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RESEARCH ARTICLE

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## Influence of Additional Feeding Recovery on The Intellectual Intelligence of Children

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### ABSTRACT

Nutrition is the main requirement for a toddler, if not obtained food according to needs its nutrition value, it will interfere with the growing swell of current or next time. The purpose of this research was to analyze the effect of Additional Feeding Program Recovery on the intellectual intelligence children aged 4-5 years. Design of this research was observational cohort retrospective. The sample size was 70, were divided into two groups, group with a history of getting Additional Feeding Recovery and the Group didn't get Additional Feeding Recovery. Independent variable was Additional Feeding Recovery and the dependent variable was intellectual intelligence. Data was analyzed using Independent Sample t-test. There was no difference in the level of intelligence on the two group with p-value = 0.129.

**Keywords:** Additional feeding recovery, Intellectual intelligence

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### INTRODUCTION

Nutrition is the main requirement for toddlers. At the age of a toddler is one of 1000 special target groups of the first day of life, a period of growth and development occurs very rapidly and are vulnerable to nutritional deficiencies<sup>(1)</sup>.

Toddlers with age 1-5 years is a continuation of the phase of age the child after passing through infancy that require special attention in the fulfillment of nutrients by the body. At this age children require nutrients to the much larger when the need for growth, nutrients are not met then the body will use the reserves of nutrients that exist in the body, consequently the longer a backup is getting depleted and in progress old organs would suffer abnormalities a network so that this period is considered the age of onset is less prone to malnutrition and malnutrition<sup>(2)</sup>.

Results Riskesdas 2013 showed the prevalence of nutrition less on toddlers (W/U <-2SD) gives an overview of 18.4 percent volatile 2007, decreased to 17.9 percent of 2010 and then increasing again be 19.6 percent 2013. To achieve the targets of the Millennium Development Goals (MDGs) in 2015 i.e. 15.5 per cent then the prevalence of malnutrition nationwide should be scaled back amounted to 4.1 per cent in the period 2013 to 2015<sup>(3)</sup>.

Nutrients are less prevalent in children aged less than 5 years, especially in countries that are developing. The age of less than five years is included in the prone, because in this period is a period of transition began to follow the diet of adults or children's patterns are also due to who followed the wrong habits. Less nutrition in children can occur due to deficient sources of energy and less protein (substance builders). Energy and substance required builders to build his children growing rapidly<sup>(4)</sup>.

The cause of occurrence of nutrient lack is a result of various factors, the most important factor is not the number of nutrients that they earn from their body needs food quantity or quality, as well as the presence of a disease or infection suffered. Other causes such as the availability of food is not enough parenting, parents, as well as hygiene and sanitation is quite prominent. These factors strongly associated with level of education, knowledge of nutrition of the mother, the mother's skills, habits or dietary restrictions in certain cultures, and the behavior of the family. In addition the condition of family characteristics such as income, employment, spending on the family to eat, the number of members of the family were influential on the consumption patterns of eating and its distribution within the family.

The impact of nutrient deficiencies against the intelligence of elementary school children in post recovery of bad nutrition shows that the average IQ of the child who has ever suffered from malnutrition 13.7 points lower than children who never suffered a statistically different Protein Energy Deficiency. The child who never suffered from malnutrition generally lagged in following formal education than children who never suffered from Protein Energy Deficiency<sup>(5)</sup>.

Infancy is the period of growth and development which are very rapidly, so it is often called the Golden Periods (gold) at the same time a critical period in an attempt to create quality human resources. The golden period can be realized when the toddlers acquire appropriate nutritional intake for optimal flower growing. Otherwise, once a toddler at this time did not receive food according to needs its nutrition value, then the period of gold will be turned into a critical period will interfere with the growing swell toddlers, both at this time or next time<sup>(6)</sup>.

To see the impact of child malnutrition in the past then performed an extra feeding program research Additional Feeding Program Recovery against intellectual quotient (Quotient-IQ Intelligence) children aged 4-5 years in the working area Clinics Bandaran Pamekasan.

This research aimed to analyze the effect of Additional Feeding Recovery on the intellectual level of intelligence, children aged 4-5 years in the working area Clinics Bandaran Pamekasan.

**METHODS**

Design of this observational research was retrospective cohort. A retrospective cohort study on the exposure and the disease had already happened in the past before the start of the study, so that the variables were measured through the historical record<sup>(7)</sup>. The location of this research was Clinics of Bandaran Pamekasan. This study conducted in December 2016 to August 2017.

The population of this research was all children ages 4-5 years to ever participate in the Additional Feeding Recovery in the region of clinics of Bandaran Pamekasan in 2012 and 2013. The sample size was 70. Determination of sample size was using the formula from Lemeshow<sup>(8)</sup>.

After the IQ examination results were obtained, then hypothesis testing was performed using an independent sample t-test.

**RESULTS**

The results of intellectual intelligence testing using the Stanford-Binet Scale Toddler showed that intellectual intelligence of children under five who received supplementary food recovery were: 1) low = 51.4%), 2) average = 48.6%), while intellectual intelligence children under five who do not get supplementary food recovery are: 1) low = 45.7%, 2) on average = 34.3%, 3) above average = 20%.

Table 1 shows a summary of the results of hypothesis testing using an independent sample t-test.

Table 1. The results of independent sample t-test

Variabel	Sig	95% Confidence interval of the difference	
		Lower	Upper
IQ	0,129	-.7.35071	.095071

**DISCUSSION**

Based on the results of the independent sample t-test it is known that the p-value was 0.129. This value is > 0.05 so that it can be interpreted that there is no difference in intellectual intelligence between children who receive supplementary food recovery and children who do not get it. In both groups, in general the nutritional status of children is in the thin category.

Research has found that among toddlers who experience poor nutrition, 80% of them are 1-2 years old. This is related to the condition that the age of a toddler is included in the active consumption category<sup>(9)</sup>. Children less than five years of age are the age group who can show weight gain very quickly, but this group is also the group most often malnourished, because this age is a transitional period for weaning and begins to follow the adult diet.

The low intellectual intelligence of children can be influenced by many factors, which can be broadly classified into three, namely: genetic factors, environmental factors and nutritional factors<sup>(10)</sup>. The intelligence development of children can be aggravated by environmental conditions or lack of physical support, such as lack of nutrition and stimulation of the environment. Severe nutritional deficiencies result in smaller head circumference and lower cognitive abilities. Malnutrition also affects the personality that causes apathy. Even after nutritional deficiencies can be restored, disturbances in intellectual intelligence still occur.

## CONCLUSION

Based on the results of the study it could be concluded that supplementary feeding recovery had not been effective to improve intellectual intelligence of children under five in the Clinics of Bandaran Pamekasan.

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