

# THE INFLUENCE OF PICTURE COLORING ON FINE MOTOR DEVELOPMENT IN CHILDREN AGED 4-5 YEARS

Nining Fitriyaningsih<sup>a\*)</sup>, Noor Siti Noviani Indah Sari<sup>a)</sup>

<sup>a)</sup>Sekolah Tinggi Ilmu Kesehatan Wijaya Husada, Bogor, Indonesia

<sup>\*)</sup>e-mail korespondensi : nienk1406@yahoo.com

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**Abstrak.** According to the World Health Organization (WHO) reports that 2-25% of preschool age children suffer from minor brain dysfunction, including impaired fine motor development, in Indonesia around 16% of children experience impaired fine motor development. Fine motor development involves certain body parts performed by small muscles. How to stimulate fine motor skills in children has a very large function, namely to increase the movement of fine activities such as writing, drawing, and typing. The impact that will occur if the child has a disruption in fine motor development that can cause cerebral palsy. To determine the effect of coloring pictures on fine motor development in children aged 4-5 years. This type of research is pre-experimental and conducted in Al-Munawar Kindergarten, Nanggung District with respondents, namely children aged 4-5 years using Total Sampling. The instrument used was an observation sheet. Knowing univariate analysis before given coloring treatment 50% of children in the category of undeveloped and after being given coloring treatment 50% of children in the development category as expected. Bivariate analysis using the normality test using Shapiro Wilk with the results of  $0,000 < 0,05$  means that the data is not normally distributed, after that to test the hypothesis using Willcoxon with a P value of  $0,000 < 0,05$ , it means that  $H_a$  is accepted. Knowing fine motor development of the respondents 50% of respondents fall into the category of undeveloped with a mean value of 1.87 and a standard deviation of 0.937. Knowing fine motor development of 50% of respondents included in the category of developing according to expectations with a mean value of 2.90 and a standard deviation of 0.712. The Influence of Coloring Pictures Against Fine Motoric Development in Children Aged 4-5 Years at Al-Munawar Kindergarten, Nanggung District, Bogor Regency.

**Keywords:** Coloring Pictures, Fine Motor Development, Children 4-5 Years



## I. INTRODUCTION

Children under five as a golden age or "golden age" that is human beings aged 0-6 years (Law no. 20 of 2003), although some experts say children under five are vulnerable children aged 0-8 years. Developments experienced during the golden age are physical, cognitive, linguistic, emotional, adaptive, social, personal, and motoric [1].

In Indonesia the number of children under five years old is 23.7 million or around 10.4% of the total population of Indonesia [2]. The number of children aged 1-5 years in the West Java area there are 5.6 million children [3] and the number of children aged 4-5 years in Bogor Regency is 113,232 children [2].

In general, growth has certain characteristics, namely changes in body proportions that can be observed in infancy and adulthood, irregular growth rates and are characterized by certain periods of prenatal, infant and adolescence, where rapid growth occurs. World health organization (WHO) reports that 2-25% of preschool-aged children suffer from minor brain dysfunction, including impaired fine motor development [4]. Globally reported children who experience disorders in the form of anxiety around 9%, easy emotions 11-15%, behavior disorders 9-15% [5].

The number of children under five in Indonesia experienced 0.4 million fine motor and gross motor development disorders or around 16% [4]. Student prevalence rate (growth inhibition) in toddlers is around

24.5%. Monitoring of the growth of children under five every month shows that the percentage of toddlers aged 6-59 months who have never been weighed in the last 6 months tends to increase from 25.5% in 2007, 23.8% in 2010, to 34.4% in 2013. Disorders speech and language development is often found in children aged 3-16 years. It is estimated that the incidence rate ranges from 1% to 32% in the normal population [2]. The purpose of this study was to determine the effect of coloring pictures on fine motor development in children aged 4-5 years group A in Al-Munawar Kindergarten, Nanggung District, Bogor Regency.

## II. RESEARCH METHODS

This study uses the one group pre-test and post test design method by giving a pre-test (initial observation) before giving intervention. After that the intervention is given, then post test (final observation). This research was conducted at Al-Munawar Kindergarten. By taking a total sampling of the population.

The variables of this study consisted of the influence of coloring pictures and fine motor development in children aged 4-5 years. Data processing and data analysis using computer programs. The analysis consisted of univariate and bivariate analysis, where bivariate analysis analyzed the effect of coloring pictures on fine motor development in

children aged 4-5 years in group A of Al-Munawar Kindergarten.

### III. RESULTS AND DISCUSSION

This study began by observing the development of fine motor before being given a coloring treatment for 20 minutes, then given a coloring treatment for 50 minutes and one day after that for 20 minutes, observing fine motor development again after being given a coloring treatment for children aged 4-5 years group A in Al-Munawar Kindergarten

Table 1 Frequency Distribution of fine motor development before giving color coloring treatment

| Category                          | Frequency | Percentage (%) |
|-----------------------------------|-----------|----------------|
| Undeveloped                       | 15        | 50             |
| Began to develop                  | 4         | 13,3           |
| Develop according to expectations | 11        | 36,7           |
| Very well developed               | 0         | 0              |
| Total                             | 30        | 100            |

SPSS 16

Based on the results of table 1 about the frequency distribution of fine motor development before coloring treatment is known from respondents, the majority of respondents ie 50% of them are included in the undeveloped category.

Table 2 Average values and standard deviations of fine motor development before treatment with coloring pictures

| Treatment       | Frequency | Mean | Standard Deviation |
|-----------------|-----------|------|--------------------|
| Before Coloring | 30        | 1,87 | 0,937              |

SPSS 16

Based on table 2 about the average value and standard deviation of fine motor development before being given a coloring treatment, it is known from the respondent that there is a mean value of 1.87 and the standard deviation value is 0.937.

Based on the results of table 3 the distribution of the frequency of fine motor development after being given a treatment coloring pictures of the respondents after being given a treatment coloring pictures, as many as 50% of children included in the category of development as expected.

Table 3 Frequency Distribution of fine motor development after coloring treatment

| Category                          | Frequency | Percentage (%) |
|-----------------------------------|-----------|----------------|
| Undeveloped                       | 0         | 0              |
| Began to develop                  | 9         | 30             |
| Develop according to expectations | 15        | 50             |
| Very well developed               | 6         | 20             |
| Total                             | 30        | 100            |

SPSS 16

Table 4 Mean values and standard deviations of fine motor development after treatment with coloring pictures.

| Treatment      | Frequency | Mean | Standard Deviation |
|----------------|-----------|------|--------------------|
| After Coloring | 30        | 2,90 | 0,712              |

SPSS 16

Based on table 4 about the average value and standard deviation of fine motor development after being given treatment coloring pictures of 50% of respondents there is a mean value of 2.90 and the standard deviation value is 0.712

Table 5 Bivariate analysis of the normality of pretest and posttest data effects of coloring pictures on fine motor development in children aged 4-5 years

| Variable               | N  | Normality test |
|------------------------|----|----------------|
| fine motor development |    |                |
| Pre_Coloring           | 30 | 0,000          |
| Post_Coloring          | 30 | 0,000          |

Based on the results of table 5 on the bivariate analysis of the normality of pretest and posttest data the influence of coloring pictures on fine motor development in children aged 4-5 years was obtained from the data normality test using Shapiro Wilk before being given a coloring treatment picture is 0,000 and after being given a coloring treatment image is 0,000. The normality test results above get the value of pre\_color = 0,000 <0.05 and post\_color = 0,000 <0.05 meaning the data above is not normally distributed.

Table 6 Bivariate analysis of the pretest and posttest homogeneity test the effect of coloring pictures on fine motor development in children aged 4-5 years

| Variable               | N  | Homogeneity Test |
|------------------------|----|------------------|
| fine motor development |    |                  |
| Pre_Coloring           | 30 | 0,000            |
| Post_Coloring          | 30 | 0,063            |

Based on the results of table 6 on the bivariate analysis of the pretest and posttest homogeneity test the effect of coloring pictures on fine motor development in children aged 4-5 years was obtained homogeneity test results using the Levene test before being given a coloring treatment picture was 0,000 and after being given a coloring treatment picture was 0.063 . Homogeneity results above get the value of  $pre\_coloring = 0,000 < 0.05$  and  $post\_coloring = 0.063 > 0.05$  meaning that before the treatment is given coloring the image above data is not homogeneous and after being given a coloring treatment the data image above is homogeneous.

Table 7 Bivariate analysis of hypothesis testing of pretest and posttest data the effect of coloring pictures on fine motor development in children aged 4-5 years

| Variable                      | N  | Means | Std. Dev. | Min. | Maks. | P Value |
|-------------------------------|----|-------|-----------|------|-------|---------|
| <b>fine motor development</b> |    |       |           |      |       |         |
| Pre_ Coloring                 | 30 | 1.87  | 0,937     | 1    | 3     | 0,000   |
| Post_ Coloring                | 30 | 2.90  | 0,712     | 2    | 4     |         |

Based on the results of table 7 about the bivariate analysis of the pretest and posttest data hypothesis the effect of coloring pictures on fine motor development in children aged 4-5 years was obtained from the hypothesis test data using Will Coxon before and after the treatment of coloring pictures was 0,000 ( $< 0, 05$ ). This means that there is an effect of coloring pictures on fine motor development in children aged 4-5 years,  $H_a$  is accepted

#### Univariate

Based on the data obtained from the univariate results, there is a value of the frequency distribution of fine motor development before being given a coloring treatment of the 30 respondents most of which fall into the underdeveloped category of 50%, the mean value is 1.89 and the standard deviation value is 0.937. While the frequency distribution values after being given treatment coloring pictures of 30 respondents mostly fall into the category of developing according to expectations of 50%, the mean value of 2.90 and the standard deviation value of 0.712. Judging from the values before and after the treatment of animals, there are differences in values that increase. Coloring is a favorite activity for children, especially for children who want to learn to recognize colors. In this activity children are given the freedom to choose colors and combine colors. Coloring is a skill that is loved by children. coloring is also a medium for them to express their imagination and inspiration about everything that has been touched and experienced [6].

This is in accordance with research conducted by Niluh Sri Murdian [7] This study uses data collection techniques, observation and assignments. The results

obtained before given the task of coloring pictures of the number of respondents 25 there is a mean value of 1.58 and after given the coloring activity there is a mean value of 2.65 where there are 80% of children have sufficient fine motor skills, and there are 4% of children have less fine motor skills

#### Bivariate

Based on the data obtained from the hypothesis test data using Will Coxon before and after the treatment of coloring pictures is 0,000 (0.05), it means that there is an effect of coloring pictures on fine motor development in children aged 4-5 years. As the physical development of children aged 4-5 years, the child's motor development can be coordinated. Each activity is aligned with their needs or interests. At this time marked by excess movement or motor skills that are very agile, therefore, this age is an ideal time to learn skills related to fine motor development, namely by drawing, painting and typing [3].

The factors that influence fine motor development include the development of the nervous system, physical abilities that make it possible to move, children's desire to motivate to move, supportive environment, aspects of the child's psychology, age, sex, genetic and chromosomal abnormalities [8].

The results of this study are in line with research conducted by Aprilena [9]. Based on the results of research that by using drawing media with various crayons can improve fine motor skills in children. Based on the research results obtained by the first cycle with an average value of 31% and in the second cycle increased to 91% results p value = 0.001.

#### IV. CONCLUSION

It is known that fine motor development before being given coloring treatment pictures of respondents there are 50 % of respondents in the undeveloped category with a mean value of 1.87 and the standard deviation value is 0.937

Knowing fine motor development after being given a coloring treatment picture of the respondents there are 50% of respondents in the category of developing according to expectations with a mean value of 2.90 and the standard deviation value is 0.712

There is an effect of coloring pictures on fine motor development in children aged 4-5 years group A in Al-Munawar Kindergarten, Nanggung District, Bogor Regency in 2018, with a p value of 0.00 ( $< 0.05$ ).

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