

# Effect of Growth Stimulation on the Progress of Children Aged 36-72 Months

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Growth and development of children aged 36-72 months is a basic stage that is very influential and becomes the foundation for further development. No matter how small the growth and development that occurs in children at preschool age, if not detected and intervened as early as possible, it will reduce the quality of human resources in the future. Monitoring or early detection of the growth and development of children has been routinely done. It can be seen from the achievement of Early Detection and Growth (DDTK) per year. Still, early detection of growth and development of early childhood is not always followed by stimulating activities for children who are found irregularities in growth and development. The purpose of this study was to determine the effect of growth stimulation on the development of children aged 36-72 months in Metro City. This research is quantitative research with a quasi-experimental type of research with one group pretest-posttest models. The study population was all preschool students aged 36-72 months, totalling 174 people. The sample was all preschool age students who at the time of measurement of progress used the Pre-Developmental Developmental Questionnaire (KPSP) received a score of 7 or 8. Data collection was done with a two-week treatment, and then the data were analysed by univariate and bivariate analysis using the Wilcoxon statistical test. The results showed that out of 13 children who received growth stimulation, there are six children that show an increase in child development compared to before the stimulation of growth and development. The  $-z$ -value is -2.449, which means  $p$ -value is 0.014 less than a significant level of 0.05. We suggest that the Health Center should be in collaboration with teachers of early childhood education (ECD) /Pre-school (kindergarten) and parents to conduct early detection and provide stimulation of child growth and development if a developmental delay is found in children.

**Key words:** *Stimulation, Growth, Children*



## Introduction

The age of 36-72 months is a necessary critical stage for the growth and development in childhood and became the foundation for the later event (Adriana, 2013). This period lasted a short so-called critical period (critical period) or the golden age (golden gold). Any small growth disorders that occur in children of preschool age is, if not detected and intervene as early as possible, will reduce the quality of human resources in the future (Febrikaharisma & Probosari, 2013).

Children aged 36-72 months have their characteristics in terms of growth and development. Growth is the increasing size and number of cells and intracellular networks, meaning an increase in physical size and structure of the body in the sense of partial or total, quantitative to be measured in length and weight (Susilaningrum & Utami, 2013). The development is related to the increased ability of the body function or ability of individuals to learn all the necessary skills.

Child development is an issue that needs to be known and understood because growth and development in childhood is a very important but often overlooked by parents and health professionals (Nursalam & Utami, 2005). Child development is often ignored, unlike other health problems that have been highlighted by the government as there are already a great deal of data about their child's growth that includes nutritional status, absence of data on diarrhea in children. Meanwhile, the development itself is also a health issue that must be considered by the government and health care workers and parents because delays or developmental disorders in children will affect the development of children in the next stages (Hidayat, 2009).

One of the government's efforts in fostering growth and development of children has been implemented, namely the Ministry of Health RI stimulation activities, detection, and early intervention in toddler developmental irregularities. Stimulation (sight, speech, hearing, and tactile), which comes from the child's environment. Children who get targeted stimulation will grow faster than those that are less or even do not get stimulus (Kania, 2006).

Giving stimulation is more effective when paying attention to the needs of children by the stages of its development. Monitoring or early detection of child development has been routinely performed, early detection of growth and development of children under five carried out in the health service can also be carried out in educational institutions such as early childhood and kindergarten. However, early detection of rapid childhood growth and development is not always followed by stimulation activities for children, which found irregularities on growth. The stimulation that is not done causes unsolved growth deviations. Results of interviews with kindergarten and early childhood teachers and early childhood show that they mostly do not know how to do early detection and stimulate the development of the child. The purpose of this



study was to determine the effect of stimulation of the growth and development of children aged 36-72 months.

## **Methods**

This type of research in this study is a quasi-experimental or quasi-experimental research design used in this research is the design of "one group pretest-posttest." There are two independent variables in the form of growth stimulation, and the dependent variable is the child's development. The subjects were all children aged 36-72 months who were disciples kindergarten at Metro Center Metro City. The sample was 36-72-month-old kindergarteners who get status dubious (M) when the measurements of child development were taken by using the KPSP instrument. Data collection in the research were conducted by interview, observation, test methods.

In this study, researchers collected data formally to express informed consent that included goals and objectives, with the assistance of early childhood teachers. Researchers then identified and conducted interviews with mothers and children. Researchers conducted the assessment and development of the child observation measurement results that were taken as the data pre-stimulation. Then she taught the developmental stimulation of the child based on the measurement and assessment of progress (pre-stimulation) so that the mother can follow the stimulation of growth and development that are taught and encouraged to practice at home to their children.

After completing the stimulation two weeks later, the second measurement of progress is implemented. These results can be used as a data post-stimulation. The results of the development of pre- and post-recording helped calculate the average development of pre, post average growth, and the difference in development. The data is then collected, processed and analysed, and the results were obtained with the help of computerisation.

## **Results and Discussion**

In general, the data will be displayed on the characteristics of respondents by age, sex, nutrition status, KPSP results. According to Table 1, with 174 children aged 36 -72 months, the highest proportion was 60-72-month-old children which accounted for 54.6% (95 people); 59.2% (103) were female; 84.5% (147 votes) were children with functional nutritional status, while 91.4% (159) of the children were with KPSP results by its development.

**Table 1. Characteristics of Respondents Based on Age, Gender, Nutritional Status, KPSP Results.**

<b>Characteristics of respondents</b>	<b>n = 174</b>	<b>%</b>
<b>Age</b>		
36-48 months	12	6.8
48-60 months	67	38.6
60-72 months	95	54.6
<b>Gender</b>		
Male	71	40.8
woman	103	59.2
<b>nutritional status</b>		
Good Nutrition	147	84.5
Malnutrition	16	9.2
Nutrition More	11	6.3
<b>Results KPSP</b>		
Corresponding	159	91.4
Question	13	7.5
Deviation	2	1.1

**Table 2. Differences in Scores of KPSP Children aged 36-72 Months Before And After Stimulation of Growth Forum**

<b>Respondents</b>	<b>Results KPSP</b>		<b>Result</b>
	<b>Pre-stimulation</b>	<b>Post stimulation</b>	
1	7	8	increase
2	8	8	Permanent
3	8	8	Permanent
4	7	8	increase
5	8	8	Permanent
6	7	8	increase
7	8	8	Permanent
8	8	8	Permanent
9	7	8	increase
10	7	7	Permanent
11	7	8	increase
12	8	8	Permanent
13	8	9	increase

After the pre- and post-stimulation, research results obtained after stimulation by child development shows that there are 46.1% (6) children with KPSP increased their scores by 1 in KPSP rating.

Normality Test results show that the data were not normally distributed using the Wilcoxon signed-rank test with a confidence level of 5% (0.05) as presented in Table 3.

**Table 3. Differences in Child Development Before and After Awarded Growth Stimulation**

Differences in Child Development	N	Mean	Std. deviation	Minimum	Maximum
Pre Stimulation	13	7.54	.519	7	8
Post Stimulation	13	8.00	.408	7	9

The average value for the development of children before growth stimulation was implemented was 7.54, with a standard deviation of 0.519, and a minimum amount of 7 to 8. The development of children after being given the stimulation was 8.00 with a standard deviation of 0.408 and the score starting from the 7th a maximum of 9.

The Wilcoxon Signed Rank test result shows that Z-value was -2.449, which means p-value is 0.014. With the significance level of 0.05,  $H_0$  is rejected, and  $H_a$  accepted, meaning that there is significant stimulation of growth and development of children aged 36-72 months.

Based on the data analysis results, of 174 children aged 36-72 months doing developmental assessment using instruments KPSP, 91.4% (159 children) were under appropriate development (S), 7.5% (13 children) were with doubtful status (M), and 1.1% (2) of the children were with the state of deviation (P).

Development rating has been done in studies. Dhamayanti (2006) showed that 15% of children aged 15-18 months had suspected delay results. Kadi, Garna, and Fadlyana (2016) conducted in Bandung on early detection of the development of children aged 12-14 months with KPSP gained 17.6% delayed (Kadi, Garna, & Fadlyana, 2016).

Growth and development have increased rapidly at an early age are from 0 to 5 years. The period is often referred to as the phase of the "Golden Age." This period is a crucial time to pay attention to children's growth carefully so they can be detected as soon as possible. Handling of abnormalities by the golden age can minimise the occurrence of abnormal growth and development so that a permanent disorder can be prevented (Nutrisiani, 2010; Pem, 2015).



Pre-school period starting from age 3-6 years is the development of rapid physical and personality, broader social interaction skills, the conceptualisation of self, motor development, ongoing marked motor skills such as walking, running, and jumping (Wong, 2015). The event is increasing the body's structure, and function is more complicated in coarse motion capability, smooth motion, speech, and language, as well as socialisation and independence. Early childhood development can be measured using the KPSP instrument (RI, 2014).

Factors that influence the success of stimulation are exclusive breastfeeding, adequate nutrition, environment, and upbringing to optimise their physical, mental, social, and cognitive. The state of health of nutrients determines nutritional status received and utilised by the body (Hartono, 2006). It also appears in the research results by Indriati (2016) suggesting that there is a positive and significant correlation with the level of moderate association between nutritional status and development of children aged 1-5 years (Indriati & Murpambudi, 2016). This is consistent with other studies showing significant results that the nutritional status of a child has an effect on the development of the child if a child has malnutrition the child's event was not optimal and there is interference ability in children suffering from hearing loss, speech disorders and disorders of social interaction (Jimoh, Anyiam, and Yakubu, 2018).

Appropriate growth capital is to achieve proper development. Good growth, followed by stimulation of child development, can realise optimal development-stage age. Stimulation is one part of the environmental factors that influence a child's development. Stimulation activities are to stimulate the child to grow and develop optimally. The stimulation that can be done should be adequate means to stimulate the infant brain so that the development of mobility, speech, and language, socialisation and independence in toddlers take place optimally according to the child's age. The event is a progressive change, focused and integrated. Progressive means that the changes have a specific direction and tend to go forward, not backward. Child development must be optimised to achieve better conditions in the future. Stimulation of growth becomes very important for children's development (Nugroho, 2009).

Stimulation activities organised are comprehensive and coordinated partnerships between families (parents, nannies, and other family members), people (volunteers, community leaders, organisations Profession, NGOs) and professional energy (Health Education and Social Affairs). Soetjningsih (2012) states that the stimulation can be done by parents, caregivers, or other family members in everyday life. Family empowerment is needed to provide stimulus to the growth and development of the children and assisted with expert support (Bailey et al., 2005; Hwang, Chao, and Liu, 2013).



Stimulation of growth and development in children will develop better if the environment is supportive. The stimulation provided by parents in good standing has the cognitive outcomes and impaired speech better than the stimulus provided by the NII parents under stress (Singla, Kumbakumba, & Aboud, 2015).

This study is in line with Obradovic (2016) conducted in Pakistan, indicating that the environment strongly influences the results of giving stimulation of child development in a family environment. The study was done in the family who could get the child's development and by the age of the child, while the more impoverished families are able to obtain good results with the development of children less statistical test  $p$ -value  $<0.001$  (Obradovic, Yousafzai, Finch, and Rasheed, 2016).

Results of post-stimulation analysis show that there were 46.1% (6) children with KPSP increased their score by 1 in KPSP rating, there were 53.8% (7 children) getting the score remained although stimulation of growth and development has been done.

Several factors influence the success of stimulation, among others, the essential ability of individuals, health, family, environment, and socio-economic circumstances. It is also influenced by the beginning of time when given stimulation, how long, and how to do it. No increase in the child's development in the whole sample was due to many factors, one of which is a delay in the detection of child development. Therefore, delays and developmental disorders are not detected and do not have an impact on growth stimulation to correct obstructions in the event of children.

Early stimulation is significant for child development outcomes. This is shown by improvements in the treatment group from 85.75 to 94.3%. Another thing is that not entire respondents experienced an increase in the child's development may be due to timing of stimulation which were 3 -4 hours per day at school during two weeks, while according to the corresponding guidebook SIDDTK, stimulation activities carried out intensively at home by parents or caregivers will be more helpful to improve child development because children have more time at home than in school (Irmawati et al., 2012).

Results found no influence of growth stimulation on the development of children aged 36-72 months. The Z-test value shown in the test result was -2.449, which means  $p$ -value was 0.014 less than the significance level of 0.05. In addition, the clinical effect of stimulation of the growth and development of the child's development proved no effect is evident from the number of children increased after stimulation Score KPSP growth. Thus clinically, there is significant growth stimulation of the development of children aged 36-72 months. Seen from the analysis results are 46.



The ability and development of children need to be stimulated by the parents so that children can grow and develop optimally and with age. The stimulation of growth and development of children must be carried out for children under five years old (Rahmaulina & Hastuti, 2008). Preschool age is the right time to maximise the child's intellectual development (Khomsan et al., 2013). The early stimulation effect would show a dramatic increase in child development, intensive intervention and comprehensive and integrated health care and nutrition in particular (Engle et al., 2007).

Stimulation is stimulation (sight, speech hearing, touch) coming from the child's environment. Children who are targeted will grow faster than those that are less or even not stimulated. Stimulation of development becomes very important for children's development (Proverawati & Wati, 2011). Psychosocial stimulation has a positive effect on cognitive development of children (Hastuti 2009; Warsito, Khomsan, Hernawati, and Anwar, 2012), there is a stimulation effect of early detection of growth and development on the development of children aged 4-24 months (Widaningsih, Darajat, & Dirgahayu, 2012). Also, the results of Ranuh, S., and Gde, I.G.N (2014) demonstrate that there is a strong positive and significant correlation and between stimulating growth and development of children aged 1-3 years. Every country in the world has a program which aims to stimulate growth and development in children, and the results of the program can increase the development of children. However, the success of the programs depends on environmental attitudes and individuals who receive it (Peacock-Chambers, Ivy, and Bair-Merritt, 2017).

## **Conclusion**

Based on the results of research and discussion about the effect of stimulation of the growth of the development of children aged 36-72 months, it can be concluded that there is no growth stimulation effect on the development of children aged 36-72 months with the significant value of -2.449, and the p-value of 0.014 <0.05. Health workers, cadres, and early childhood teachers, as well as schools and kindergartens, should be able to skillfully perform early detection of child development and provide stimulation to the child's growth if found to have delays or deviations.

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