The Nutrient Status and Physical Health Level of the Eleventh Grade Students of Special Sports based High School

Muhammad Ferdian Nur Faldin[1], F. X. Sugiyanto[1]

[1]Master Program of Sport Science, Universitas Negeri Yogyakarta, Jl. Colombo No. 1 Yogyakarta, Indonesia

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Abstract: This study actually aimed at finding out some matters especially for the eleventh graders of Special Sports Based School of SMA N 1 Tanjungsari. This research was descriptive analysis by using survey design and testing and measurement techniques. The data of nutrient status were obtained by using the formula of Body Mass Index (IMT) whereas the data of physical health were obtained from TKJI for age 16 to 19. The subjects of this research consisted of 62 students. The collected data were analyzed using descriptive statistics analysis of percentage. This research resulted in that 53,23% (33 students) or most of the students were at the normal category of nutrient status level, 29,03% (18 students) at the thin category, 9,68% (6 students) at overweight category, 8,06% (5 students) at obese risk category, and 0% at obese category. Therefore, the level of the students' physical health was categorized as follows: 58,06% (36 students) at the medium category, 38,71% (24 students) at the low category, 3,23% (2 students) at the good category, and 0% at the low and very good category.

1 INTRODUCTION

SMA N 1 Tanjungsari in Gunungkidul is one of the schools which have sports class called as SBI-O (Special Sports Based School). The aim of this class development is to provide one of the platforms for the students to get their best achievement and to express their skills related to sports since the students' achievement is not merely about academic field, but it is also about physical skills. Those skills are special gifts which are not owned by all people.

Sports class in SMAN 1 Tanjungsari is the class that trains a lot of athletes in Gunungkidul. The produced athletes have got many achievements even in national level. Thus, they have also become the first winner in every competition held for the students. Therefore, there is no doubt that SMAN 1 Tanjungsari becomes the pioneer of sports class which focuses on training the outstanding students.

Exercising within or apart from school time is a hard activity. A good level of physical activity should be promoted to children of all ages through organized sports, leisure, and everyday habits (Branca and Valuence, 2001). Someone who has hard time to exercise is supposed to have good physical health since it is a basic part for a person to do physical activities gradually in long period without rising up fatigue. Another important aspect which influences someone's health is nutritional status. It is determined by food consumption and use of nutrients in the body. When the body gets enough nutrients and is used efficiently it will reach a nutritional status which can support physical growth, brain development, work ability and health at the possibly highest level (Almatsir, 2002).

A person with good physique actually does not exactly mean that he/she has healthy body, and on the other way around, a healthy person does not exactly mean he/she has good physique. Physical fitness is the ability of someone to conduct their daily works efficiently without getting excessive fatigue so he/ she can enjoy their free time (Irianto, 204). The factors which affect a person's level of physical fitness are as follows: (1) age, (2) gender, (3) food, (4) sleep and rest, (5) physical activities and sports (Suharjana, 2008). Physical fitness factors which can affect a person's level of physical fitness are: (1) food, (2) rest, (3) exercise (Irianto, 2004). Those statements prove that people do not only need healthy body but also need physical health that is

supported by the level of nutrient status. This healthy status must be achieved from what we consume every day besides being used as our energy source. Therefore, by doing many sports activities in SBI-O class, the students need to be able to restore the energy that has been used.

Based on the observations conducted in the chosen school, most of the students come from the families with low economical level because the area where the live lacks of water and suffers from drought during the dry season. For this, people there who mostly work as farmers or breeders found it difficult to make use of the lands for farming activities. Like it or not, these conditions will influence the nutrient status and food consumption of the society.

On top all of these, there has not been any research conducted to know the students' level of physical health and nutrient status including the students of the eleventh grade. Therefore, a related research needs to be carried out to find out the students' physical health and nutrient status optimally. By doing so, it is expected that the teachers, especially the sports teachers or trainers, are able to have the data of the students' condition related to the level of nutrient status and physical health for each student.

2 RESEARCH METHOD

2.1 Research Design

This research was descriptive analysis which employs survey method with test and measurement techniques. There was no certain treatment conducted toward the variables of the research, and it was only illustrated by the recent situation. Added to this, this research was done without hypothesis testing, and included in the independent variable research category because it related between one variable to other variables.

2.2 Research Setting

This research was done from September to October 2016, and the data were collected on Tuesday, October 11, 2016 from 07.30 to 10.30 at SMA N 1 Tanjungsari.

2.3 The Research Population

The population of this research included 62 eleventh grade students of SMA N 1 Tanjungsari, Gunungkidul, who belonged to SBI-O class. When the number of research subject or population is less than 100, it is important to take all of them (Arikunto, 2005). Therefore, this research involved those 62 eleventh grade students of sports class as the samples.

2.4 Data, Instruments, and Collecting Data Technique

To find out the level of nutrient status and the physical health of the SBI-O students, some tests and measurements of nutrient status were conducted by measuring the weight and height with IMT formula, then the level of physical health was measured by using TKJI (*Tes Kebugaran Jasmani Indonesia*) or Indonesian Physical Health Test.

2.5 Data Analysis Technique

2.5.1 Nutrient Status

The analysis was done by using descriptive analysis with percentage. It was done by determining the percentage of the achievement of standard weight compared to the height (weight/height).

Table 1: Threshold category of IMT (Ministry of National Education, 2010).

Category	IMT	Frequency	(%)
Thin	< 18,5	18	29,03
Normal	18,5 – 22,9	33	53,23
Overweight	23,0 – 24,9	6	9,68
Obese Risk	25,0 – 29,9	5	8,06
Obese	> 30,0	0	0
Total number		62	100

2.5.2 Physical Health

The data analysis technique used in this research was descriptive technique with percentage. The obtained data were consulted into the table of value for each category in Indonesian Physical Health Test (TKJI) for the age between 16 and 19. To measure the level of physical health, each point of the test was analyzed by using norm table of TKJI to decide the classification of the physical health level. The value and norm can be seen below.

Table 2: The value of TKJI for men aged 16 to 19 (The Center for the Development of Physical Quality, 2010).

60m Run	Body Lifting	Sitting down	Jumping upright	1200m Run	Value
Less –7,2"	19-up	41-up	73-up	less – 3'14"	5
7,3" – 8,3"	14-18	30-40	60-73	3'15"-4'25"	4
8,4" - 9,6"	9-13	21-29	50-59	4'26"-5'12"	3
9,7"– 11,0"	5-8	10-20	39-49	5'13"-6'33"	2
11,1"and so on	0-4	0-9	38 and so on	6'34" and so on	1

Table 3: The value of TKJI for women aged 16 to 19 (The Center for the Development of Physical Quality, 2010).

60m Run	Body Lifting	Sitting down	Jumping upright	1200m Run	Value
less – 8,4"	41-up	28-up	50-up	less – 3'52"	5
8,5" – 9,8"	22"-40"	20-28	39-49	3'53"-4'46"	4
9,9" – 11,4"	10"-21"	10-19	31-38	4'57"-5'58"	3
11,5" –13,4"	3"-9"	3-9	23-30	5'59"-7'23"	2
13,5" and so on	0"-2"	0-2	22 and so on	7'24" and so on	1

The total value from the five test points above was input into norm table of physical health to decide the category level of the physical health. The norm table of TKJI for the age 16 to 19 can be seen further.

Table 4: TKJI category (The Center for the Development of Physical Quality, 2010).

No	Total value	The classification of health category
1	22-25	Very good
2	18-21	Good
3	14-17	Medium
4	10-13	Low
5	5-9	Very low

The data analysis technique used in this research was descriptive technique with percentage. The formula to measure the percentage was as follows:

$$P = \frac{NK}{N} \times 100\,\%$$ (1)

Notes:
P: Percentage
NK: Total number of subjects in each group
N: Total number of subjects in the population

3 FINDINGS AND DISCUSSIONS

3.1 The Research Finding of Nutrient Status

The result of the statistical descriptive analysis on the nutrient status level of the eleventh grade students in the SBI-O class consisting of 62 students showed the maximum value of 29.73, the minimum value of 16.11, the mean of 20.49, the median of 19.98, the modus of 17.93, and the standard deviation of 2.80. The description of these results can be seen below.

Table 5: The distribution of research findings of nutrient status (Ministry of National Education, 2010).

Category	IMT	Frequency	(%)
Thin	< 18,5	18	29,03
Normal	18,5 – 22,9	33	53,23
Overweight	23,0 – 24,9	6	9,68
Obese Risk	25,0 – 29,9	5	8,06
Obese	> 30,0	0	0
Total number		62	100

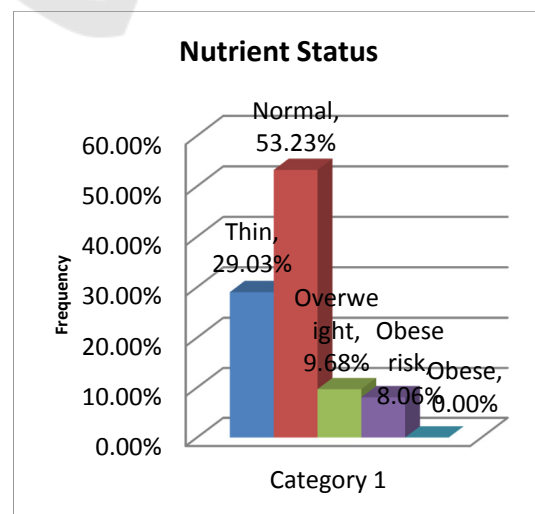The table above could also be seen from the diagram below.

Figure 1: The diagram of nutrient status frequency

Based on the table and diagram above, it could be seen that the level of nutrient status of the eleventh grade students in sports class of SMAN 1 Tanjungsari was categorized normal (53.23% or 33 students). Then, it was followed by the thin category (29.03% or 8 students), overweight category (9.68% or 6 students), obese risk category (8.06% or 5 students), and obese category that (0%). From these results, it could be concluded that the level of the students' nutrient status was categorized normal.

3.2 The Research Finding of Physical Health Level

The result of the statistical descriptive analysis on the nutrient status level of the eleventh grade students in the SBI-O class consisting of 62 students showed the maximum value of 20, the minimum value of 10, the mean of 13.85, the median of 14, the modus of 14, and the standard deviation of 2.11. The description of these results can be seen below.

Table 6: The distribution of research findings of physical health

Interval Class	Category	Frequency	Percentage
22 – 25	Very good	0	0
18 – 21	Good	2	3,23
14 – 17	Medium	36	58,06
10 – 13	Low	24	38,71
5 – 9	Very Low	0	0
Total number		62	100

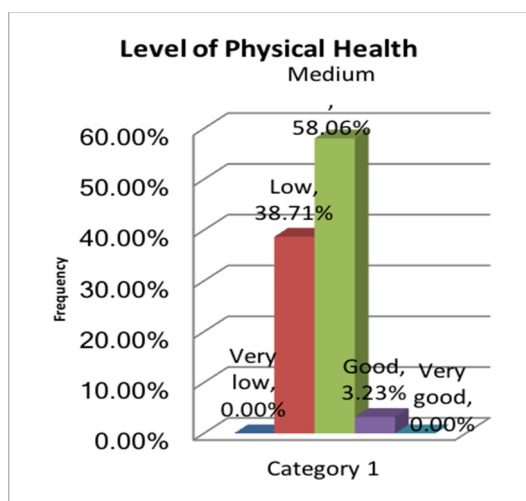The table above could also be seen from the diagram below.

Figure 2: The diagram of physical health level

Based on the table and diagram above, it could be seen that the level of physical health of the eleventh grade students in sports class of SMAN 1 Tanjungsari was categorized as medium level (58.06% or 36 students). Then, it was followed by low category (38.71% or 24 students), good category (3.23% or 2 students), very good category and very low categories (0%). From these results, it could be concluded that the level of the students' physical health was categorized medium.

3.3 Discussions on the Nutrient Status

Nutrient status is a body condition as the result of consuming foods, and the use of nutrients substance which is divided into bad, fairly good, good and very good nutrients (Kusimawati, 2010). Every person actually has different nutrient status. Based on the research, it was known that most of the eleventh grade students (53.23% or 33 students) in special sports class at SMAN 1 Tanjungsari belonged to the nutrient status level of normal category. This result fulfilled the expectation that basically the good nutrient status was normal. This normal nutrient status also indicated that most of the students had good balance between weight and height. It further means that they were able to implement the balanced lifestyles and keep the condition of normal nutrient status. Good nutrient status can be obtained by consuming foods and nutrients which are balanced for body (Mu'arifah, 2007). Otherwise, the bad nutrients can be caused by consuming foods which are not balanced or with inadequate amount of nutrients. Then, excessive nutrients are caused by consuming foods more excessively compared to what is needed by the body.

Based on the research, it can be known that the number of the students belonging to the thin category was (29.03%). It means that some students had unbalanced weight and height. In this case, the less nutrient status of the students refers to those whose body weight was low.

Moreover, based on the observation conducted at SMAN 1 Tanjungsari, most people living in Tanjungsari sub-district come from low economical level. It was assumed that this area lacked of water and suffered from drought. This condition and the geographical position, was believed to be able to give influence to the nutrient status of its society especially for the children.

Otherwise, 6 students (9,68%) belonged into overweight category and 5 students (8,06%)include into obese risk. This result means that some of the students were overweight leading into the

overweight nutrient status. Most likely the nutritional status of these students was well fulfilled but it was not balanced with good activities.

Regarding the results of nutrient status of the students in the special sports class, there were several students belonging to overweight and thin category. It can be caused by the different economical level of the family and the bad lifestyle carried out by every individual. Unfortunately, the data were obtained from the students of special sports class (SBI-O) of SMAN 1 Tanjungsari. Regardless of these matters it can be said that the some students of SBI-O still belonged to overweight and thin categories of nutrient status. On the other hand, the skills in mastering one of the sports fields become one of the requirements why this school accepts the new students. It means that entering the special sports class in this school must pass the skill test of sports field and they will be chosen by the trainers that teach in several fields of sports in SMAN 1 Tanjungsari.

Nutrient status of a person can be influenced by the healthy lifestyle. The healthy lifestyle consists of diet, activity, body cleanliness, and sleep pattern. Good and bad nutrient status can be influenced by some factors that can effect and support the children' nutrient status to be suitable with their needs. Besides, consuming food everyday can also influence the nutrient status and must be supported by routine activities.

Nutritious food is the food that contains the substances needed by the body such as carbohydrate, protein, fat, mineral, vitamin, and water. The function of nutritious food is producing energy substances, builder substances, and controller substances. The energy sources are needed by body to do daily routines, so the adequate and good nutrients will maintain the body to do the activities. The lack of energy will cause the weakness of the body, and the body is not able to do the activities well. Therefore, in order to fulfill the needs of energy sources, people have to arrange their diet well. The good diet is regularity of hygienic and nutritious meals by taking into account the time and ingredients of the foods.

3.4 The Level of Physical Health

Based on the research results above, it can be stated that 36 (58.06%) students belonged to the physical health level of medium category. It means that the eleventh grade students at special sports class of SMAN 1 Tanjungsari have enough health and physical activities in their daily life. The physical daily activities of the students will influence their physical health; the harder the physical activity is done, the better the physical health is got. Medium physical health means that most of the students only do the activities which are done daily. These activities are not enough yet to maintain their physical health better.

Moreover, this research also shows that 38.71% of the students belonged to the low category. It is relatively a big number. The observation concluded that most of the students lacked of physical activities. Although this school has become the special sports based school, it does not mean that this school can ensure the students' physical health is always in a good condition. In this case, many factors can influence the students' level of physical health. Possibly, the lack of seriousness in carrying out each TKJI test, lack of resting time in receiving heavy exercise activities that makes the students become fatigue and other factors can influence the students' physical health. Therefore, the activities done every day are not enough yet to support the physical health of their bodies. This needs to be supported by gradual and controlled exercises both in extracurricular activities and exercises within or apart from the school times.

In addition, 3.23% or 2 students belonged to the good category. It is actually the expected condition as the students of SBI-O since they must belong to the good category. This category means that the students have good condition to do some exercises. These exercises are done not only in the school but also at home, such as playing football, playing badminton, and running as daily routines.

The principle of the exercise is the process of changing to be better, such as increasing the physical quality, the ability of the body function, and the psychic quality. The harder the physical activity is done, the better the physical health is got. To achieve the good physical health needs routines to increase the students' physical health.

Besides, other factors that can influence the level of physical health of the students are food, rest, living habit and environment. In the process of the body growth and development, these matters become the main roles to be maintained to get good physical health, and it also gets the support from the school since the physical health has an important role to help the students' achievement of Physical Education and other physical activities.

Eating habit becomes one of the supporting factors of physical health. The good foods are the nutritious foods that can influence the level of physical health. Consuming the nutritious foods can

make the energy balanced. Therefore, it can make our body healthy and fit. All this time, the students of elementary school still buy food carelessly; the unhealthy foods will make their body limp fast. Besides, their motivation to learn and do some activities reduces, and their body endurance also decreases.

4 CONCLUSION AND SUGGESTION

4.1 Conclusion

Based on the data analysis and explanation in the previous chapter, it could be seen that the level of nutrient status of the eleventh grade students in sports class of SMAN 1 Tanjungsari was categorized normal (53.23% or 33 students). Then, it was followed by the thin category (29.03% or 8 students), overweight category (9.68% or 6 students), obese risk category (8.06% or 5 students), and obese category that (0%).

In addition, 58.06%, of the students belonged into medium category of the physical health, 38.71% belonged to the low category, and the other 3.23% belonged to the good category.

4.2 The Implication of the Research Finding

Based on the conclusions above, the implications of the research are as follows: (1) It can be used as the information source regarding with the data about the nutrient status and physical health level of the eleventh grade students of SBI-O at SMAN 1 Tanjungsari. (2) The data of nutrient status and physical health of the eleventh grade students of SBI-O at SMAN 1 Tanjungsari can be used as clear the description for the students, teachers, and school parties of SMAN 1 Tanjungsari.

4.3 Suggestion

Regarding the research result, it can be presented some suggestions as follows: (1) For the students who have lack of physical health, it is suggested that they could improve it by keeping their physical condition and diet and doing intensive physical exercises. (2) For the students who lacked of nutrient status, it is suggested that they must keep their diet and enhance it by consuming nutritious foods, and the students who have overweight must increase the physical activities to make the lifestyle balanced. (3) For the next researchers, they can do the research with wider population and different sample, so the nutrient status and physical health can be identified even more.

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