Differences of Fundamental Motor Skills Stunting and Non Stunting Preschool Children in Kindergarten in North Padang

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Abstract. The problem that emerged is based on the result of research done by the writer in kindergarten in North Padang Sub-district which concluded that: there were kindergarten students in this sub-district who were still lack of motor ability, research data shows that 59 people (37.34%) and then 34 people (21.52%) were in very good category, 35 people (22.15%), were in moderate category, 22 people (13.92%) were in the poor category, and 5 (5.06%) were in the very poor category. Based on this data, the authors thought that the dominant factors that affect the above situation was a nutritional factor. It could be seen from the physical appearance of kindergarten children who tend to slow growth. The purpose of this study is to explain the description and differences in stunting and non stunting Fundamental motor skills capabilities in early childhood (preschool) children. This research is comparative study with cross sectional approach. The population in this study was the students of Kindergarten of Perwari II which consisted of 60 people consisting of 37 children of stunting and 23 non stunting children in Kindergarten of North Padang Sub district, the sample was taken as a whole. The data were collected with Fundamental motor skills tests including jumping, walking, running, balance exercises, throwing and catching the ball. Technique of data analysis in this research was descriptive statistic. The result of data analysis shows that there is difference of Fundamental motor skills between stunting and non stunting children. Fundamental motor skills of non stunting or normal children are better than those who were stunting or short. While the results of Fundamental motor skills of kindergarten children in North Padang District as a whole is at a good level.

1. Introduction
There are two components of children movement ability that needed to be developed including fundamental and fine motor skills aspects. Fundamental motor skills is a movement used big muscles such as walking, running, two legs jumping, and hopping the obstacles. On the other hand, fine motor skills is a movement used small muscles such as cutting, sticking, tearing, drawing, coloring, writing and arranging the blocks. Each child has different motor ability.

Some children have a good fundamental motor ability; however, some children do not. As a matter of fact, the children who lack of fundamental motor skills (FMS) such as locomotors and non-locomotors movements can be given trainings including jumping, climbing, running, and walking. Whereas, the children who lack of fine motor ability can be trained through the trainings of folding, forming, etc. In general, the differences between fundamental and fine motor skills can be seen through its coordination and biomechanics. FMS are the building blocks to future physical activities.
and sport and are the movement equivalent to the ABCs in reading literacy. FMS consist of two groups of skills including locomotor and manipulation skills. Locomotor skills are skills such as running, jumping, hopping, leaping, sliding, galloping and skipping, in other words a child moves his/her body from one point to another [1].

The fundamental motor skill needed to be developed since it will affect their other developments involving physiology, cognitive, and socio-emotional. Also, socio-economic factor has an influence toward the children’s gross motor ability. By having established financial condition, the children’s nutrition will be fulfilled. In developing the children’s gross motor aspect in kindergarten education, it is hoped that kindergarten adjusted the curriculum to the factors which affect the children’s gross motor aspect so that the children’s gross motor can be easily improved. Factors affecting the development of the movement, among other things, genetic, environmental stimuli, and nutritional status [2]. To allow for optimal development, required the development of broad and balanced between the physical aspects of motor skills, intelligence, emotional and social development [3].

According to Soetjiningsih, the factors that influence the child growth are: child's learning motivation, mother's knowledge and stimulation, peer group, love and affection, number of siblings, reward or punishment, environment, household stability, mother's income, and nutrient level [4]. The results of research conducted by the author on kindergarten in North Padang Sub-district concluded that: there are still kindergarten students in sub-district lack of Fundamental motor skills, research data mentioned 59 people (37.34%), then 34 people (21.52%) are in the category very good, as many as 35 people (22.15%), are in the moderate category, 22 people (13.92%) are in the poor category, and as many as 5 people (5.06%) are in the category very once[5].

Based on this data the writer sees one of dominant factors that affect the above situation was the nutritional factor. It could be seen from the physical appearance of kindergarten children who tend to slow growth, for example short body. Nutrition is one of the environmental factors and a support for the growth and development process to run satisfactorily. This means, giving qualified food in good quantity supports the growth of children, so that toddlers can grow normally and healthy. Toddlers who are not given qualified food in good quantity can experience underweight, malnutrition, short (stunting), and thin (wasting).

Stunting or height problems were caused by chronic malnutrition as the impact of lack of nutrient intake in a long time since a fetus was still in the womb. Malnutrition at an early age increases infant and child mortality, causing the sufferer to be easily sick and have no maximal posture in adulthood, as well as the cognitive ability of the sufferers is also reduced. Basic Health Research (RISKESDAS 2013) records a stunting prevalence by province and national level. The nationally short prevalence in 2013 is 37.2 percent, which means an increase compared to 2010 (35.6%) and 2007 (36.8%). The short prevalence of 37.2 percent consists of very short 18.0 percent and 19.2 percent short. In 2013 a very short prevalence showed a decline, from 18.8 percent in 2007 and 18.5 percent in 2010. The short prevalence increased from 18.0 percent in 2007 to 19.2 percent in 2013. [6].

Stunting is a problem of chronic malnutrition caused by poor nutrient intake in a long time due to feeding that is not in accordance with nutritional needs. Stunting is a sign of systemic dysfunction during the sensitive phase of a child's development. Alive and Thrive (2010) mentioned that during the first year after birth, nutrient requirements are very high to support rapid growth and development. Growth disturbances during early childhood including stunting can lessen the cognitive and motor abilities in children, as well as negatively affect the development of emotions, behavior, education and other abilities. Stunting may lead to a decrease in IQ in pre-school age children and school-aged children [7].

Stunting occurring in childhood is a risk factor which increased mortality, decrease cognitive abilities, and low motor development and unbalanced body functions [8] (Allen & Gillespie, 2001). Stunting may occur in the short and long term. According to Onis and Branca (2016) the failure of linear growth at an early age may increase morbidity and mortality from infection, loss of potential physical growth, decreased brain development and intelligence function and increase the risk of chronic diseases as adults [9]. Dewey et al (2013) argue that stunting at an early age is associated
shortly after adulthood and is a fundamental cause of slow growth and causing other adverse outcomes [10].

Motor movement cannot be done perfectly if the muscle mechanism has not developed well. This occurs in children who have stunted growth disorders, striped muscle or striated muscle that controls unconscious movements which develop at a somewhat slower rate, before the child is in normal condition, there can be no coordinated voluntary action [11] (Hurlock, 2002). This study aims at obtaining data on differences in basic motion skills between stunting and non stunting children of kindergarten in North Padang Sub-district.

2. Research Methodology

This study was comparative study with Cross Sectional approach which would explain the description and the difference of basic motion skills in stunting and non stunting pre-school children. The population in this study was Kindergarten Perwari II located in North Padang Sub-district amount to 60 people. The sample was taken by total sampling technique.

3. Results and Discussion

3.1. Data Distribution of Respondent Basic Motion Skills.

Based on the research that has been done on the basic motion skills of respondents, it was found that the lowest basic movement skills of respondents was 12 and the highest score was 17. After analyzing the data, it was obtained that the mean score was 14.7, standard deviation was 1.45, median was 15 and mode was 15.

| No | Interval Class | Frequency | Relative (%) |
|----|----------------|-----------|--------------|
| 1  | 12-13          | 16        | 26.67        |
| 2  | 14-15          | 24        | 40.00        |
| 3  | 16-17          | 20        | 33.33        |
| Total |              | 60        | 100 (%)      |

Based on the table above, it can be seen that the basic movement skills of respondents were mostly in the interval class 14-15, that is as many as 24 people (40%), then 20 people (33.33%) were at interval class 16-17, and as many as 16 people (26.67%) were in interval class 12-13.

3.2. Stunting and Non-Stunting Kindergarten Students

Based on data analysis conducted to 60 respondents, the following is the data of stunting and non stunting kindergarten students (Table 7).

| No | Z-Score | Category   | Number of Children | Percentage (%) |
|----|---------|------------|--------------------|----------------|
| 1  | Z-score < -3,0 | Very short | 4                  | 6.67 (%)       |
| 2  | Z-score ≥ -3,0 s/d Z-score < -2,0 | Short | 33                 | 55 (%)         |
| 3  | Z-score ≥ -2,0 | Normal    | 23                 | 38, 33(%)      |
| Total |          |            | 60                 |                |

3.3. Overview of stunting and non-stunting children basic motion skill

An overview of basic skills of stunting and non stunting children gotten from respondents can be seen in Table 3:
Table 3. Description of Basic Motion Skill of Stunting and Non-Stunting Children

| Basic motion skills | Nutritional status categories | Stunting | Non Stunting |
|---------------------|-------------------------------|----------|--------------|
|                     | N    | %     | N    | %             |
| Medium              | 13   | 35.14%| 3    | 13.04%        |
| Good                | 13   | 35.14%| 11   | 47.83%        |
| Very Good           | 11   | 29.72%| 9    | 39.13%        |
| **Total**           | **37**| **100 %**| **23**| **100 %**    |

The numbers of stunting children were 37 toddlers from 60 respondents. 13 people (35.14%) of them had moderate movement skills, 13 people (35.14%) had good basic movement skills and 11 people (29.72%) had excellent motor skills. Besides, the numbers of non stunting children were 23 toddlers from 60 respondents. 3 people (13.04%) of them had moderate movement skills, 11 people (47.83%) had good basic movement skills and 9 people (39.13%) had excellent basic motion skills. So when it is viewed as a whole of the respondents, there were 16 people (26.67%) had moderate basic movement skills, 24 people (40.00%) had good basic motion skills and 20 people (33.33%) had very good basic motion skills. Toddlers with stunting have a risk of decreased intellectual ability, productivity, and increased risk of future degenerative diseases. This is because stunting children also tend to be more susceptible to infectious diseases, thus risking a decrease in the quality of school learning and more frequent absences.

4. Conclusion
Based on the research findings and the results of the research discussion, it can be concluded as follows:

a. Basic movement skills of pre-school stunting children in Kecamatan Padang Utara are in good and medium category where 13 toddlers are in moderate category, and 13 toddlers in good category and 11 toddlers in very good category (37 stunting children).

b. Basic movement skills of non stunting children are 3 toddlers are in medium category, 11 toddlers were in good category and 9 toddlers were in very good category (23 non stunting children).

5. Suggestions
Based on the discussion and the results of this study, there are some suggestions as follows:

a. It is expected that kindergarten teachers in Kecamatan Padang Utara can develop and improve the basic motion skills of Kindergarten children with various methods or variations of learning.

b. Parents are expected to improve the nutritional quality that children consume in order to improve children's basic movement skills.

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