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## Nutritional Status in Relations with Development of Gross and Fine Motorics among Child 1-3 Years in Sub District Mangarombang, Takalar Regency 2013

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### Abstract

Good motorist development of children's behavior will further enrich creativity allowing the child to learn and to work so that the child can perform the command, allowing the child to the obligations, tasks and even the desire his own desire. South Sulawesi is on the order of 24 percentages based on indicators of nutrition status BB / U is 12.5% malnourished district. In Takalar turns from data acquired approximately 18.7% are under five are undernourished based indicators BB / U (Riskesdas, 2010). The objective of this study is to determine the relationship of Nutritional Status with Gross motor development and fine motor Child Age 1-3 years in the Regional District of Mangarabombang Takalar in 2013. This was an observational study with cross sectional study. This research was conducted from 1 August to 1 September 2013. The sample size was 235 respondents drawn using purposive sampling technique. The results shows that nutritional status of children in the districts Mangarabombang Takalar, there were 75.3% good nutritional status of children and 24.7% of children who have less nutritional status.

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Gross motor development of children who have abnormal results as much as 51.1% and 48.9% were normal and smooth development of fine motor have abnormal results as much as 48.5% and 51.5% were normal. As a conclusion we can say that nutritional status has a relationship with the development of gross motor and fine motor skills of children aged 1-3 years in the districts Mangarabombang Takalar.

**Keywords:** Nutritional status; developments gross motor; fine motor development.

## **1. Introduction**

The good motoric development of child will enrich the child behavior allowing the child to enrich the treasury of toys even make child moving their play activity, learning and work creativity and enabling the child to perform commands, obligations and even their own desire [1].

Motoric development is strongly influenced by brain. Brain regulates every child activities; the maturity of the developing nervous system of the brain that regulate muscle allows the development of competence or coarse motor skills. The gross motoric is the ability moving the body in a harmonious and very instrumental to achieve balance which supporting fine motoric. The common problems often occurs in child were unstable or difficult to move the body in harmonious. For example walking, running, catching, throwing. It was also incomplete coordination in gross motor control, for example, if assigned to run without touching his friend [2].

Motoric development is the development of physical movement control through the central nerves, tendons, nerves, and coordinated muscles. The controlling derived from fetal development and activities that existed at the time of birth. In general motoric development can be divided into two parts, were gross motoric and fine motoric skills [3].

Nutritional status was a process use foods normally consumed by an organism through the process of digestion, absorb, transport, storage, metabolism and expenditure substances that are not used to sustain life, growth and normal functioning of organs, as well as generate energy. Nutritional science was defined as a branch of science that studies food substances that are beneficial to health and the processes that occur in food since consumed, digested, absorbed and utilized the body to impact on growth, development and survival of human beings as well as the factors that influence it [4].

Nutritional status of child was an important thing that should be known by everyone parents. It is necessary giving more attention in the growth and development age of the child based on the fact that malnutrition is happening in this golden period, is irreverble (cannot be recovered) [4].

Some experts suggest there are factors that affect the growth and development of children were genetic factors and environmental factors (prenatal and postnatal factors). Factors of prenatal (before birth consists of maternal nutrition during pregnancy, mechanical, or chemical toxins, endocrine, radiation, infection, stress, immunization and anoxia embryos. While postnatal factors after birth include biological environment: race, gender, age, nutrition, health, metabolic and hormonal functions. In addition to the biological environment, physical environment also influences such as the weather, the sanitary state of the house, as well as psychosocial such as

radiation stimulus, motivation, stress, quality of interaction between children and parents. In addition to the three factors mentioned, family factors and customs has also become one of the most decisive factor in the process of child development, such as family income, education, number of siblings, norms, religion and urbanization [4].

In Indonesia, child nutrition in 2010 there were approximately 27.5%, or 5 million children under five were malnourished, 3.5 million children under five, or approximately 19.9% in the level of poor nutritional status and 1.5 million or 8.3% were malnutrition. The nutritional status of children from year to year does not decline caused by the influence of income and the parents who do not have an income [5].

Data of children nutritional status in the year 2011 from 33 provinces in Indonesia, 18 provinces still have a prevalence of malnutrition above the national prevalence rate and it was approximately reach 18.5%. Nationally, according to the indicators of BB / U were 17.9% consist of 4.9% malnutrition and 13.0% under nutrition . And according to indicators of TB / U in the amount of 35.6%, which composed of shorter reach 18.5% and 17.1% short whereas according to the indicators weight / height reach 6.2%.

In Indonesia comprises 33 provinces, the rank of South Sulawesi Province are in 24<sup>th</sup> from percentage children under 5 years nutritional status based on status BB / U were 12.5% malnourished. In Takalar regency found 18.7% children are malnourished based on indicators BB / U [6].

According to the data collected by the Student OF STIKES Tanawali Persada Takalar , Department of Nursing in 2010 was recorded in 1548 children under five, in 2011 was recorded in 1534 children under five, in 2012 recorded in 1556 children under five and in 2013 data showed the number of children under five in the Sub District Mangarabombang show 1052 children under five consist of 523 male children under five and 529 female children under five .Based on initial data capture in getting the children in the Sub District Mangarabombang, Takalar regency, has obtained data on the nutritional status of children were from 1052 children under five consist of 788 children under five show the good nutrition, 258 children under five were malnourished, and 6 children under five were obesity. It shows that nutrition programs in the Sub District Mangarabombang did not meet the target. The main factors that cause were the low income, parents education and occupation and the lack of awareness of the children under five nutritional needs.

Based on the description above, the researcher was interested in conducting research on "Nutritional Status Relationship With development of gross motoric and fine motor of Child Age 1-3 years in the Sub District of Mangarabombang Takalar regency in 2013".

## **2. Materials and Methods**

This type of research was the method with cross sectional study aimed to determine the relationship of nutritional status and motoric development of children aged 1-3 years in the Sub District of Mangarabombang, Regency of Takalar. This research was conducted from 1 August to 1 September 2013. The sample size were 235 respondents and taken by purposive sampling. Data technique that was used was primary data taken using a questionnaire in accordance with the purpose of research and observations of children in Sub District of

Mangarabombang, Regency of Takalar.

### 3. Results

#### 1. Analysis of univariate

##### a. Age

**Table 1:** The frequency distribution respondent based on age of children at sub district Mangarombang, Takalar regency, 2013

Age	n	%
1 Year	71	30,2
2 Year	77	32,8
3 Year	87	37,0
Total	235	100

Table 1 shows that from 235 children in this research, 1 year children were 71 respondents (30.2%), 2 year children were 77 respondents (32.8%), while 3 years children with 87 respondents (37, 0%).

##### b. The gender of child

**Table 2:** The frequency distribution respondent based on gender at sub district Mangarombang, Takalar regency, 2013

Gender	n	%
Male	125	53,2
Female	110	46,8
Total	235	100

Table 2 shows from 235 children in this research, male gender with 125 respondents (53.2%), and female gender with 110 respondents (46.8%).

##### c. Occupation

**Table 3:** The frequency distribution respondent based on mother occupation at sub district Mangarombang, Takalar regency, 2013

Occupation	n	%
Civil Servant	24	10,2
Self employed	75	31,9
Private workers	84	35,7
Mother household	52	22,1
Total	235	100

Table 3 shows that from 235 mothers in this research, mother occupation as a civil servant were 24 respondents (10.2%), the mother work as self-employed were 75 respondents, the mother who works in private companies were 84 respondents (35.7%), and and the mother who are mother household were 52 respondents (22,1,8 %).

**d. Education**

**Table 4:** The frequency distribution respondent based on mother education level status at sub district Mangarombang, Takalar regency, 2013

Mother education	N	%
Less educated	185	78,7
Highly educated	50	21,3
Total	235	100

Table 4 shows that from 235 mothers in this reseach, the mother who have less educated (SMA downwards) were 185 respondents (78.7%), while the mother who have highly educated (college) were 50 respondents (21.3%).

**e. Mother`s income**

Table 5 shows that from 235 mothers in this research, the mother who have an income > 1,500,000 were 163 respondents (69.4%), and the mother who have income mothers <1,500,000 were 72 respondents (30.6%).

**Table 5:** The frequency distribution respondent based on mother income status at sub district Mangarombang, Takalar regency, 2013

Mother`s income	n	%
≥ 1.500.000	163	69,4
< 1.500.000	72	30,6
Total	235	100

*f. Nutritional status*

**Table 6:** The frequency distribution respondent based on the children nutritional status at sub district Mangarombang, Takalar regency, 2013

Nutritional status	n	%
Baik	177	75,3
Kurang	58	24,7
Total	235	100

Source: Secondary Data, 2013

Table 6 shows that from 235 children in this research, children who have good nutritional status were 177 respondents (75.3%), while the children who have malnutrition status were 58 respondents (24.7%).

*g. The development of gross motoric*

**Table 7:** The frequency distribution respondent based on the children nutritional status at sub district Mangarombang, Takalar regency, 2013

The development of gross motoric	n	%
Normal	115	48,9
Abnormal	120	51,1
Total	235	100

Table 7 shows that from 235 children in research, children who have normal development of gross motor were 115 respondents (48.9%), while children who have abnormal development of gross motor were 120 respondents (51.1%).

**h. The development of fine motoric**

**Table 8:** The frequency distribution respondent based on the children nutritional status at sub district Mangarombang, Takalar regency, 2013

The development of fine motoric	N	%
Normal	121	51,5
Abnormal	114	48,5
Total	235	100

Table 8 shows that from 235 children in this research, children who have normal fine motor development were 121 respondents (51.5%), while children who have abnormal fine motor development were 114 respondents (48.5%).

**2. Bivariate analysis**

**a. The relationship the nutritional status with the gross motoric development**

**Table 9:** The relationship the nutritional status with the gross motoric development at sub district Mangarombang, Takalar regency, 2013

The nutritional status	The Development of gross motoric				Quantity N
	Normal		Abnormal		
	n	%	n	%	
Good	103	89,6	74	61,7	177
Poor	12	10,4	46	38,3	58
Total	115	100	120	100	235

\* Level of significance  $\alpha < 0,05$   $p = 0,000$

Table 9 shows that from 235 respondents, children with good nutritional status with normal gross motor development were 103 respondents (89.6%), and poor nutritional status of children with normal gross motor development were 12 respondents (10.4%), while the good nutritional status of children with abnormal development of gross motor were 74 respondents (61.7%), and the poor nutritional status of children with abnormal development of gross motor were 46 respondents (38.3%).

Test results using the Chi-Square test as shown by the table obtained p value = 0.000 less than the value of  $\alpha =$

0,05. There is a relationship between nutritional status and gross motor development.

**b. The relationship nutritional status with fine motoric development.**

**Table 10:** The relationship nutritional status with fine motoric development in sub district Mangarombang, regency of Takalar, 2013.

Nutritional status	The development of fine motoric				Quantity
	Normal		Abnormal		
	n	%	n	%	N
Good	100	82,6	77	67,5	177
Poor	21	17,4	37	32,5	58
Total	121	100	114	100	235

\* level of significance  $\alpha < 0,05$   $p = 0,007$

Table 10 shows that from 235 respondents, children with good nutritional status with normal development of fine motor were 100 respondents (82.6%), and poor nutritional status of children with normal development of fine motor were 21 respondents (17.4% ), while the good nutritional status of children with abnormal development of fine motor were 77 respondents (67.5%), and the poor nutritional status of children with abnormal development of fine motor were 37 respondents (32.5%).

Test results using the Chi-Square test as shown by the table obtained p value = 0.007 less than the value of  $\alpha = 0.05$ . There is a relationship between nutritional status and fine motor development.

**4. Discussion**

Based on the results of research conducted at the sub District of Mangarabombang regency of Takalar by comparing with existing theory, it can be argued:

**4.1 The relation nutritional status with development of gross motoric and fine motoric**

The result of research is in line with foregoing research conducted by [7] on the Nutritional Status of Child measured by Weight based on age at Agung Klaten, Central Java, which showed a significant relationship between the weight of children with child motor development while the child's height did not correlate child motor development. Other research is also carried out by [7] wherein the nutritional status of children were 70.44%, children motor development in the title The view of the energy consumption of protein and Fe and Child Nutrition Status at three infant at sub district of Jorlang Hataran Regency of Simelungun, 2006 shows an relation with p value: 0.02, it means there is a relationship and a clearly level of significance because the value is less than p: 0.05. It is known that respondents with good nutritional status have abnormal development of gross motor were 51.1%, while the development of fine motor were 48.5% and normal development of gross motor were 48.9%, while respondents who have status good nutrition has an abnormal development of gross



motor were 61.7%, while the development of fine motor were 67.5%. From the research observation which reach 61.7% which have a good nutritional status but have abnormal development of gross motoric, the parents admit that they have lack attention to their children in daily growth because of their busy in working and household activities and the children development is influenced by the environment. Good motoric development of children's will enrich behavior and allowing the child to enrich the treasury of toys and enabling children to move their play activity, creativity of learning and work so it can enable the child to perform commands, doing obligations, tasks and even their own desire [1]. From the observation of 10.4% of respondents who have poor nutritional status to normal development of gross motor, the mother of children said that they are lack of attention to the child's in daily development and rarely train their children in their development. To perform a motor activity, it takes quite a lot of energy availability. Prone, crawling, standing, walking, and running involves a mechanism that emit high energy, so that the suffering *PEM* (The Malnutrition of Protein) usually always late in the milestone motor development. For example, in young children, the composition of muscle fibers involved the movement of contraction was poorly developed in malnourished children. This situation also affects to bone growth resulting in a delayed growing body. The energy needed to treat nerve cell, and for the neurotransmitter obtained from consumption foods. Nutrients in the food supply an important builder substances. The main nutrients to maintain and improve the physical and mental activities are water, protein, carbohydrates, fats, vitamins and minerals [8]. Based on observations with 67.5% of respondents who have good nutritional status but have abnormal development of fine motor, the child's mother said that in the home there are lack of attention to the development of children and due to the economic status of poor families cannot buy the toys and the parents didn't accustom children to train its development, so that the motor development of children stunted, apart from parents factors, it was influenced too from the opportunity to learn and practice. For example, the ability to move objects from hand to scribble, draw up the beam, cutting, writing and so on. Both of these capabilities are very important so that children can grow optimally. In addition to the role of parents, the environment is very influential on the motor development of children. The environment will be a lot of shaping personalities including the potential intelligence. Environment which gives stimulus and challenge followed empowerment and support will strengthen the mental muscles and intelligence. Enough family income will support the development of the child. Because parents can provide all the nutrition a child needs both primary and secondary that can stimulate a child's brain function and development of the child.

The positive encouragement will arise in oneself line with a conducive environment, otherwise if the environment was not challenging, it is difficult to build a child's motor development. Favorable development would be difficult to develop their intellectual potential. The results of observations from 67.5% of respondents who have good nutritional status but have normal development of fine due to the parents do not monitor their children progress and to train the muscles intellectual development, because motor children need to be trained in order to develop properly. The children motor development is closely linked to children's physical and intellectual condition. Nutritional factors, parenting, and environment play a role in children motor development. The children motor development take place gradually but has a different flow speeds the development of any child. In general, children ages 1 to 3 years has begun to develop physical strength, but shorter concentration span, tend to move from one activity to another. As a result of the lack of good nutrition and abnormal development of the respondents who have poor nutritional status and abnormal development

motor of children either gross motoric and fine motor skills, greatly affects the delayed motoric development of child's [9]. The development means increasing the ability of the structure and more complex functions. The range development of a child with another child may be different given the differences in the background of each child. In children there was a range of changes in growth and development were the fast range and slow range . The child development process characterized by cognitive development, self-concept, coping patterns, and social behavior.

## **5. Conclusion and Suggestion**

### **5.1 Conclusion**

Based on the results of research on Nutritional Status in relationship with gross motoric development and fine motor skills of Child Aged 1-3 years in the Sub District of Mangarabombang Regency of Takalar, it can be concluded as follows:

1. The nutritional status of children in the sub districts Mangarabombang regency of Takalar, there were 75.3% of children who have good nutritional status and 24.7% of children who have malnutrition status
2. Based on gross motoric development on children in the sub districts Mangarabombang, regency of Takalar, the abnormal development of gross motoric have the results as much as 51.1% and normal development of gross motoric were 48.9%
3. Based on fine motor development of children in the sub district Mangarabombang regency of Takalar, the abnormal development of fine motor has the result as much as 48.5% and normal development of fine motor were 51.5%
4. The nutritional status has a relationship with the development of gross motoric and fine motor skills of children aged 1-3 years in the sub districts Mangarabombang regency of Takalar

### **5.2 Suggestion**

Based on the conclusion of the above results, it is suggested:

1. The parents should pay more attention and increase the need for nutrients for children aged 1-3 years to achieve optimal health status.
2. The parents were suggested who have children aged 1-3 years in sub districts Mangarabombang Regency of Takalar often train their children in the gross motoric movements or rough skills such as walking, running, jumping, going up and down stairs .The parents also train their children the fine motor skills or manipulation skills such as writing, drawing, cutting, throwing and catching a ball as well as well as play objects or tools toys
3. In further research is expected to examine issues related to nutritional status and gross motoric development and fine motor skills of children aged 1-3 years.

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