



## ANALYSIS OF NUTRITIONAL STATUS AND QUALITY OF PHYSICAL FITNESS IN HEALTH AND SPORT PHYSICAL EDUCATION LEARNING OUTCOMES TOWARD PUPIL OF ELEMENTARY SCHOOL IN PADANG

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### Abstract

The study aimed to examine how the state of nutritional status, quality of physical fitness and its effect on the value of the students' learning outcomes of Penjasorkes (Health and Sport Physical Education) in Elementary School (SD) in Padang. Study was designed Analytically. Population of the study was grade V students of primary school in Padang. Samples was determined in purposive sampling: (1) school: Core schools and Impact schools of each district, totaling 14 SDs, (2) respondent, totaling 481 students, and informants consist of principal and Penjasorkes teachers. Nutritional status is determined base on index weight/age of the WHO - NCHS reference, the quality of physical fitness through Physical Freshness National Test, and Penjasorkes learning outcomes in the students' report book. Finding shows that there was a significant relationship between nutritional status and quality on Penjasorkes learning outcomes in fallout school, while the core school was insignificant.

**Keywords:** *Nutritional Status, Fitness, Physical Education.*

### Introduction

The quality of healthy human resources (HR) will determine the quality of a person's life, which is determined by the nutritional status and quality of good physical fitness. The quality of human resources in the future is reflected in the current nutritional status of children, child development (elementary students) is largely determined by nutritional needs. Malnourished children who will grow up stunted, distended abdomen, slow motor development, and low learning ability. Children's nutritional status affects the health degree and quality of physical fitness. Nutritional status and quality of physical fitness is very influential on all physical activities, because the nutritional status and quality of physical fitness affect the health conditions associated with the various functions of the body organs.

The quality of a good physical fitness is the initial capital for elementary school age children to achieve further physical fitness. The quality of a person's physical fitness especially elementary school children is influenced by various factors, including factors of physical activity, lifestyle patterns, diet which includes nutritional intake, rest patterns, and environmental factors. These factors are interrelated and mutually supportive to achieve health and physical fitness. For elementary school age children, physical fitness is very important to support the development of motor skills, affective, and cognitive. Nutritional status and physical fitness good quality will affect the learning outcomes, particularly in the field of Health and Sports Physical Education (*Penjasorkes*) on elementary school students.

### Research Method

The design of the study was analytical, using a cross sectional design. The study population was primary school students in Padang city, covering 11 districts, 355 primary schools and 83257 students. Sample was determined in stages: (1) in 60% of the districts (consist of 7 districts). (2) The sample was determined by purposive sampling schools: two elementary school of each district, one Core school and one Impact school, the total number was 14 primary schools. (3) The researcher determined the class and respondents by purposive sampling, they were grade V (five) with the number of 481 pupils. In addition, the researcher required the headmaster and *Penjasorkes* teachers as the informants in this study.

The nutritional status was determined by index weight/age (weight per age) of the WHO-NCHS reference, quality and physical fitness was determined with *TKJI* test. In addition, *Penjasorkes* learning outcomes was determined through student grades in their report book.

### Findings

1. Descriptive Analysis on Nutrition Status of Elementary School Students in Core School and Impact School of Padang

The findings on the nutritional status of primary school pupils in the fifth grade in the core school and in the impact school of Padang, according to the table below:

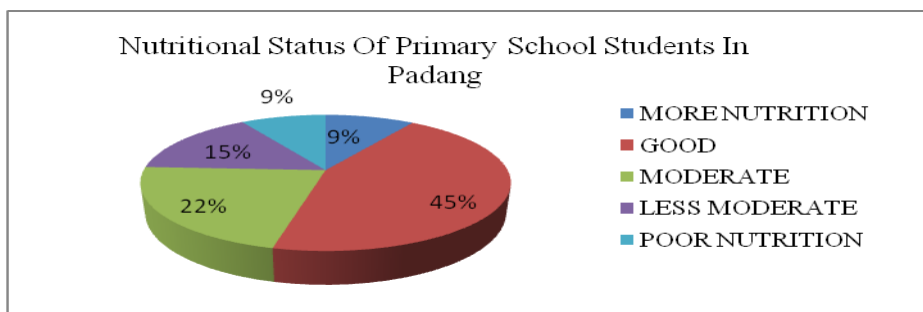
**Table 1.** Nutritional Status of Primary School Students in Padang

NS	SD 1		SD 2		SD 3		SD 4		SD 5		SD 6		SD 7		TOTAL SD	
	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%
MN	6	13%	3	7%	10	22%	8	18%	7	16%	2	4%	9	20%	45	9%
G	24	11%	20	9%	30	14%	42	20%	33	15%	34	16%	32	15%	215	45%
MD	10	9%	15	14%	10	9%	13	12%	16	15%	22	21%	20	19%	106	22%
LMD	16	22%	9	12%	7	9%	11	15%	13	18%	10	14%	8	11%	74	15%
PN	0	0%	12	28%	8	19%	7	16%	8	19%	4	9%	4	9%	43	9%
Sum	56	12%	59	12%	65	13%	81	17%	77	16%	72	15%	73	15%	483	100%

Explanation:

- NS = Nutritional Status
- MN = More Nutrition
- G = Good
- M = Moderate
- LM = Less Moderate
- PN = Poor Nutrition

Based on the table above, the nutritional status of primary school pupils in the fifth grade of the core school and impact school in Padang; it shows majority (45%) was good nutrition, and a small portion (9%) was more nutrition, quite nutrition was 22%, 15% was malnutrition, and 8% was poor nutrition. This explanation can be described according the following chart:



**Graph 1.** Nutritional Status of Primary School Students in Padang

2. Descriptive Analysis students' Physical Fitness Quality of Core school and impact school in Padang

The findings about the quality of the physical fitness of the grade V students in Core school and impact school in Padang is shown in the following the table:

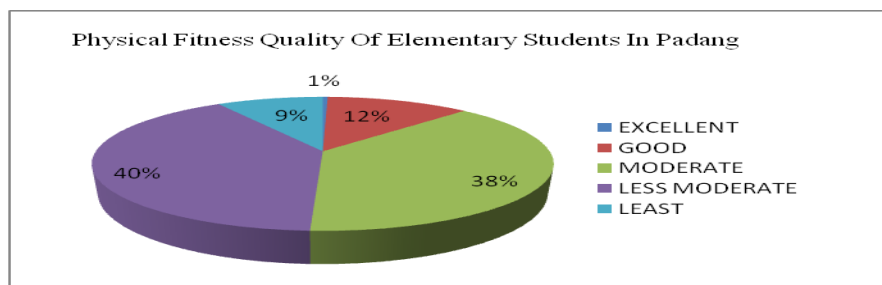
**Table 2.** Quality physical Fitness of elementary students in Padang

QPF	SD 1		SD 2		SD 3		SD 4		SD 5		SD 6		SD 7		TOTAL SD	
	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%
E	0	0%	0	0%	0	0%	0	0%	0	0%	2	100%	0	0%	2	0,4%
G	27	47%	6	10%	5	9%	1	2%	0	0%	9	16%	10	17%	58	12%
MD	26	14%	26	14%	32	17%	27	15%	11	6%	22	12%	40	22%	184	38%
LMD	4	2%	24	12%	22	11%	43	22%	45	23%	34	18%	22	11%	194	40%
L	1	2%	3	7%	6	14%	10	23%	19	44%	3	7%	1	2%	43	9%
Sum	58	12%	59	12%	65	14%	81	17%	75	16%	70	15%	73	15%	481	100%

Explanation:

- G = Good
- QPF = Quality physical Fitness
- E = Exellent
- G = Good
- M = Moderate
- LM = Less Moderate
- L = Least

Based on the table above, the state of the physical fitness quality of classes V students in Core school and impact school of Padang shows that majority of 38% students had a moderate level of physical fitness and 40% was less moderate. A fraction of 1% was excellent, 12% was good, 9% was the least. This explanation can be described according the following chart:



**Graph 2.** Physical Fitness Quality of elementary students in Padang

The hypotheses testing prove that (1) There is a relationship between nutritional status with physical fitness quality in the fifth grade elementary school students either the Core school or Impact school in Padang city, but it is not significant in the impact school. (2) There is a relationship between the nutritional status and the *Penjasorkes* learning outcomes of the fifth grade students both in the Core school and in the Impact school in the city of Padang. At the core school, there is no significant correlation, whereas the impact school, it obtains significant relationships. (3) There is a relationship between nutritional status and quality of physical freshness on the *Penjasorkes* learning outcomes in fifth grade elementary school students in the Core school and in the Impact school in the city of Padang. At the core school, there is no significant correlation, whereas the impact of SD obtains significant relationship.

In accordance with the findings of the study, which is about the state of the nutritional status of fifth grade elementary learners in Core school and in fallout, it explains that most of the students have good nutritional status, but a small part of them do not mention to encourage. At the core school, there is fraction (9%) who get more nutrition, malnutrition 11%, and 8% poor nutrition. On the impact school, the fraction (10%) of the students are over nutrition, malnutrition 19%, and 10% poor nutrition. Although the percentage of students' troubled nutrition status including low, but the condition should not be allowed at all in such condition, because if the child has a nutritional problem, it will be adversely affect his growth and physical development.

The state of physical fitness quality of the fifth grade elementary school students in the city of Padang has a level of freshness, most (40%) is less fresh, a fraction 9% are poor, and the remaining categories are all pretty. Lack of good physical fitness quality of the students should not be allowed at all, because it will affect the degree of healthy and the students will have limited motor skills.

Nutritional problems greatly affect the quality of human resources in the future. The phenomenon of multiple nutritional problems (malnutrition, poor nutrition and over nutrition) is the most common phenomenon in Indonesian children. Children who suffer from malnutrition and poor nutrition will risk for infection disease, whereas children with more highly nutritional risk for degenerative diseases. According Almatsier (2009, 11) a result of malnutrition on body processes depends on what nutrients are lacking. Lack of nutrients in general (eat less in quantity and quality) cause disruption to processes of growth, energy production, the body's defense structure and organic function.

Children who suffer from severe malnutrition, according Almatsier (2009, 11), do not grow according to its potential of children in their agr. Proteins are used as an incendiary substance, so that the muscles become flabby and there will be easy hair loss. Children who come from middle socioeconomic level to above average is more than those from low socioeconomic circumstances. Energy shortages derived from food, which caused someone to shorten power to move, to work and to do activities. People become lazy, feel weak and these decrease work productivity. Furthermore, malnutrition also causes resistance to pressure or stress decreases. Immune system and antibodies reduce, so that people prone to infections such as colds, coughs, and diarrhea. In children this can bring death.

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Children, who are overweight, have excessive weight called obesity. Obesity is a serious medical condition that affects many children and adolescents. It occurs when a child has a weight well above normal for his age and height. Obesity is very disturbing because overweight that began when as a child can lead to problems as adults. The various diseases that appear in the above explanation, when it is traced back, the obesity existence begins in childhood.

Obesity is associated with metabolic abnormalities (dyslipidemia, insulin resistance and hyperglycemia) and hypertension increases the risk of cardiovascular disease (Katieret et al., 2008). Atabek, Pirgon and Kivrak (2007) and Aggoun (2007) suggest that there is association between obesity and the occurrence of arterosklerosis. Because of the high prevalence of obesity in children from day to day, more and more scientists are seriously thinking about the harmful effects of these circumstances, the occurrence of metabolic syndrome. Entity definition of metabolic syndrome is insulin resistance accompanied by the presence of at least three of the following symptoms, hypertension, changing in glucose metabolism, dyslipidemia, and obesity. Therefore, a child may be obese but not necessarily in the category of metabolic syndrome

Based on the definition of Cook in Andra (2007) a child is categorized suffering from metabolic syndrome if they meet the following components, abdominal circumference greater than the 90th percentile on the curve of age, gender, and ethnicity; fasting blood sugar higher than 110 mg / dl; blood pressure higher than the 90th percentile on the curve of age and height; fasting triglycerides greater than 110 mg / dl, as well as HDL cholesterol lower than 40 mg / dl. Of course all these checks are tertiary and are not very easy to do in all hospitals in Indonesia.

In theory and according to the findings, that the nutritional status has correlation with physical fitness. When a nutritional status is good, it will affect the better level of physical fitness; but adequate nutrition with no / less physical activity or sports, the physical fitness events held will not be better. Learners who are experiencing more nutritional status, in general, have a low resistance, limitation of movement, they move slower, low muscle strength. While learners who experience malnutrition status and poor, will quickly experience fatigue while doing the activity.

As noted earlier that the nutritional status greatly affects the organic function. When nutritional status is good then the organic functions will be optimized, otherwise poor nutritional status is going to interfere with the function of various organs of the body, so it will affect the learners' activities, one of them is the study results. Learning will be more successful if it involves better physical condition, and mental psychology.

According to Lutan (2000), physical fitness describe more on the quality of the organs ability to do its function and to keep survival functions that occur within a system. Overall organs work in a complex and interconnected whole, such as the vascular system, respiratory system, and metabolic systems. In general it is often interpreted as the degree of a person's ability to perform tasks with a moderate degree, and it can increase work productivity.

Physical fitness is one's important productivity supporting in the work. The freshness starts since entering the work and is constantly maintained during the work, even until it stops working. In order to be able to carry out their job, Learners not only require a healthy and nutritious diet with sufficient caloric value, but also requires good physical fitness. Although the learners are physically in good health with good nutrition, but if they are not fresh in a variety of activities they will quickly become exhausted.

Physical fitness is a person's ability to perform daily work easily without feeling tired and still have the rest or reserve energy to enjoy leisure time or for purposes which can be used at any time. Thus, physical fitness is a form of someone's functional loyalty to do a particular job in a good and satisfactory results without significant fatigue (Sumosardjono, 1985:19).

There are several factors that can determine a good physical fitness comes from the student himself (internal), which consists of two parts: 1) physiological conditions, which includes physical health, nutritional adequacy, state of the senses of sight and hearing; 2) psychological, which include learning interests, intelligence, and cognitive abilities. While the factors which come outside themselves (external) comprising a) environmental factors, b) an instrumental factor, c) parents' economic, d) learning ways, e) infrastructure, f) the socio-economic, g) socio-cultural environment, as well as learning facilities, h) waste disposal, and many other things that can affect physical fitness.

Excellent physical fitness is one of the requirements that must be fulfilled as one of human life supporting to maintain and to improve the efficiency and day-to-day activities. Similarly for students, excellent physical fitness is a very important factor affecting the ability to perform physical activity. Physical fitness can be improved by exercising with regular practice, measurable, targeted, and well done programmed in the field, at home or on the streets, in order to achieve a good level of physical freshness.

*Penjasorkes* education is an integral part of the overall education, aims to develop aspects of physical fitness, motor skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, aspects of a healthy lifestyle and clean environment through the introduction of physical activity, sport and health which were selected and systematically planned in order to achieve national education goals.

There are so many aspects are assessed in education. *Penjasorkes* is a lesson to the unique characteristics because it involves three areas at once, namely cognitive, affective and psychomotor. Obviously it takes a proper assessment system so that all students' achievements obtained during the learning process was able to be elaborated and presented in a clear and appropriate reality on the field.

*Penjasorkes* learning outcomes assessment in psychomotor learning outcomes appear in the form of skills and the ability of the individual to act. There are six levels of skills in *Penjasorkes*, namely: (1) reflex skills that is an unconscious movement, (2) skill in basic movements, locomotor movements, non-locomotor and manipulative, (3) perceptual ability, including distinguishing visual, distinguishing auditory, motor, and others, (4) ability in physical field, for instance strength, endurance, agility, speed, harmony and precision, (5) movement skills, ranging from simple skills to the complex skills and (6) with respect to communications capabilities of non-decursive as expressive and interpretive movement.

Learning is one of the factors that influence and was instrumental in the formation of personal and individual behavior. Sukmadinata (2005) suggested that most development takes place through individual learning activities. According to Gagne (1984) study is defined as a process by which an organism changes its behavior as a result of an experience. Galloway in Soekanto (1992) said that learning is a process that includes internal memory, retention, information processing, emotion and other factors based on previous experiences. Meanwhile, Morgan (1962) states that an activity is said to learn if it has three characteristics: (1) learning is a change in behaviour, (2) changes occur due to training and experience, not because of the growth, and (3) the changes should be permanent and remain there for a long time.

The learning process occurs internally and personally nature in students. In order that the process of learning leads to the achievement of objectives in the curriculum, then teachers must be carefully and systematically planned learning experiences that allow changes in the behavior of students in accordance with what is expected. Activities of teachers to create the conditions that enable optimal student learning takes place is called the learning activities. In other words, learning is the process of making people learn. The teacher in charge of helping participants learn how to manipulate the environment so that students can learn easily. It means the teacher must hold elections to a variety of learning strategies, the most probable ongoing learning process of learners runs optimally.

Meanwhile, Surya (1997) suggested that the study results will appear in: (1) *Habits*; the learners learn a language many times to avoid the trend of using the wrong word or structure, so he eventually got used to use the language well and correctly, (2) *Skills*; such as: writing and doing exercise which despite its motor, the skills requires careful coordination of movement and awareness. (3) *Observation*; namely the process of receiving, interpreting, and giving meaning the stimuli which come in through the senses objectively so that learners are able to achieve a true understanding, (4) *Associative Thinking*; that think by associating something with other by using memory, (5) *Critical and rational Thinking*; that is using of the principles and basics of understanding in answering critical questions such as "how" and "why". (6) *The tendency* for the relative attitude settled to react in a way good or bad against certain persons or goods according to their knowledge and belief, (7) *Inhibition* (avoiding redundant), (8) *Appreciation* (appreciating the works of quality), and (9) *Conducting affective behavior* that is concerned with the feelings of fear, anger, sad, cheerful, disappointed, happy, hate, anxiety and so on .

*Penjasorkes* learning outcomes which is done through the analysis of daily tests and midterm test is emphasized to obtain information about the background and the causes of why students get less score. For children who scored less than

the limit value of the minimum passing grade will be given remedial, while its value for children who have reached the limit of completeness will be given enrichment.

Analysis for the final test of the semester, the daily tests and the midterm test determine the report card grades in the first semester. While the analysis of continuing for the next level is determined by the value of daily tests, and midterm test which are used to the second term report and the grade report. In addition, the analysis is performed to determine the mastery learning.

Nutritional status is an important role for maintaining health and improving the quality of physical fitness of students. Physical fitness targets for learners is to enhance the ability and willingness to learn, that is achievement-oriented learning success. Therefore, every student needs to know and to improve proper diet so as to fulfill the nutritional needs that support to improve physical fitness. The cause of the low level of physical fitness of students, some of them are: lack of motion activity, yet balanced nutrition, differences in lifestyle, economic status of parents and others.

## Conclusion

1. Nutritional status of primary school pupils in the fifth grade core school and impact school; majority (45%) good nutrition, and a small proportion (9%) overnutrition, 22% quite malnutrition, malnutrition 15%, and 8% severe poor nutrition.
2. The quality of the physical fitness of students in elementary classes V in core school and impact school; majority of 38% had a moderate level of physical fitness and 40% less. A fraction of 1% excellent, 12% good, 9% less so.
3. There is a relationship between the nutritional status of the physical fitness quality in the fifth grade elementary school students both in core school and impact school.
4. There is a significant relationship between the nutritional status of the student *Penjasorkes* learning outcomes of fifth grade impact school in the city of Padang. At the core school, whereas it is not significant.
5. There is a significant relationship between nutritional status and quality of physical freshness on *Penjasorkes* learning outcomes of students in grade five in the impact school, and there is no significant relationship in the core school.

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