MAJOR FACTOR RELATED TO PHYSICAL ACTIVITY AMONG ELEMENTARY SCHOOL STUDENT

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Abstract

Even though it is known that physical activity is very important for the growth and development of children, many children are still sedentary. The purpose of this study was to identify factors related to the physical activity of elementary school students. The type of research used is quantitative with a survey method and a cross-sectional approach conducted in Banjarmasin City, South Kalimantan Province, Indonesia. The population is 5th grade students of state elementary schools with a sample of 380 students. Data collection on student characteristics, parents, knowledge and attitudes of students, as well as their daily activities used a questionnaire, while students' physical activity was measured using the Global Physical Activity Questionnaire for Children (GPAQ-C), in units of METs (metabolic equivalents) / minute / week. Bivariate data analysis used Spearman's rank correlation test, and multivariate used multiple linear regression tests. The results of this study state that: there is a correlation between the age of the students and the physical activity of the students with a value of p=0.015 (p<0.05. Student knowledge correlated with physical activity, with a value of p=0.04 (p<0.05). The duration of students doing sports every week correlated with their physical activity, with a value of p=0.000 (p<0.05). The duration of doing household chores each day correlated with students' physical activity with a value of p=0.004 (p<0.05). And the variable most related to students' physical activity is the variable duration of exercising (p = 0.000) and the variable duration of doing household chores (p = 0.002).

Keywords: Main Factors, Physical Activity, Elementary School Students.

1. INTRODUCTION

Many benefits can be drawn from physical activity for elementary school age children. Physically and physiologically, physical activity can make muscles more flexible and stronger, bones denser, and blood to circulate more smoothly. A further impact of these conditions is increased fitness and health status. Mentally, physical activity can make children more cheerful, relaxed and calm so that they are stress free. Socially, physical activity can be a way to get to know the outside world further, including socializing with peers. Thus, physical activity can be beneficial physically, mentally and socially so that it also influences learning activities, both inside and outside the classroom. Even though it is known that physical activity is very important for the growth and development of children, many children are still sedentary.

Globally, physical activity in children is still lacking. It is known that 80% of the world's population of primary school age has less physical activity. When viewed by country, the prevalence of low physical activity is found more in developing countries such as Africa (52.4%), Latin America (Brazil: 59.3%) and China (50%).[1] In Indonesia, the prevalence of physical inactivity for all age groups was 21.5%. The proportion of the

Indonesian population aged more than 10 years who are not physically active has increased from 26.1% in 2013 to 33.5% in 2018. The province with the highest proportion of inactive residents in the age group ≥ 10 years is the Daerah Khusus Ibukota (DKI) Jakarta, namely 47.8% in 2018. This figure increased from 2013, which was 44.2%. Meanwhile in South Kalimantan Province, the proportion of the population whose physical activity is in the less category is 33.7%. The proportion of the Indonesian population in the age group of 10-14 years who lack physical activity is 64.4 %.[2.3]

Along with the development of technology, everything is now easier and more practical, supporting to speed up doing a job. Unfortunately, this has resulted in decreased levels of physical activity, both for children and adults. Now everything uses technology. The technology is not only for work purposes, but also daily activities. Just like what children do, whether to study or to play. Children who are supposed to play using high activity now tend to play using light/low physical activity such as playing with gadgets.[4] The use of gadgets will cause changes in patterns and lifestyles, especially in elementary school-age children. Children will tend to be more silent and preoccupied with playing gadgets. This will cause the child to become less movement (sedentary behavior). According to 2018 World Health Organization (WHO) data, 60% - 85% of people in the world from both developed and developing countries live a sedentary lifestyle.[5] And four out of five children (aged 10-14 years) do not meet WHO global recommendation on physical activity for health of 150 minutes per week.[6]

In addition, parental factors also play an important role in supporting the physical activity of their children. Parents often do not understand that to achieve children who grow, develop well and are healthy, children need physical activity. Today's parents prefer to give gadgets to their children so that they are calm, and parents also don't need to worry that their children will get injured.[7] Children sit more and play on gadgets and tend to do less physical activity. Habits like that indirectly form a child's dependence on gadgets continuously until they grow up. Research conducted by Burns (2020) states that children aged 4-7 years are 6 times more active and fit when one of their parents is active in physical activity compared to parents who are less active.[8] Involvement and participation in their children's physical activity is very important. This is important because when children carry out physical activities accompanied by their parents, children feel comfortable and confident when doing these physical activities. This is the same as other research which states that the presence of parents when children are doing physical activity increases children's self-confidence.[9]

In an effort to improve physical quality through an active and healthy lifestyle, students apart from being subjects and objects can also become agents of change for their families and communities. For this reason, it is necessary to combine school and family efforts in a professional manner.[10] In this way, students will be assisted in living an active and healthy lifestyle every day. Indonesia through the Ministry of National Education (now the Ministry of Education and Culture) has actually implemented the concept of a Comprehensive School Health (CSH) through the School Health Program and a strategy to increase physical activity through the Healthy School Model pilot program since 2007.[11] The Healthy School Model was established by the Center for Physical Quality Development as many as 21 schools until 2010. Of the 21 schools, two of them are in Banjarmasin City.[12] However, due to the Center for Development Physical Quality as the developer of the School Health Program and Healthy School

Model programs in 2010 was disbanded as a result of internal bureaucratic reform, so there was no follow-up on the concept of Healthy Schools Model, and efforts to increase the physical activity of school members were no longer monitored.

The purpose of this study was to identify factors related to the physical activity of elementary school students, based on Lawrence Green's theory which includes predisposing factors, enabling factors and reinforcing factors. So that it can be mapped again on the physical activity conditions of elementary school students in Banjarmasin City at this time, and what programs need to be revitalized as a follow-up to the pioneering healthy school model that was built.

2. METHODOLOGY

2.1. Study Design and Participant

The type of research used is quantitative with a survey method and a cross-sectional approach conducted in Banjarmasin City, South Kalimantan Province, Indonesia. Banjarmasin City is an area where there are 102 rivers that flow through the city, and make the river a trade route. The area of Banjarmasin City is 98.46 km2 which is divided into five districts, namely South Banjarmasin, East Banjarmasin, West Banjarmasin, Central Banjarmasin and North Banjarmasin.[13]
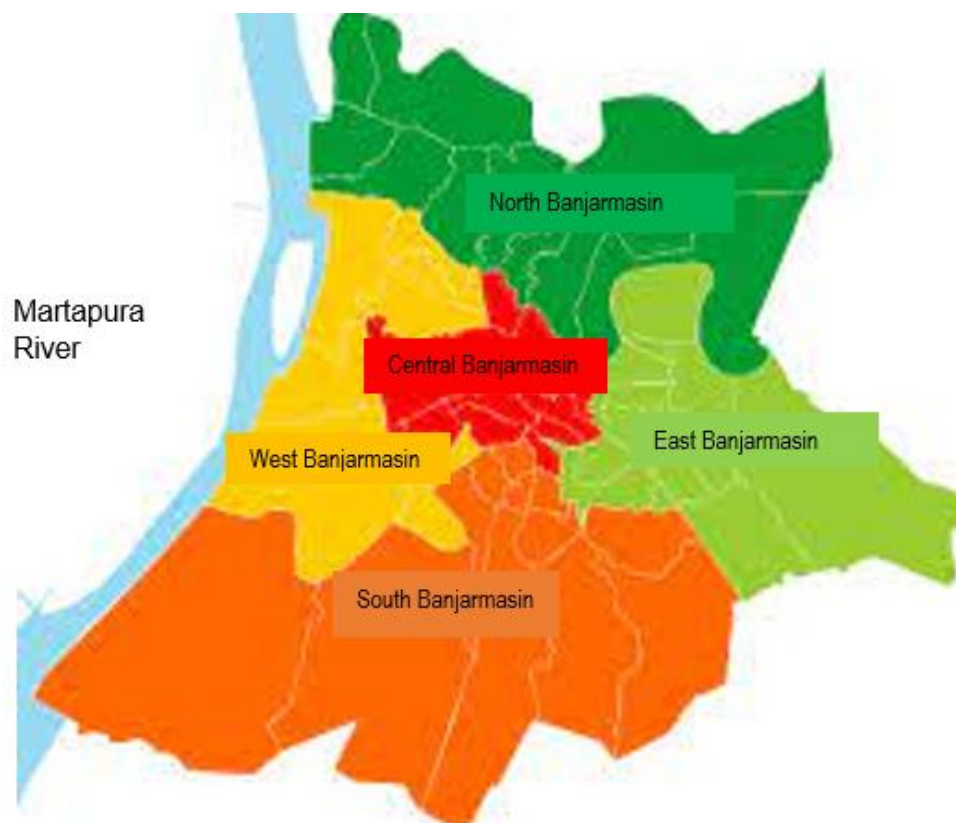
Figure 1 Study Site : Sub district of Banjarmasin City [13]

The object of research in this study were students of 5th grade of public elementary schools. The number of public elementary schools in Banjarmasin was 208 schools. The number of students in public elementary schools is 46,116 students, and those in 5th grade are 4,190 students. 5th grade Elementary School students were chosen with

the consideration that students aged 10-12 years could communicate well and be able to work together. The sample is calculated using the Slovin formula as follows:

$$n = \frac{N}{1 + (N \times e^2)} = \frac{4.190}{1 + \{4.190 \times (0,05)^2\}}$$

= 377,347 (rounded to 380)

So that 380 students were obtained as respondents from 5 public elementary schools in Banjarmasin City, spread across 5 sub-districts. From each sub-district one elementary school was randomly selected, and from each school all 5th grade students were determined to be respondents. With the distribution of respondents as follows:

Table 1: Distribution of Respondents

No	Sub District	Public Elementary School	Respondent
1	Central Banjarmasin	SD Negeri Seberang Masjid 1	92 students
2	North Banjarmasin	SD Negeri Sungai Jingah 1	60 students
3	South Banjarmasin	SD Negeri Pemurus Dalam 6	75 students
4	West Banjarmasin	SD Negeri Basirih 2	60 students
5	East Banjarmasin	SD Negeri Karang Mekar 1	93 students

2.2. Major Factor

Based on Lawrence Green's Theory, the factors that influence the physical activity of elementary school students consist of predisposing factors including: students' knowledge and attitudes. Enabling factors include: distance from home to school, transportation used to go to school, duration of sports activities in a week, duration of playing with friends outside the home in a week, duration of watching TV in a day, duration of learning to use the computer in a day. And reinforcing factors include: parental characteristics such as parental age, parental education, and parental occupation. Predisposing factors, enabling factors and reinforcing factors were measured using a questionnaire. Then a trial was carried out on the questionnaire by testing its validity and reliability. Validity test is done by comparing r count and r table for each question. As a basis for decision making, if r count > r table, the questionnaire questions are declared valid. The reliability test was carried out after testing the validity. If the question is invalid then the question is discarded. Valid questions were measured for reliability using the Cronbach Alpha test. If Cronbach Alpha > 0.6 means that the variable is reliable.

2.3. Physical Activity

Meanwhile, students' physical activity was measured using the Global Physical Activity Questionnaire for Children (GPAQ-C).[14] In this questionnaire, respondents were asked to report the number of days and duration of physical activity carried out for one week, both at low intensity (METs value = 1, 5), medium intensity (METs value = 4) and high intensity (METs value = 8). Each activity with low, medium and high intensity, multiplied by the duration of the activity carried out in a week, then combined and summed to get the total value of METs/minute/week. High physical activity has a METs value greater than 3000 METs/minute/week, moderate physical activity is if the METs value is 600 – 3000 METs/minute/week and low physical activity if the METs value is less than 600 METs/minute/week.[14]

2.4. Data Analysis

Univariate data analysis using the frequency distribution, the value with the highest frequency, the minimum value and maximum value of the research variables. Based on the results of the data normality test using the Kolmogorov Smirnov test corrected by lillifors, all $p = 0.000$ (<0.05) was obtained so that it was concluded that the data was the child's age (years), parents' age (years), distance from home to school (km), knowledge score, score attitude, sport activities (hours/week), playing with friends outside the home (hours/week), doing household chores (hours/week), watching TV/playing games (hours/week), learning to use the computer (hours/week) and physical activity (METs/minute/week) were not normally distributed. Bivariate data analysis was performed using the Spearman rank correlation test, because the data were not normally distributed. To find out the level of relationship in the correlation can be seen in the table of interpretation of the value of rho (correlation coefficient). If the value of rho = 0, it means that there is no correlation or there is no relationship between the independent and dependent variables. If the value of rho = +1 means there is a positive relationship between the independent and dependent variables. If the value of rho = -1 means there is a negative relationship between the independent and dependent variables. Multivariate data analysis used multiple linear regression tests, to measure the effect of more than one predictor variable (independent variable) on the dependent variable. And the independent variables included in this multiple linear regression test are the variables of the child's age, student knowledge, duration of sports activities and household chores done by students.

3. RESULTS

Banjarmasin City is an area which is the capital of the Province of South Kalimantan. Banjarmasin City is known as the City of a Thousand Rivers. Banjarmasin City uses the river as a trade route. The area of Banjarmasin City is 98.46 km2 which is divided into five districts, namely South Banjarmasin, East Banjarmasin, West Banjarmasin, Central Banjarmasin and North Banjarmasin. Culture of Banjarmasin City is a multi-ethnic area with residents from the Banjar, Dayak, Javanese, Batak, Bugis, Madurese, Sundanese, and many more.[15] The condition of Banjarmasin City is heavily influenced by the existence of the river as a cultural center and civilization.

The development of basic education in Banjarmasin City is an effort to educate and create the life of a nation that is pious, loves and proud of the nation and country, is skilled, creative, virtuous and polite and is able to solve problems in their environment. Elementary school education is education for children aged 7 to 13 years as education at the basic level which is developed in accordance with educational units, regional potential, and socio-culture. The Banjarmasin City Government, through the Banjarmasin City Education Office, has contributed to the success of the current Ministry of Education and Culture program, namely developing the "Healthy, Safe, Child-Friendly and Fun School Movement". In principle, healthy schools focus on efforts to make these schools have normal learning conditions both physically and spiritually.[16] This is marked by a school situation that is clean, beautiful, orderly, and upholds family values. Within the framework of achieving the physical and spiritual well-being of every school member. In this way, healthy schools enable every member of the community to carry out activities that are useful, efficient and effective for the school and the environment outside the school.[17] Description of the characteristics of the respondents which includes the frequency distribution of: student's gender,

parent/guardian education, parent/guardian occupation, parent-student relationship, and transportation from home to school, is as shown in table 3 below.

Table 3: Distribution of student gender, parental education, parental occupation, Relations with students, and transportation from home to school

No	Variable	Frequency (%)
1	Student Gender • male • female	 47.4 52.6
2	Parent's education • No education • Elementary and junior high school • Senior high school • College	 0.5 4.2 49.5 45.8
3	Parent's occupation • Government employee • Private employee • Entrepreneurs/traders • Farmers, fisherman, breeders	 16.6 35.5 43.2 4.7
4	Relation with students • Biological parents • guardian	 96.1 3.9
5	Transportation from home to school • on foot • By bicycle • Public transportation • Private transportation	 1.6 5.0 24.7 68.7

While the value with the highest frequency, minimum value and maximum value of the variables: student age, distance from home to school, student knowledge, student attitude, duration of doing sports, duration of playing with friends outside the home, duration of doing household chores, duration of watching TV and playing games, the duration of learning to use the computer, and the physical activities carried out by students in METs/minutes/week are as follows.

Table 4: Minimum, maximum, mean and standard deviation of values variable characteristics of elementary school students

	N	Minimum	Maximum	Mean	Std. Deviation
Student's age	380	10	13	11.12	0.488
Distance home-school	380	0.5	4	3.051	0.7223
Student's knowledge	380	7	10	8.72	0.931
Student's attitude	380	6	10	8.37	0.934
Exercising duration	380	1	5	1.197	0.6895
Playing duration	380	1	6	3.826	1.538
House corse duration	380	0.5	4	2.399	0.8631
Watching TV/Game duration	380	1	3	1.953	0.6188
Studying on Computer duration	380	0.5	1.5	0.996	0.2224
Student's physical activity (METs/minute/week)	380	210	3600	1066.184	937.9169
Valid N (list wise)	380				

The variables related to the level of physical activity of students are shown in table 5 below.

Table 5: The variables related to the level of physical activity of students

No	Variable	Physical activity of student	
		p Value	**Koef correlation**
1	Student's age	0.015	-0.124
2	Parent's age	0.952	-0.003
3	Distance home-school	0.759	0.016
4	Student's knowledge	0.040	0.106
5	Student's attitude	0.341	0.049
6	Exercising duration	0.000	0.500
7	Playing duration	0.169	0.071
8	House corse duration	0.004	0.149
9	Watching TV/Game duration	0.957	0.003
10	Studying on Computer duration	0.499	-0.035

From table 5 it can be seen that: there is a correlation between the age of the student and the physical activity of the student with a value of $p=0.015$ ($p<0.05$), and the correlation coefficient is -0.124 meaning that as the age of the child increases, physical activity decreases. Parents' age did not correlate with students' physical activity with a value of $p = 0.952$ ($p> 0.05$).

The distance from home to school also did not correlate with students' physical activity with a value of $p=0.759$ ($p> 0.05$). It was found that there was a correlation between students' knowledge and their physical activity, with a value of $p=0.04$ ($p<0.05$), and a correlation coefficient of 0.106, which means that the better the students' knowledge, the higher the physical activity. There is no correlation between students' attitudes and their physical activity, with $p=0.341$ ($p> 0.05$).

The duration of students doing sports every week correlated with their physical activity, with a value of $p=0.000$ ($p<0.05$), and a correlation coefficient of 0.500, which means that the longer the duration of the exercise activity, the higher the level of physical activity. Variable duration of students playing with friends outside the home is not correlated with students' physical activity, with $p = 0.169$ (> 0.05).

The duration of doing housework every day correlated with students' physical activity with a value of $p=0.004$ ($p<0.05$), and a correlation coefficient of 0.149 which means that the longer they do housework, the higher the students' physical activity. In this study, it was found that the duration of watching TV/playing games in a week was not correlated with students' physical activity with a value of $p=0.957$ (> 0.05). The variable duration of learning to use a computer is not correlated with students' physical activity with a value of $p = 0.499$ ($p > 0.05$).

Multivariate data analysis using multiple linear regression tests, on variables consisting of: student age, student knowledge, duration of doing sports in a week and duration of doing household chores in a week, it was found that the variable that was most related to students' physical activity was the exercise duration variable ($p = 0.000$) and the variable duration of doing household chores ($p=0.002$).

4. DISCUSSION

From the results of research conducted on 5th grade students of public elementary schools in Banjarmasin City, it was found that the factors that were significantly related to the physical activity of elementary school students were the student's age, students' knowledge of physical activity, the duration of exercise in a week and the duration of doing work household in a week. The activities carried out by elementary school students in Banjarmasin City are mostly activities that do not tire the body too much, where the activities carried out are just to fill their free time at home. Physical activities that are carried out while at school such as playing catch-up with friends and playing traditional games such as intingan (*congklak*) and running blocks both during sports class or during recess, that is what children do almost every day . But during recess there are some students who prefer to chat with friends or read books in class compared to doing activities.[18]

The student age variable correlates with the student's physical activity with a correlation coefficient of -0.124 meaning that as the child's age increases, physical activity decreases. This is in line with research by Kemal and Darrin (2021) which states that the highest decrease in the level of physical activity in humans occurs during adolescence.[19] Globally, 77.6% of boys and 84.7% of girls aged 11 to 17 years have a level of physical activity below WHO recommendations. Low levels of physical activity in children and adolescents have many adverse health consequences. Physical activity at elementary school age is very influential on the level of physical activity in old age. Children who are physically active tend to be active as adults and are at lower risk of suffering from cardiovascular disease and metabolic disorders.[20]

In this study, it was found that there was a correlation between students' knowledge and physical activity, with a value of p=0.04 (p<0.05), and a correlation coefficient of 0.106, which means that the better the students' knowledge, the higher the physical activity. This is in accordance with the theory of behavior change from Lawrence Green, where knowledge is a predisposing factor. Based on the basic theory developed by Lawrence Green (1991), the health of a person or society is influenced by two main factors, namely behavioral causes (behavior causes) and non-behavioral causes (non-behavior causes). While behavioral factors (behavior causes) are influenced by three factors, namely: predisposing factors which include age, occupation, education, knowledge and attitudes, enabling factors (enabling factors) that are manifested in the physical environment and distance to health facilities, and factors reinforcement (Reinforcing Factors) which is manifested in the support provided by families and community leaders.[21]

Efforts are needed to increase the knowledge of elementary school-age children through providing education on the importance of implementing the behaviour of carrying out physical activity and daily sports according to their abilities. This is in line with research conducted by Xu et al., (2017) which also succeeded in increasing knowledge related to physical activity in elementary and middle school students in Nanjing, China after providing education.[22] Likewise with the results of counselling shown by Rosidin , Sumarni, and Suhendar, (2019) which also shows an increase in the score of knowledge about physical activity in the community in Jayaraga Village, Bandung.[23] The success of increasing one's knowledge is influenced by various factors, including education, age, and the media. Ana Fitriani et al (2020) in her research on increasing knowledge and physical activity behaviour of elementary

school students through practice-based education found that when the knowledge score after education was compared to the score before education, there was a significant increase (p value = 0.047). The success of improving this behaviour is supported by practice-based education.[24] Students are not only given knowledge about the importance of physical activity, but in detail and instructionally accompanied to carry out physical activity at school. This is in line with the theory which states that health education that provides specific information and detailed and applicable instructions is more capable of changing behaviour.[25]

The duration of exercising every week that students do is correlated with students' physical activity, with a value of p = 0.000 and a correlation coefficient of 0.500, which means that the longer the duration of doing sports, the higher the physical activity. This is consistent with Lawrence Green's theory of behaviour change, where exercise duration can be an enabling factor as well as a reinforcing factor. Enabling factors related to sports infrastructure facilities, reinforcing factors related to the role of parents who encourage their children to participate in certain sports as well as their willingness to pay.

Physical activity is very important for the overall growth and development of children. Sports activities can optimize the mastery of skills and attitudes that can lead to healthier behaviour in life, and also facilitate cognitive and social development, as well as physiological development and neurological development of children.[26] Sports activities according to the interests that students follow can shape attitudes, character and mentality and dedication so that they can improve performance in one of the sports that has become a hobby and talent for children. In order for sports to be more beneficial for students, not only for increasing their physical activity but also for their growth and development, sports that are carried out with sufficient duration must also be in accordance with the characteristics of elementary school-age children who like to play, move, group, and practice directly.[26] During the age period of 10-13 years, there is a transition in sports activities. Movement education, as emphasized in the previous period, began to change to physical fitness activities and sports skills. So it is very good for carrying out sports activities by involving large muscles, changing the direction and tempo of running, developing coordination in throwing and jumping, as well as games with opponents to channel competitive instincts as an effort to foster sportsmanship, cooperation and leadership.[26]

In this study it was also found that the duration of doing housework each day was correlated with students' physical activity with a value of p=0.004 (p<0.05), and a correlation coefficient of 0.149 which means that the more duration of doing housework, the higher students' physical activity. After school and at home, children are sometimes involved in household chores by their parents, such as sweeping, washing dishes and watering flowers in the garden. However, due to its helping nature, and not accompanied by a sense of responsibility for sufficient work, the task was immediately completed in a short time and after that returned to playing cell phones and watching television for hours on end. For this reason, it is necessary to increase the role of parents so that they involve children in completing larger household chores. In addition to increasing children's physical activity, it is also to train children to be responsible for their work.[27] This is in accordance with Lawrence Green's behaviour change theory, where the duration of doing household chores is a reinforcing factor, namely the role of parents to involve children in work household.

Of the four variables related to students' physical activity, after multivariate analysis it was found that the variables most related to physical activity were the duration of doing sports activities and the duration of doing household chores at home. So there needs to be awareness and involvement of parents to support their children to have active living habits, in daily activities.[28] Parents who understand, and have awareness about the importance of physical activity for children will have full intervention with their children, so that their children can carry out physical activities well, especially those carried out at home, such as doing household chores and carrying out certain sports activities that are routine, regular and measurable.

5. CONCLUSION

Factors related to the physical activity of elementary school students in Banjarmasin City are the age of the students, the students' knowledge of physical activity, the duration of exercise and the duration of doing household chores. And the most related is the duration of exercise and the duration of doing household chores.

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