



Research Article

BRAIN GYM INCREASE ROUGH AND FINE MOTOR DEVELOPMENT IN PRE SCHOOL CHILDREN AGES 4-6 YEAR IN NU DARUL HUDA'S KINDER GARTEN-MOJOKERTO-INDONESIA

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ABSTRACT

Toddler period is the most important in children growth. With the new stimulation, they will be more excited and happier to do things and not getting bored easily. Hence, the development of roughand finemotor skills will be easily achieved. One of the new fun ways for the development of fine motor is Brain Gym. The purpose of this study was to analyze the effect of giving brain gym on the development of fine and rough motor to the toddlers. This study is analytical quasi experimental design with one group pre-post approached. The independent variable in this study was brain gym and the dependent variables were fine and rough motoric development for toddlers aged 4-6 years. The population in this research consisted of 80 children and 60 children as experimental group. The location of this research was atNU Darul Huda's Kindergarten-Mojokerto. The instruments in this study were KPSP sheets with appropriate age and checklist observation sheet. The data was analyzed with Wilcoxon test. There were differences from the rough motor development before and after given brain gym, also differences on fine motor development before and after given treatment of brain gym. So, there were differences between motor development before and after treatment of brain gym.

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INTRODUCTION

An important period in the development of a child is toddler years, because in this is the period where the basis of growth takes place and that will influence and determine the next child development. One of the forms of child development to be achieved is mainly motor, because it is an important aspect in the development, especially at the age of 4-6 years (Campbell dan, 1997). WHO (World Health Organization) reported that 5-25% of pre-school age children suffered minor brain dysfunction, including disturbance on the development of motor (Sudiarto, 2012). According to the MOH (2006), 0.4 million (16%) infants in Indonesia suffered from impaired fine and gross motor development, hearing loss, less intelligence and speech delay. Based on the data of the first level health of East Java Province in 2010 for the detection of growth and development of children under five in East Java is set to 80%, but the inspected coverage was 40-59% and those who undergo optimal development were not as many as 0.14% (Saiful, 2012). Gross and fine motor development is strongly influenced by the organs of the brain. It is the brain that regulate every movement made by the children, the maturation of the developing nervous system of the brain that regulate

muscle allows the development of competence or ability of a child's motor (Sudiarto, 2012). Stimulation of development is necessary, just a few educational institutions in learning will not help much in stimulating the development of the students. Amongst whom were students in Kindergarten NU Darul Huda Mojokerto, based on the observations and the results of preliminary studies, they have not yet applied Brain Gym, only physical exercise on their curriculum which is still conventional and provision of outdoor play space without specific activities. The purpose of this study was to know the effect of Brain gym to increase fine motor development, rude to preschoolers aged 4-6 years old at TK NU's Darul Huda Mojokerto.

MATERIALS AND METHODS

This research was a quasi experimental design with Time series design using pre test and post test experimental group [4]. This research was conducted at NU's Darul Huda kindergarten Mojokerto age (4-6 years). Data collection techniques in this study documentation gathered information about the values of learning, student progress reports and practical aspects during the research. Observation was conducted using KPSP (Questionnaire Pre Screening Developments) as research instrument (Riyadi, 2012). The population in this study was 80

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people by using purposive sampling technique as many as 60 children in the experimental group.

An overview of the research design is as follows

Research data was analyzed by using statistical test of Wilcoxon signed rank test to find out the differences before and after intervention. At the time of writing, the results of the experimental pre-test and post-test one's group design data processing and data analysis was conducted after the data is collected and tabulated through Wilcoxon rang test and to test the effect of the Brain Gym on fine motor, against gross motor with Brain Gym. Then, we tested together with multivariate multiple regression test (Andriana, 2011).

RESULT AND DISCUSSION

In this section, it is explained about respondents characteristics, the effect of brain gym on the rough and fine motor development.

Respondents Characteristic

The result of the calculation of frequency distribution by sex; most of the respondents were female, as many as 35 children (58.3%), while child's age average is 60 months of 30 children (50.0%).

Table 1. Design Study

Group	Pre test	Experiment	Post test
1	Y1Y2Y3	X	Y4Y5Y6

Brain Gym influence on the development of RoughMotor

The results of calculation of the frequency distribution before treatment suggested that the children with appropriate gross motor development are as many as 28 children (46.70%), irregularities were found on 11 children (18.20%).

Table 2. Effect of Brain Gym on the development of rough motor in preschool children Aged 4-6 years in NUDarul Huda's kindergartenMojokerto 2016

Development of Gross Motor	Before	Percentage (%)	After	Percentage(%)
Appropriate	28	46.7	40	66.7
Questionable	21	35.0	19	31.7
Deviant	11	18.3	1	1.7
Total	60	100	60	100

Table 3.Effect of Brain Gym on the development of finemotor in preschool children Aged 4-6 years in NUDarul Huda's kindergarten Mojokerto 2016

Fine Motor Development	Before	Percentage (%)	After	Percentage (%)
Appropriate	26	43.3	38	63.3
Questionable	26	43.3	16	26.7
Deviant	8	13.3	6	10.0
Total	60	100	60	100

After the application of Brain Gym,there was an increase in appropriate gross motor development, as many as 40 children (66.70%),while the irregularitywas only found on 1

child(1.70%).Wilcoxon test results suggested that (b: 1267;% [CI95: 1151 s / d 1382] Z: -3080; p = 0.002), so there are differences in gross motor development before and after the treatments were given by using Brain Gym.The results suggested that kindergarten students; found the symbols (letters or images), could communicate meaning. Exercising gross motor movement is the basis for fine motor control (Maslihudin, 2008). Gross and fine motor development is strongly influenced by the organs of the brain. It is the brain that regulate every movement made by the children, the maturation of the developing nervous system of the brain that regulate muscle allows the development of competence or ability of a child's motor (Marks. 2010). Motor development skill of children at the age of 4 years begin to progress and their movement is faster (Dennisan, 2009). However, at this age children are still experiencing difficulties in fully utilizing their coordination of motor movements (Santika, 2013). Through the activities of brain exercise, there will be an increased understanding of the concept and activity performance (Wolfsont, 2002).

Brain Gym influence on the development of fine motor

The results of calculation of frequency distribution before treatment suggested that an appropriate fine motor development was found on as many as 26 children (43.30%), while the irregularities were found on 6 children (13.30%). The application of Brain Gym associated with an increase on appropriate fine motor development as many as 38 children (63.30%) and the irregularities were reduced to 6 children (10%). Wilcoxon test results suggested that (b: 1167; CI95%: 1.070 s / d 1,264; Z: 2977; p = (0003), so that there were differences in fine motor development before and after the treatments were given by using Brain Gym. This research is in accordance with the explanation (Maslihudin, 2008). That brain exercises can improve fine motor coordination. Brain Gym with stimulation to children, will train hand-eye coordination so that the more often children practice,the more easily the child can do it. This could be due to the accustomed stimulation.Further more brain gym significant increase in short-term memory function in children (Putranto, 2009), With regular exercise, the child will better understand the problem given that in time they can solve problems and train their fine motor habit.

If children are trained or stimulated in boring manner, it will make the child quickly get bored that they often ignored educators (Aprilia, 2009). The students do the creativity, play, and make innovation. Graffiti double assist skill development cooperation between their two eyes, eye-hand coordination, hand dominance, concentration of vision to a point near, and usefulness of central vision field. In addition to maintaining brain function, brain exercises are also very fun as playing, students will be eager to follow every movement because it takes concentration (Cancela, 2015). Besides, fun movement as well as simple brain exercises can be done at any time. The process of brain exercises does not require complicated materials and equipments (Ryan, 2013). Besides, brain gymnastics activities also align capabilities and thinking at the same time, as well as maintain the flexibility and balance of the body, one hand and the fingers. By giving brain exercise on a regular basis, you will provide stimulation to the brain thus improving hand-eye coordination to enhance the child's motor development (Roper, 2016).

Conclusion

The results suggested that Brain Gym can stimulate gross motor development with p value >0.001, fine motor development with p value > 0001. Brain Gym, if it is done regularly, it will give stimulation to the brain thus improving hand-eye coordination to improve fine motor development and rough in children aged 4-6 years. The results of the study can be considered for a place to enter the Brain Gym research on early childhood curriculum and the Department of Education for the development of policies for early childhood education methods. Especially for parents and the public aware of a good time (Golden Period) stimulate the fullest.

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