INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS

ISSN(print): 2643-9840, ISSN(online): 2643-9875

Volume 06 Issue 10 October 2023

DOI: 10.47191/ijmra/v6-i10-27, Impact Factor: 7.022

Page No. 4748-4755

The Relationship Between Sports Activities, Sleep Quality, Stress Levels on Physical Fitness PPMI Male Student Assalaam Sukoharjo

Austin Cindy Pratiwi[1], Sapta Kunta Purnama[2], Hanik Liskustyawati[3], Slamet Riyadi[4]

[1,2,3,4] Master of Sports Science, Faculty of Sports, Universitas Sebelas Maret

ABSTRACT: Sports activities are very useful so that the body remains healthy and fit. Besides being physically beneficial, sports activities are also beneficial mentally and socially. The benefits of a healthy body by doing regular exercise activities can have a good sleep pattern, so as to minimize various sleep problems and can sleep soundly and soundly. The sleep needs of students who have entered adolescence with the age of 12-18 years require 8-9 hours of sleep per day. Sleep has many benefits for health, body immunity and psychological. The research method used is correlational, because this study aims to find out how strong the relationship between the independent variable and the dependent variable. The approach used is quantitative. The research will be conducted in May 2023 at the Assalaam Sukoharjo Islamic Modern Islamic Boarding School. The number of samples was 35 students. The reason the researchers took a sample of 35 students, because the researchers considered that the number already represented the population where the entire population carried out sports activities carried out, the quality of sleep lived and the str ess faced were relatively the same. Based on data analysis that has been carried out shows that there is a significant relationship between sports activities, sleep quality, stress levels and physical fitness in PPMI Assalaam Sukoharjo students, this is evidenced by obtaining a probability value of 0.000 0.05 and has a relationship of 81.7%. Sports activity, sleep quality and stress levels together affect physical fitness. By doing correct, measurable and regular sports activities. The better the quality of sleep, the lower the level of stress a person has, it will have an impact on health, the learning process at school, activities carried out daily and physical fitness. There is a significant relationship between sports activities, sleep quality, stress levels and physical fitness in PPMI Assalaam Sukoharjo students which is shown by obtaining a probability value of 0.000 0.05 and has a relationship of 81.7%.

KEYWORD: Sports Activities, Sleep Quality, Stress Levels, Physical Fitness

INTRODUCTION

Sports activities are now increasingly crowded and lively ranging from rural communities to urban communities regardless of age, ranging from children to the elderly. This is due to the increasing level of public awareness and interest in the importance of doing sports to maintain physical fitness (Agus, 2012). Physical fitness is the ability of a person's body to carry out daily tasks or work without significant fatigue. Santri who do physical fitness activities will get several changes such as increased body strength, endurance, respiratory function, and body flexibility. The improvement and maintenance of physical fitness needs to be carried out. Efforts to improve and maintain regular and directed physical fitness are basically part of a growing lifestyle (Sulistiono, 2014).

Improving physical fitness will affect the function of organs, social aspects and psychological aspects in supporting learning achievement (Abduh et al., 2020). Increasing physical activity that is correct, measurable and regular can reduce the risk of getting sick easily and improve student character education (Lestari, 2020). The level of physical fitness of students is certainly not the same, there are students who have good physical fitness, but there are also students who have poor physical fitness. Factors that affect physical fitness consist of 3 factors, namely eating factors, resting factors, and exercise factors. 1) feeding factors; Eating is a process of consuming food. Food is needed by the body as a source of energy, a means of growth and development of body organs. So, without food our body will feel weak and not energetic which results in physical fitness. 2) rest factor; Rest is needed by the body to restore energy after experiencing fatigue (Iftitah Adi, 2015). Sleep is a way to rest the body, with enough sleep, it is easy to start sleeping and sleep is not disturbed, the body will come back refreshed and ready to undergo activities the next day. 3) sports factors; Exercising is the most effective way to gain physical fitness (Gunarsa & Wibowo, 2021). Sports and exercises carried out must be programmed, measurable, regular, routine and meet the principles of exercise, namely:

systematic, continue, overload. Physical activity, body mass index and anxiety (stress) levels affect physical fitness. Someone who has a low busyness, if one day experiences high busyness will experience stress (Irianto, 2004). (Alamsyah et al., 2017). Someone with high stress levels will result in decreased physical activity and physical fitness levels (Arta & Fithroni, 2021).

Sports activities are very useful so that the body remains healthy and fit. In addition to being physically beneficial, sports activities are also beneficial mentally and socially (Salahudin & Rusdin, 2020). Sports activities include running, swimming, cycling, or doing sports games such as badminton, futsal, volleyball, and others. Sports activities must be in accordance with a person's age, type of activity, safety factors as well as equipment used, because sports activities must be carried out with appropriate techniques and rules. Although someone likes to do sports activities, age and body condition must still be observed so that it is well controlled (Prativi & Soegiyanto, 2013). With all the benefits of doing sports activities, there are still many people who are lazy to do it. Finally, a person's fitness level becomes less good. In addition to rarely doing sports activities, the lifestyle that lives is not good so it is susceptible to disease. Lifestyle is also not always about sports activities that are often done, but lifestyle also includes diet, and sleep patterns. If someone has done sports activities regularly and regularly but is not balanced with adequate food intake and sleep patterns that are not considered, then the peak goal of a healthy lifestyle is not achieved (Ziad, 2015).

The application of a healthy lifestyle, closely related to maintaining sleep patterns. By applying a good sleep pattern, the function of the body's organs will run well, so as to avoid several diseases. The benefits of a healthy body by doing regular exercise activities can have a pattern Good sleep, so as to minimize various sleep problems and can sleep soundly and soundly (Suwarna, 2016).

The sleep needs of students who have entered adolescence with the age of 12-18 years require 8-9 hours of sleep per day. Sleep has many benefits for health, body immunity and psychological. People with less sleep time will be at risk of disease because sleep duration affects metabolism and endocrine function. Sleep patterns are also not only the quantity of how long sleep (sleep duration), but sleep quality must also be considered. Sleep quality is a situation that a person does in order to produce fitness after waking up. Sleep quality can be expressed less well when a person takes more than 30 minutes to fall asleep after closing his eyes and often wakes up at night. This causes puffy and reddish eyes, eye bags and dark circles around them, fatigue and excessive emotions. If the quantity and quality of sleep is not good that lasts continuously, it will result in the body becoming powerless, unfocused, decreased body immunity and disruption of brain function resulting in decreased physical fitness. The quantity and quality of sleep is disturbed because a person is difficult to fall asleep which is often called insomnia. One of the causes of insomnia is stress, someone who experiences stress will feel uncomfortable when they want to sleep (Garliah, 2009).

Stress is a common condition experienced by a person characterized by a racing heart, sweating and stomach churn. Although stress can help you be more alert and anticipatory when needed, stress is severe and lasts a long time can cause emotional and physical disturbances (Musabiq & Karimah, 2018). Stress in students often occurs during puberty, including changes in relationships with peers, dense learning activities at school, relationship problems with parents, competition with siblings or other problems in their environment. This causes a lot of stress levels in students. The onset of stress in students causes the body to often feel tired, insomnia, overeating, muscle pain, pain in the head, neck and shoulders and changes in feelings.

Based on observations, it has been found that the activities carried out by PPMI Assalaam Sukoharjo students every day are; Go to school, pray in congregation, eat together with prepared dishes, develop his interests and talents through extracurriculars. Every day all students do quite the same activities. What distinguishes it is their free time which is used for sports, chatting with friends, doing schoolwork and for rest. Usually, their sleep hours at night are around 21:30, but if there are night activities, they start sleeping around 23:00, and the conditions where they sleep are the same, The average problems experienced by students are almost the same as other teenagers, however, the problems of students are more diverse. Problems that often occur are poor relationships with peers, demands for schoolwork, dense non-academic activities, to problems with parents, and competition with siblings. This results in students experiencing stress that can interfere with their mental and physical health. With all the busy activities in the cottage, forcing students to stay healthy and fit to carry out daily activities. Physical fitness is very necessary so that they are not susceptible to infectious diseases, and carry out school activities, worship and non-academic activities without feeling excessive fatigue.

Based on the opinions that have been expressed, between the sports activities they do outside of sports learning at school, the quality of sleep every day and the level of stress they experience with their physical fitness. This moved researchers to conduct research that the extent of "The Relationship of Sports Activity, Sleep Quality and Stress Level to Physical Fitness in Modern Islamic Boarding School Students Assalam Sukoharjo".

METHOD

The research method used is correlational, because this study aims to find out how strong the relationship between the independent variable and the dependent variable. The approach used is quantitative. The research will be carried out in May 2023 at the Assalaam Sukoharjo Islamic Modern Islamic Boarding School.

Population is the entire subject or object that will be used for research or to be researched, namely humans, objects, and others. The population of this study is all students of class X and XI Madrasah Aliyah Islamic Modern Islamic Boarding School Assalaam Sukoharjo for the 2022/2023 academic year with a total of 174 students, and class X and class XI divided into 3 male classes each.

The sample is part of the number of characteristics possessed by that population. The sampling requirement is that if the subjects are < out of 100, then all of them are taken which means population research, and if the subjects are > of 100, then 10% - 15% or 20% - 25% or more can be taken (Arikunto, 2013). So the researchers found a sample of 20% x 174 = 34.8 = 35 students. So, the number of samples is 35 students. The reason the researchers took a sample of 35 students, because the researchers considered that the number already represented the population where the entire population carried out sports activities carried out, the quality of sleep lived and the stress faced were relatively the same.

The sampling technique used is proportional random sampling (Proportional Random Sampling). Random proportional sampling is intended to obtain a sample based on the number of members of each class. According to Suharsimi, Proportional Random Sampling is carried out by drawing without return. The population in this study consisted of 6 classes (class X &; XI) for students.

The level of physical fitness will be known using the Nusantara Student Fitness Test (TKPN) formed by Ministry of Youth and Sports of the Republic of Indonesia (2022) for ages 15-18 years. TKPN is a series of tests and all test items are carried out continuously. Test items are as follows:

- Post 1: Body Time Index (BMI) with measurement: height using a wall-mounted meter with units (cm) and weight (kg) using scales with units (kg)
- Post 2: V Sit Reach Test, sit with straight legs forming the letter "V" and both hands are pulled forward as much as possible in units (cm).
- Post 3: Sit ups for 60 seconds
- Post 4: Squat thrust for 30 seconds
- Post 5: Progressive Aerobic Cardiovascular Endurance Run (PACER) test, a progressive aerobic cardiovascular endurance test using alternating running at a distance of 20 meters

The infrastructure and facilities used are flat and non-slippery land, meters, rulers, stopwatches, ribbons / ropes, whistles, sound systems or audio players, test forms, markers / cones, and stationery.

A normality test is needed to determine whether the data is normally distributed or not. This study used the normality test of the Lilliefors Test or Chi-Squared. can be done. In this study using the help of the SPSS 25 for windows program with the following normality test criteria:

1. If the significance value > 0.05 then the data is normally distributed.
2. Conversely, if the significance value < 0.05 then the data is not normally distributed.

The linearity test is useful to determine whether or not each independent variable (X1, X2 and X3) is in line with the dependent variable (Y). The linearity test in this study used the help of the SPSS 25 for windows program. By using the ANOVA table on SPSS, it will be seen from the sig value. Linearity, and the terms of the linearity test on SPSS are:

1. If the significance value > 0.05 then there is a significant linear relationship between variable X and variable Y.
2. If the significance value < 0.05, there is no significant linear relationship between variable X and variable Y.

Test the hypothesis in this study using the Product Moment Correlation formula. This correlation analysis is used to measure the closeness of the relationship between two variables (variable X and variable Y). The Product Moment Correlation formula used is as follows:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Information:

r = Product Moment Correlation

Xi = Free variables
Yi = Bound variables
n = Number of samples
∑ Xi = Number of variable distribution scores X (X1/X2/X3)
∑ Yi = Number of variable distribution scores Y
∑ X2i = Number of squares of distribution scores X
∑ Y2i = Number of squares of distribution scores Y

Furthermore, the significance value between variable X and variable Y is carried out with criteria using r table at a significance level of 0.5 with the following conditions:

a. If rcalculate > rtable, then there is a significant relationship between variable X and variable Y.
b. Conversely, if rcalculate < rtable, then there is a significant relationship between variable X and variable Y.

The provisions of the r value can be grouped into three groups, namely:

a. The correlation is very strong, if the result of the correlation calculation is close to +1 or equal to +1.
b. The negative correlation is perfect, if the result of the correlation calculation is close to -1 or equal to -1.
c. There is no correlation, if the result of the correlation calculation is close to 0 or equal to 0.

To be able to provide an interpretation of the correlation coefficient large or small, it can be guided by the following table:

Table 1. Correlation Coefficient Guidelines

Coefficient Interval	Relationship Level
0,00 – 0,20	No correlation
0,21 – 0,40	Weak correlation
0,41 – 0,60	Medium correlation
0,61 – 0,80	Strong Correlation
0,81 – 1,00	Very Strong Correlation

In addition to using the above formula, researchers also used the help of the SPSS 25 for Windows program.

a. Multiple Correlation

Multiple correlation is a correlation to see the strength of the relationship between two or more independent variables together with one dependent variable. The multiple correlation formula is as follows:

$$R_{y.x_1x_2} = \sqrt{\frac{r^2_{yx_1} + r^2_{yx_2} - 2r_{yx_1}\, r_{yx_2}\, r_{x_1x_2}}{1 - r^2_{x_1x_2}}}$$

Ryx1x2x3 = The correlation between variable X1 and X2 together is equal to variable Y
ryx1 = product moment correlation between X1 and Y
ryx2 = product moment correlation between X2 and Y
ryx3 = product moment correlation between X3 and Y
RX1x2x3 = product moment correlation between X1, X2 and X3

Multiple correlation testing in this study used the help of the SPSS 25 for windows program. The following is the basis for the decision of the multiple correlation hypothesis test with a significance level of 0.05:

a. If the value of sig. F change < 0.05, then the independent variables are jointly related to the dependent variable.
b. If the value of sig. F change > 0.05, then the independent variables together are not related to the dependent variable.

The Relationship Degree Guidelines used are as follows:

a. Pearson Correlation value 0.00 to 0.20 = no correlation
b. Pearson Correlation value 0.21 to 0.40 = weak correlation
c. Pearson Correlation value 0.41 to 0.60 = medium correlation
d. Pearson Correlation value 0.61 to 0.80 = strong correlation
e. Pearson Correlation value 0.81 to 1.00 = very strong correlation

RESULTS AND DISCUSSION

A. Description Data

The description of data on sports activity, sleep quality, stress level and physical fitness is presented by researchers in the form of a table as follows:

1. Santri Sports Activities
2.

Table 2. Frequency Distribution of Santriwan Sports Activities

NO.	RANGE	CATEGORY	FREQUENCY	PERCENTAGE
1	10 – 17	Never	2	5.7 %
2	18 – 25	Infrequently	7	20.0 %
3	26 – 33	Sometimes	11	31.4 %
4	34 – 41	Often	11	31.4 %
5	42 – 50	Very often	4	11.4 %
Sum			**35**	**100 %**

3. Santri Sleep Quality

Table 3. Frequency Distribution of Santriwan Sleep Quality

NO.	RANGE	CATEGORY	FREQUENCY	PERCENTAGE
1	0 – 5	Good	12	34.3 %
2	6 – 21	Bad	23	65.7 %
Sum			**35**	**100 %**

4. Santri Stress Level

Table 4. Frequency Distribution of Student Stress Level

NO.	RANGE	CATEGORY	FREQUENCY	PERCENTAGE
1	0 – 13	Low	12	34.3 %
2	14 -26	Keep	18	51.4 %
3	27 – 40	Tall	5	14.3 %
Sum			**35**	**100 %**

5. Santri Physical Fitness

Table 5. Frequency Distribution of Santriwan Physical Fitness

NO.	RANGE	CATEGORY	FREQUENCY	PERCENTAGE
1	< 1	Very Lacking	0	0 %
2	1 – 1.9	Less	7	20.0 %
3	2 – 2.9	Enough	16	45.7 %
4	3 – 3.9	Good	12	34.3 %
5	4 >	Very Good	0	0 %
Sum			**35**	**100 %**

B. Normality Test

Table 6. Santriwan Data Normality Test Results

Tests of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	Df	Sig.	Statistics	Df	Sig.
Sports Activities	.089	35	.200*	.973	35	.544
Sleep Quality	.111	35	.200*	.952	35	.131
Stress Level	.126	35	.171	.945	P35	.081
Physical Fitness	.101	35	.200*	.961	35	.241

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

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The results of the liliefors normality test can be seen from sig. Kolmogorov-Smirnov. In the variable sports activity shows the value of sig. 0.200 > 0.05. The sleep quality variable shows the sig value. 0.200 > 0.05. On the variable stress level shows the value of sig. 0.171 > 0.05. In the physical fitness variable, it shows the sig value. 0.200 > 0.05. So it can be interpreted that the variable data of sports activities, sleep quality, stress levels and physical fitness of students are normally distributed.

C. Linearity Test

Table 7. Santriwan Linearity Test Results

Type		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1641.864	3	547.288	46.266	.000b
	Residuals	366.707	31	11.829		
	Total	2008.571	34			

a. Dependent Variable: Physical Fitness

b. Predictors: (Constant), Stress Level, Sports Activity, Sleep Quality

Based on the table it can be seen that the significance value is 0.000 for all variables. Because the significance value > 0.05, the variable data of sports activity, sleep quality, stress level with physical fitness are linear.

D. Test the Hypothesis

Table 8. Results of Multiple Linear Regression Test on Anova to determine Sports Activity, Sleep Quality, Stress Level and Physical Fitness of Students

Type		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1641.864	3	547.288	46.266	.000b
	Residuals	366.707	31	11.829		
	Total	2008.571	34			

a. Dependent Variable: Physical Fitness

b. Predictors: (Constant), Stress Level, Sports Activity, Sleep Quality

From the table above, the significance value in linearity is 0.000 for all variables. This indicates that the significance value is less than 0.05 which means Ha is accepted. So it can be stated that there is a relationship between sports activities, sleep quality, stress levels and physical fitness of students.

Table 9. Multiple Linear Regression Test Results to determine Sports Activities, Sleep Quality, Stress Levels and Physical Fitness of Students

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.904a	.817	.800	3.439	.817	46.266	3	31	.000

a. Predictors: (Constant), Stress Levels, Sports Activities, Sleep Quality

Based on the table above, the R Square value is 0.817 or 81.7%. This showed that sports activity, sleep quality, stress levels had a relationship of 81.7% with physical fitness while 18.3% was influenced by other variables outside the study

Table 10. Multiple Linear Regression Test Results to determine Sports Activities, Sleep Quality, Stress Levels and Physical Fitness of Students

Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	36.163	4.330		8.351	.000
	Sports Activities	.145	.091	.158	1.590	.122
	Sleep Quality	-.902	.331	-.395	-2.725	.010
	Stress Level	-.487	.159	-.435	-3.055	.005

a. Dependent Variable: Physical Fitness

Based on the results of the calculation above, a significant multiple linear regression equation is obtained as follows:

Y = 36.163 + 0.145 + -0.902 + -0.487

Information:

Y = Physical Fitness

X1 = Sports Activities

X2 = Sleep Quality

X3 = Level Stress

Kontstanta (a) produced at 36,163 shows that physical fitness (Y) of 36,163 is one-unit if the variables of exercise activity (X1), sleep quality (X2), stress level (X3) are constant.

The variable sports activity has a value of 0.145 which means that if the variable of sports activity increases by one unit it will increase physical fitness by 0.145 units, if the other variables are considered constant. A positive sign indicates that sports activities have a positive influence on physical fitness.

The sleep quality variable has a value of -0.902 which means that the value is below zero, so it is negative. A negative sign indicates that sleep quality negatively affects physical fitness.

The sleep quality variable has a value of -0.487 which means that the value is below zero, so it is negative. A negative sign indicates that sleep quality negatively affects physical fitness.

The calculation of Effective Contribution (SE) uses the following formula:

$$SE(X)\% = Beta_X \times Koefisien\ Korelasi \times 100\%$$

Table 11. Effective and Relative Donations

Component	Standardized Coefficients Beta	Correlation Coefficient	Effective Contribution (X)	Effective Donation Total
Sports Activities	0,158	0,661	10,5	81,7 %
Sleep Quality	0,395	0,856	33,8	
Stress Level	0,435	0,86	37,4	

Meanwhile, to determine the Relative Contribution (SR) using the following formula:

$$SR(X)\% = \frac{Sumbangan Efektif(X)\%}{R_{Square}}$$

SRAktivity $_{Sport}$ = 10.5/81.7 x 100% = 12.8%

SRCuality $_{Sleep}$ = 33.8/81.7 x 100% = 41.4%

SRThe $_{Stress}$ = 37.4/81.7 x 100% = 45.8%

Based on the calculation above, it shows that the effective contribution of sports activities to physical fitness is 10.5% and the relative contribution is 12.8%, the effective contribution of sleep quality to physical fitness is 33.8% and the relative contribution of 41.4% and the effective contribution of stress levels to physical fitness is 37.4% and the relative contribution is 45.8%.

Based on data analysis that has been carried out shows that there is a significant relationship between sports activities, sleep quality, stress levels and physical fitness in PPMI Assalaam Sukoharjo students, this is evidenced by obtaining probability values of 0.000 < 0.05 and has a relationship of 81.7%.

Sports activity, sleep quality and stress levels together affect physical fitness. By doing correct, measurable and regular sports activities. The better the quality of sleep, the lower the level of stress a person has, it will have an impact on health, the learning process at school, activities carried out daily and physical fitness.

CONCLUSION

There is a significant relationship between sports activities, sleep quality, stress levels and physical fitness in PPMI Assalaam Sukoharjo students which is shown by obtaining probability values of 0.000 < 0.05 and has a relationship of 81.7%.

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