

Relationship Between Physical Activities and Emotional Mental Health on High School Students in 2018

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Abstract. This study aims to determine the relationship between physical activity and emotional mental health in Indonesia's high school students in 2018. This research is a type of correlation research with two variables, physical activity and emotional mental health. The research was carried out in all provinces in Indonesia. With the sampling technique using Two Stage Sampling, the sample in this study amounted to 46,230 samples with the characteristics of male and female school students aged 15-18 years. This study used secondary data obtained from the Health Research and Development Agency. The data analysis technique used is Chi Square analysis. The results showed that there was a significant positive relationship between physical activity and emotional mental disorders, and H_0 is accepted. There is a relationship between physical activity and emotional mental health in Indonesia high school students in 2018.

Keywords: Physical activity, emotional mental health.

1 Introduction

Health is often perceived from a physical point of view. Though healthy also means mental health. Unfortunately, mental health issues are still considered less important than physical health. Even though currently there is health insurance that offers protection related to mental health. The World Health Organization (WHO) said that young people, aka the millennial generation, are currently more susceptible to mental disorders. In Indonesia alone, the number of mental disorders among the population aged 15 years and over has increased from 6% in 2013 to 9.8% in 2018 [2]. Among Indonesian adolescents, there are many phenomena of students' inability to manage stress. The result will be tragic things such as running away and committing suicide, for example, 25 students committed suicide because they were declared not passing the exam [28], Elementary school students commit suicide because they get bad grades [29]. In this era of globalization, there are many challenges that must be faced by school age children or students in Indonesia in the form of pressures caused by various conditions in their surroundings.

Most of the sources of student pressure come from academic problems [7]. This pressure can arise from changes in learning demands from the previous period and from year to year. The Ministry of Education and Culture sets the graduation standard which is always increasing. In addition, the demand for the curriculum used in Indonesia is the 2013 curriculum, which requires students to be more active during Teaching and Learning Activities (KBM) and increase lesson hours so that students leave in the morning and return home in the afternoon,

and maybe some students also take additional lessons. out of school. So they don't have time to do physical activity.

According to WHO (in Welis) physical activity is a body movement produced by skeletal muscles that requires energy expenditure. Changes in lifestyle towards a sedentary, namely a lifestyle that has less physical activity affect physical and mental health. The benefits in the health aspect are preventing obesity because by doing activities calorie burn will occur [20]. Physical exercise can increase attention and motivation, through increasing levels of dopamine and norepinephrine, thereby making a more positive mood, reducing anxiety, and increasing self-confidence [2]. Physical exercise can also increase serotonin [2]. Serotonin is the third monoamine neurotransmitter, also known as 5-HT, aka 5- hydroxytryptamine. The effects on behavior are complex. Serotonin plays a role in mood regulation, control of eating, sleeping, and wakefulness, as well as in pain regulation[21].

There are several factors that affect mental emotional health. There are two factors that affect mental health, namely internal and external factors [5]. These internal factors include personality, physical condition, development and maturity, psychological conditions, diversity, attitude to face life problems, meaningfulness of life, and balance in thinking. As for what includes external factors, among others, social, economic, political conditions, customs, environment, and so on. Furthermore, reveals that the two factors above[5], the most dominant are internal factors. The factor of peace of life, peace of mind or inner happiness does not depend much on external factors such as social, economic, political, customs, etc. However, it depends more on the way and attitude to deal with these factors. In the current condition of school children, they tend to rush in making decisions, such as wanting to end their own life because the daily test scores are unsatisfactory or doing negative things such as using narcotics because they do not pass the exam.

Research published in the American Journal of Psychiatry in 2018 that examined 22,000 Norwegian participants found a strong association between not exercising and depressive disorders. The results also showed that regular exercise could prevent depression by as much as 12%, even with just one hour of physical activity a week [12].

Physical Activity

Physical activity as body movements produced by skeletal muscles that require energy expenditure, including activities performed while working, playing, doing household chores, traveling or activities involved in recreation. Physical activity can be planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness[31].

The right physical activity will spur the child's growth and development optimally. The benefits of physical activity for the child's emotional are:

Intellectual Development

Exercise is also beneficial for intellectual development. Sport also provides opportunities for children to move to express themselves, shout sounds according to the movements carried out, activate cognitive functions through symbolic roles, language development, and use of symbols at an early age, and develop strategic learning skills, make decisions, integrate information. , and solve problems at later age development.

Emotional and Social Development

Physical education is useful for personal and social development which requires individual efforts to interact with others. The acquisition of desired social values such as cooperation, commitment, leadership, honesty as well as responsibility and tolerance need to be taught through participation in activity-based teaching. Enjoying physical activity will increase self-confidence and social awareness. States that physical abilities are closely related to children's self-image. Children who have better physical abilities in sports will cause them to be

appreciated by their peers [10]. Physical activity also provides an opportunity for release of emotional tension in appropriate ways. When participation is shown by students who are also supported by the environment,

Emotional Mental Health

Mental health is a condition in which an individual has a visible well-being that is able to realize his own potential, has the ability to cope with the pressures of normal life in various situations in life, is able to work productively and generously, and is able to contribute to his community. Furthermore, mental health problems often occur in the elderly, women, low levels of education, and lack of income [32]. stated that individuals aged 16 years and over and groups of students who experience harassment and condescending attitudes by their parents have more than twice the risk of experiencing mental emotional symptoms [16].

Framework of thinking

Physical activity is a body movement produced by skeletal muscles that requires energy expenditure. There are many benefits that can be obtained when doing regular physical activity, including in terms of psychic such as reducing stress, increasing self-confidence, and building a sense of sportsmanship. Conversely, if a person is not moving enough, it causes various health problems, both physical and psychological. Based on the results of the study, high school aged high school children often experience mental emotional health disorders characterized by feelings of loneliness, worry, and suicidal thoughts. This may be due to the demands of a fairly long study time that is imposed on them, resulting in periodic accumulation of stress and lack of physical activity. Based on these thoughts, the authors are interested in investigating whether physical activity has a relationship with emotional mental health in high school students in Indonesia

2 Methods

This research is a type of correlation research. This study used a cross sectional design. In a cross-sectional study, the relationship between the independent variable (risk) and the dependent variable (effect) is sought by taking a momentary measurement.

The population in this study were all households in Indonesia based on the highest level of welfare and education completed by KRT (Head of Household) [2]. The sample is part of the number and characteristics of the population [26]. In this study, the sample used was household member with the characteristics of school work [2] aged 15-18 years who had male and female sex. The age range is the age group for high school students in Indonesia [27]

This study uses secondary data obtained from the Indonesian Health Research and Development Agency (Litbangkes). The data used in this study were physical activity data and mental emotional health disorders in high school students aged 15-18 years in Indonesia. Physical activity data were obtained from a modified Global Physical Activity Questionnaire (GPAQ) questionnaire from WHO. The description of physical activity behavior includes heavy and moderate physical activity in daily activities (combined at work / at home, leisure time and transportation) in the number of days per week and the number of minutes per day.

Strenuous physical activity is physical activity carried out for ≥ 3 days / week and MET (Metabolic Energy Turnover) minute per week ≥ 1500 (MET minute value for strenuous physical activity = 8). MET is a unit of energy expenditure and is used to measure physical activity in minutes. MET minute is a unit used to measure the volume of an individual's physical

activity. Moderate physical activity is physical activity that is carried out for ≥ 5 days a week with an average length of activity ≥ 150 minutes a week (or ≥ 30 minutes per day).

3 Results

3.1 Descriptive Analysis

In this study, the data in question is data obtained using secondary data and data collection techniques using a questionnaire. This study uses two variables, the independent variable, namely physical activity, and the dependent variable, namely mental emotional health. The research data were obtained from 46,230 samples with the criteria of respondent age 15-18 years who have male and female sex. The age range is the age group for high school students in Indonesia.

Table 1 Descriptive Statistics

	Descriptive Statistical Analysis				
	N	Min	Max	Mean	SD
Physical Activity	46,230	1	2	1,524	0.499
Mental Health Problems	46,230	1	2	1,909	0.288
Gender	46,230	1	2	1,489	0.500
Age	46,230	15	18	16,216	1,057
Valid N (listwise)	46,230				

3.2 Characteristics of Respondents

Table 2. Gender Frequency Distribution

Category	Frequency	Percentage(%)
Man	23,611	51.1
Women	22,619	48.9
Total	46,230	100

The table above shows the gender. Based on the table above, it is known that 23,611 respondents (51.1%) were male and 22,619 respondents (48.9%) were female. Based on this information, it is known that most of the respondents are male.

Table 3. Respondents' Age Frequency Distribution

Category	Frequency	Percentage(%)
15 years	15,053	32.6
16 years	13,002	28.1
17 years	11,303	24.4
18 years	6,872	14.9
Total	46,230	100

The average age of the respondents was 15 years old, with the youngest being 15 years old and the oldest being 18 years old. Most respondents are 15 years old.

3.3 Univariate Analysis

The results of the analysis were carried out to analyze the individual characteristic variables that existed descriptively using frequency distributions and proportions. Univariate analysis in this study was carried out on research variables which include: physical activity and mental emotional health.

Table 4. Physical Activity Frequency and Emotional Mental Health Distribution

Characteristics	Category	Frequency	Percentage(%)
Physical Activity	Active	22,023	47.6
	Less active	24,207	52.4
	Total	46,230	100
Emotional Mental Health	Yes	4,207	9.1
	Not	42,023	90.9
	Total	46,230	100

3.4 Bivariate Analysis

Analysis of the relationship between physical activity and mental emotional health can be seen in table 5.

Table 5. Cross Tabs

	Emotional Mental Health Disorders					
	Yes		Not		Total	
Physical Activity	N	%	N	%	n	%
Active	2,127	4.6	19,896	43	22,023	47.6
Less active	2,080	4.5	22,127	47.9	24,207	52.4

Based on the table above, it is known that respondents who did physical activity in the active category were 22,023 respondents (47.6%). Of the 22,023 respondents, 2,127 (4.6%) experienced mental emotional health problems. While the majority, namely 19,896 respondents (43%) did not experience mental emotional health problems. Based on information that most respondents do not experience mental emotional health problems. After that, there were 24,207 respondents who did physical activity in the less active category (52.4%). Of the 24,207 respondents, 2,080 respondents (4.6%) experienced mental emotional health disorders. Meanwhile, most of 22,127 (47.9%) did not experience mental emotional health problems. Based on information that most respondents do not experience mental emotional health problems.

So it can be concluded that respondents who are active in physical activity tend not to experience mental emotional disturbances, while respondents who are less active in physical activity tend not to experience mental emotional disorders.

The two groups of physical activity have the same conclusion, namely that most of them do not experience mental emotional health problems. Even so, there is a slight difference in the percentage of respondents who experience mental emotional health disorders.

To know for sure whether there is a relationship between physical activity and emotional mental health, a statistical test is needed. The statistical test used is the chi square test:

Table 6. Chi Square Test

Statistics	<i>Chi Square</i>	P	Kendall tau correlation
Score	15,827	0,000	0.019

4 Discussion

The results of statistical calculations obtained a value of χ^2 of 15,827 and a probability value of 0,000. The probability value is <0.05 , which means that there is a significant relationship between physical activity and emotional mental health. In the previous explanation, it is not known whether the pattern of influence is positive or negative, because the two groups produced the same conclusion, namely respondents with active or active physical activity. less active are less likely to experience mental emotional health problems. But it turns out that the results of statistical tests show the effect of physical activity on mental emotional health. The pattern of the relationship can be seen from the sign of the Kendall tau test, if it is positive then the relationship is positive and vice versa. The results of the Kendall tau calculation obtained a correlation coefficient value of 0,019 which means that the closeness of the relationship is very weak with a coefficient value of <0.25 . However, the value of the relationship is positive so that the relationship between physical activity and mental emotional health is positive. Positive relationship here means that the higher the respondent performs physical activity, the better the mental emotional health.

5 Conclusion

Research on the relationship between physical activity and emotional mental health in high school students in 2018 in Indonesia has the following conclusions, namely that the physical activity of students is almost balanced between those who are active and less active, namely 47.6% of students are active in physical activities and the remaining 52.4 % of students are less active in physical activity. Then most of the students did not experience mental emotional health problems, namely as much as 90.9%. Meanwhile, the remaining 9.1% experienced mental emotional health problems. Then there is a significant positive relationship between physical activity and mental emotional disorders. This is evidenced by the chi square statistical test, the probability value is <0.05 and the Kendall tau test is obtained a value of $0.019 > 0$ (positive).

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