-5 years.

METHODS

The research method used in this research is a pre-experimental design. This type of research uses a one group pretest post test design. The total population was 52 children using nonprobability sampling, namely purposive sampling. In selecting samples, researchers used appropriate inclusion and exclusion criteria. Characteristics want to research. This research was conducted at Play Group Aisyiyah 27 Surabaya on 03-12 June 2024. The selected sample results were 30 respondents. with a quantitative design, which describes the collected data. Respondents were children who experienced fine motor delays. The research involved direct observation and monitoring of objects, and used checklist instruments and observation sheets in the form of DDST II sheets. This research began with a pretest in which 30 respondents were given an observation sheet in the form of a DDST II assessment. After the pretest, respondents were given puzzle game therapy for 4 days about 20 minutes every session. After 4 days therapy, they were again given the DDST II observation sheet to determine the final assessment (post-test). Data were analyzed using SPSS VERSION 26 for Windows with cross tabulation and frequency distribution tables. Bivariate analysis was carried out using the Wilcoxon test. This research already has ethical tests with numbers: 0550 – KEPKSHJ.

RESULTS

General Data

1. Characteristics of Respondents Based on Age

No.	Age	Σ	(%)
1	3 Years	6	20
2	4 Years	11	37
3	5 Years	13	43
Total		30	100

Source: Primary data, 2024

Based on the table above, it shows that almost half of the respondents aged 5 years were 13 children with a percentage of 43%.

2. Characteristics of Respondents Based on Gender

No.	Gender	Σ	(%)
1	Female	16	53
2	Male	14	47
Total		30	100

Source: Primary data, 2024

Based on the table above, it shows that the majority of respondents were female, namely 16 children with a percentage of 53%.

2. Characteristics of Respondents Based on Parents' Education

No.	Parents' Education	Σ	(%)
1	junior high school	11	37
2	senior high school	6	20
3	College	13	43
Total		30	100

Source: Primary data, 2024

Based on the table above, it shows that almost half of the respondents' parents had tertiary education, namely 13 children with a percentage of 43%.

Special Data

1. Characteristics of Respondents Before and after the Intervention

No.	Fine Motor Delay	Before		After		Wilcoxon Signed Ranks Test
		Σ	(%)	Σ	(%)	
1	<i>Delayed</i>	23	77	0	0	,000
2	<i>Coution</i>	7	23	2	7	
3	Normal	0	0	28	93	
Total		30	100	30	100	Z: -5,007 ^b

Source: Primary data, 2024

Based on the table above, almost all respondents experienced delays in fine motor skills before being given puzzle game therapy, 23 children with a percentage of 77%. And almost all respondents experienced an increase in fine motor development after being given puzzle game therapy with 28 normal categories with a percentage of 93%. The results of the analysis using the Wilcoxon test with a p value of 0.000 where this value is smaller than the α value ($0.000 < 0.05$), so it can be concluded that H1 is accepted, namely that there is an effect of puzzle game therapy on the fine motor development of children aged 3- 5 years at play group Aisiyiah 27 Surabaya.

DISCUSSION

1. Children's fine motor skills before being given puzzle game therapy

Based on findings from a study on children's fine motor development before intervention, almost all respondents experienced fine motor delays. A total of 23 children (77%) experienced fine motor delays category, while 7 respondents (23%) experienced delays in the "caution" category before being given puzzle game therapy.

Fine motor skills are the ability to perform movements with the hands and fingers, such as writing and drawing, which involve hand and eye coordination. Children generally experience simple fine motor development between the ages of 3-6 years, with a significant increase at 512 years of age, especially in wrist control (Safira, 2023) (Pratiwi and Yuliani, 2023). The development speed in children is influenced by various factors such as the environment, health, nutrition, stimulation, and the role of parent (Kadek *et al.*, 2022) (WHO, 2022).

Activities that involve fine motor skills include writing, drawing, and holding objects. This ability increases along with the child's physical development and neurological coordination. Based on findings from a study on children's ages, it shows that almost half of the respondents were 5 years old, 13 respondents with a percentage of 43%. Fine motor development in play group children focuses on coordinating hand movements, such as placing or holding objects. At 4 years, this coordination is highly

developed, although children still have difficulty arranging blocks because of the desire to do it perfectly. At the age of 5 years, fine motor development increases rapidly. At the age of 3-4 years, children begin to be interested in coloring, drawing, cutting and folding paper, with increasingly better hand muscle control. At the age of 5-6 years, children's fine motor coordination improves, allowing them to coordinate eye, hand and body movements simultaneously. This development is important to support independence and preparation for activities at school (Hurlock, 2007; Papalia et al., 2020). Parents can support this development with fun and educational activities (Maulidaty *et al.*, 2021) (Syazana *et al.*, 2024). Therefore, it is important to pay attention to the development of fine motor skills in older children 3-5 years, because they are more responsive to daily activities such as coloring and drawing. Researchers think that puzzle game therapy can help reduced fine motor delays in the 30 respondents. The hope is that this therapy can improve fine motor delays in Play Group Aisyiyah 27 Surabaya.

Based on the gender table, it shows that the majority of respondents are female, namely 16 respondents with a percentage of 53%. Gender differences influence child development. Girls usually experience fine motor development more quickly than boys. At the age of 48 months, children already show various fine motor skills, but still have difficulty with hand-eye coordination. At the age of 60-72 months, fine motor coordination begins to develop rapidly, and children begin to be able to regulate eye, hand, arm and body movements simultaneously (Munawaroh, Nurwijayanti and Indrayati, 2019) (Winarsunu, Hanapi and Fasikhah, 2022).

Apart from gender, there are many factors that influence a child's development. Girls usually grow faster physically and enter puberty earlier than boys, although in the end boys often exceed girls in height. Gross motor skills, such as running and jumping, develop more quickly in boys, while fine motor skills, such as writing and drawing, develop more quickly in girls. This difference makes boys tend to be more active in playing and moving. However, the environment also plays an important role in the development of children's motor skills (Harmila, Fetriyah and Nito, 2023) (Siswanti *et al.*, 2022).

According to researchers, gender has an influence on children's fine motor development. With girls showing better development than boys in general. However, environmental factors and stimulation is also very important to support this development.

2. Children's fine motor skills after being given puzzle game therapy

Based on findings from a study on fine motor development after being given intervention, almost all respondents experienced an increase in fine motor development after being given puzzle game therapy. A total of 28 children (93%) showed fine motor development in the normal category, while 2 respondents. Puzzle games have a positive effect on the fine motor development of pre-school aged children. (Harmila, Fetriyah and Nito, 2023) (Arisanti, Dewi and Indrayani, 2022) also stated that the puzzle playing method increases the fine motor development of preschool children aged 35 years. Before therapy, the average fine motor score was 7.87, and after therapy the average score increased to 9.93.

According to researchers, puzzle games have a positive impact on children's fine motor development and are an effective approach. It is important to choose a puzzle that is appropriate for the child's age and abilities so that it remains challenging but not too difficult.

3. The Effect of Puzzle Game Therapy on the Fine Motor Development of Children Aged 3-5 Years in Play Group Aisyiyah 27 Surabaya.

Based on findings from a study The results of the analysis used the Wilcoxon test with a pvalue of 0.000, where this value is smaller than the α value ($0.000 < 0.05$), so it can be concluded that H1 is accepted, namely that there is an influence of puzzle game therapy on the fine motor development of children aged 3-5 years in Play Group Aisyiyah 27 Surabaya. According to (Safira, 2023) (Wulandari and Ardiansyah, 2020) fine motor skills involve the small muscles of the hands and coordinating the eyes, which can be improved through continuous stimulation and activities. Play therapy such as puzzles is effective for optimizing children's fine motor skills, which play an important role in their general

development. (Harmila, Fetriyah and Nito, 2023) (Safira, 2023) in his research entitled "The Effect of Puzzle Play Therapy on Fine Motor Development in PreSchool Children at Gugus Tulip III Padang Core Kindergarten" stated that puzzle game therapy has a positive influence on children's fine motor development.

Researchers argue that puzzle therapy is not only entertaining but also provides new knowledge to children. Children who take part in this therapy show high interest, increase interaction and communication between children, and learn about shapes and colors. In addition, puzzles are easily accessible and can be implemented by parents, teachers or respondents.

CONCLUSIONS

1. Before being given puzzle game therapy therapy, 23 respondents (77%) experienced delays in fine motor skills.
2. After being given puzzle game therapy, 28 respondents (93%) showed improvement and were in the normal category.
3. Wilcoxon test analysis shows a significant effect of puzzle games on fine motor development, with a value of $p = 0.000$ ($p < 0.05$).

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