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The Influence of Sports Habits on Stress Levels of Medical Faculty Students in Surakarta City

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Abstract

Stress is a problem in everyday life that is familiar to everyone, especially medical students. Exercise can reduce stress and improve mental health. If exercise is carried out routinely and regularly, it can reduce the activity of the sympathetic nerves and hypothalamic pituitary adrenals. This study aims to determine the effect of exercise habits on stress levels in students at the Faculty of Medicine in Surakarta City. The research used an analytical observational design with a cross sectional approach, with a sample size of 136 respondents consisting of 4 groups/generations. This research uses observation, interviews and questionnaires. Obtaining data from direct interviews with several students who were samples from this research was to identify exercise habits with the IPAQ (International Physical Activity Questionnaire) which were classified into 3, namely light, moderate, high and the level of stress experienced by students using the KPDS (Kessler questionnaire Psychological Distress Scale). The research results were tested using the Spearman rank correlation coefficient test. The results of the research show that there is an influence of exercise habits on the stress levels of Medical Faculty students, with a value of sig. (1-tailed) is 0.009, this value is smaller than the critical limit α = 0.01 (0.009 < 0.01), meaning there is a significant relationship or influence between exercise habits and stress levels.

Introduction

According to Barseli and Ifdil, stress is pressure that occurs due to a mismatch between the desired situation and expectations, where there is a gap between environmental demands and the individual's ability to fulfill them, which is considered potentially dangerous, threatening, disturbing and uncontrollable (Barseli et al., 2017). Various studies have shown that medical students experience more pressure than students in other majors (Legiran et al., 2015). According to research by Stephani of medical students at the American University of California, it was found that around 51% of students experienced mild, moderate and severe stress (Maulina & Sari, 2018). Based on 2018 Basic Health Research (Riskesdas) data, it shows that the prevalence of the Indonesian population over 15 years of age who experience emotional mental disorders or stress is 37,728 people (9.8%). The province with the highest prevalence of emotional mental disorders or stress is Central Sulawesi at 11.6%, and the lowest is in Lampung at 1.2%. The prevalence of North Sulawesi residents experiencing emotional mental disorders or stress is 10.3%. This figure is above the national data of 9.8% (Singal et al., 2020).

The frequency distribution of stress levels found that 44 respondents (54.3%) were in the mild stress category. The moderate stress category was 28 respondents (34.6%), while the severe

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stress category was 7 respondents (8.6%), and the very severe stress category was 2 respondents (2.55%). The data above shows that some students have poor coping mechanisms in dealing with stress, due to busy coursework and the burden of time targets for completing final assignments (Clariska et al., 2020). Each person's method of dealing with stress is different, such as relaxation, listening to music, looking at the scenery, getting enough rest, recreation and exercise (Adhi, 2022).

The results of research conducted by Putri Rizki in 2022 which examined exercise habits and stress levels among FK UIN Jakarta students stated that there was no effect of exercise on stress (Putri, 2022). This is different from research conducted by Astuti et al in 2021 which stated that there was a significant relationship between exercise and stress (Astuti et al., 2021). Exercise can reduce stress and improve mental health. If exercise is carried out routinely and regularly, it can reduce the activity of the sympathetic nerves and hypothalamic pituitary adrenals. Sympathetic nerve activity and the hypothalamic pituitary adrenal are the body systems responsible for responding to stress and causing changes in body function due to stress (Giriwijoyo et al., 2020).

Methods

The research design was analytical observational with a cross sectional approach, and sampling was carried out using cluster random sampling techniques. with a total sample of 136 respondents consisting of 4 groups/classes, class of 2020, class of 2021, class of 2022 and class of 2023 with 34 respondents each. This research carried out observations, interviews (to strengthen the research results) and distributed questionnaires, so that the source of data or information obtained was more valid. Obtaining data from direct interviews with several students who were samples from this research was to identify exercise habits with the IPAQ (International Physical Activity Questionnaire) which were classified into 3, namely light, moderate, high and the level of stress experienced by students using the KPDS (Kessler questionnaire Psychological Distress Scale) so that the stress level (normal, light, moderate, severe) of the student can be determined.

The type of research used in this research was the Spearman rank correlation coefficient test, which was analyzed using bivariate analysis. Bivariate analysis aims to determine the influence of exercise habits on stress levels. The next step is to determine whether the correlation coefficient value has a level of significance or not, then proceed with the t test, namely the testing criteria if tcount > ttable means the correlation coefficient is significant or if tcount ≤ ttable means the correlation coefficient is not significant (Rostina, 2018).

Result and Discussion

Univariate analysis in this study includes: gender, place of residence, pocket money/month, GPA, transportation to campus, parents' occupation, participation in organizations, stress level and sports activity habits.

Respondent Characteristics

The characteristics observed by researchers were gender, place of residence, pocket money/month, GPA, transportation to campus, parents' jobs, and participation in organizations.

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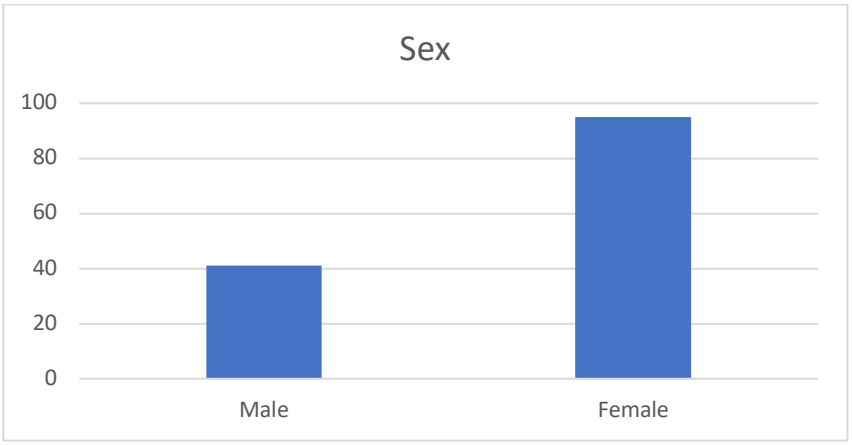

Figure 1. Distribution of Respondents Based on Gender for Students from Class 2020 to 2023 at the Faculty of Medicine in Solo

Based on the picture above, it can be seen that the number of respondents was dominated by women with 95 respondents (69.9%) and men with 41 (30.1%) respondents. This number represents the entire class of students from 2020 to 2023 at the Faculty of Medicine in Solo.

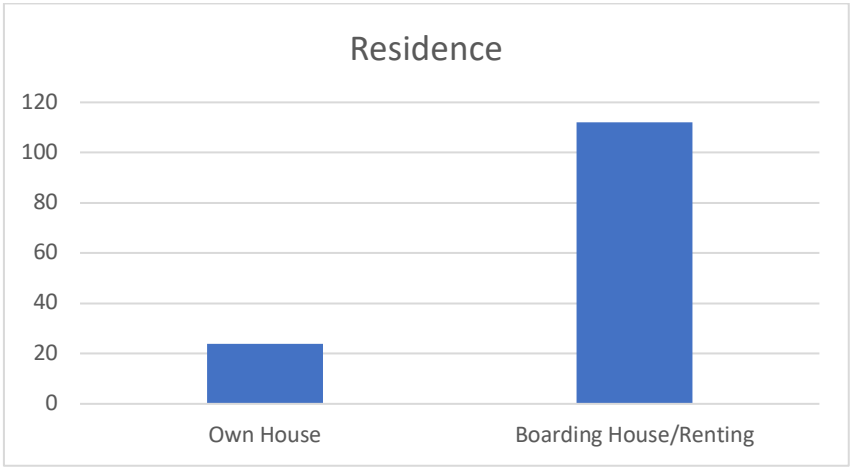

Figure 2. Distribution of Respondents Based on Place of Residence

Based on the picture above, it can be seen that the number of respondents who live in their own home is 24 respondents (17.6%) and those who board/rent are 112 (82.4%) respondents.

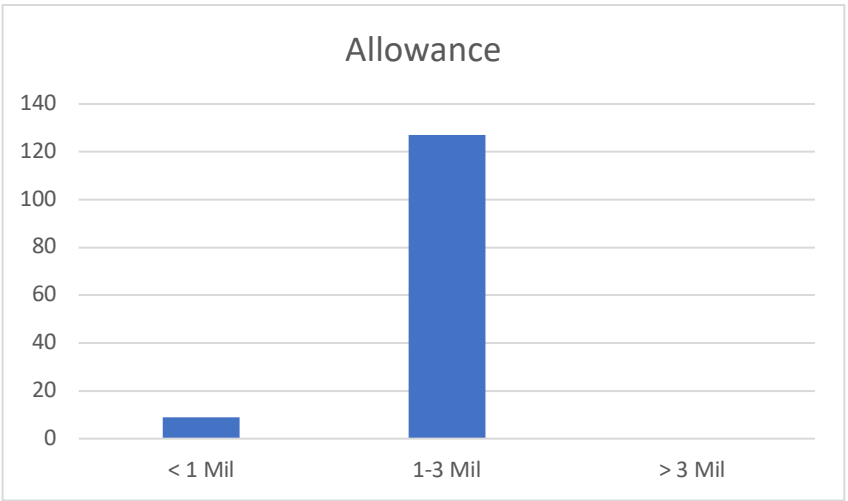

Figure 3. Distribution of Respondents Based on Pocket Money/month

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Based on the picture above, it can be seen that the number of respondents who were given pocket money/month of less than 1 million was 9 respondents (6.62%), those with pocket money/month of 1 million to 3 million were 127 (93.38%) respondents, and respondents with money pocket of more than 3 million does not exist.

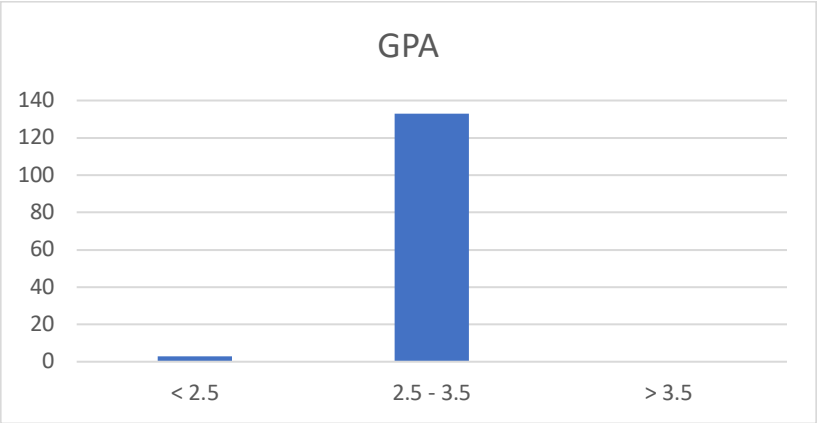

Figure 4. Distribution of Respondents Based on Cumulative Achievement Index (GPA)

Based on the picture above, it can be seen that the number of respondents who had a GPA of less than 2.5 was 3 respondents (2.21%), and those whose GPA was between 2.5 to 3.5 were 133 (97.79%) respondents, and there were no respondents with a GPA of more than 3.5.

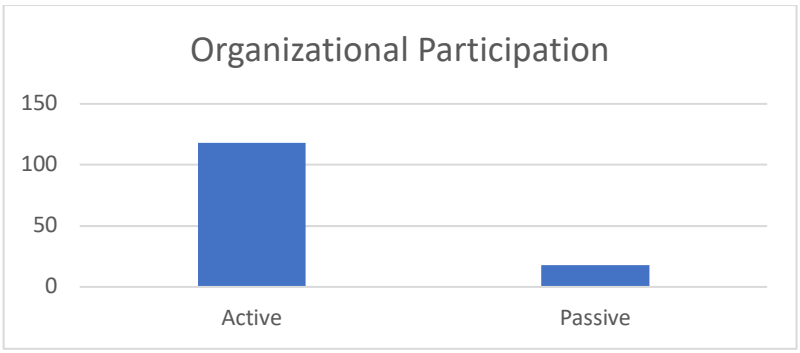

Figure 5. Distribution of Respondents Based on Organizational Activity

Based on the picture above, it can be seen that the number of respondents who were active in the organization was 118 respondents (86.76%), and those who were inactive were 18 (13.24%).

Classification of Stress Levels

In this study, stress was classified into 4 levels, namely normal stress, mild stress, moderate stress and severe stress. This classification is determined based on 10 questions from the KPDS (Kessler Psychological Distress Scale) questionnaire (Tasalim et al, 2021) with each question having 5 answer choices with a value of 1 to 5 to obtain a total score. Respondents with a total score < 20 are classified as normal, respondents with a total score of 20 -24 are classified as mild stress, respondents with a total score of 25 - 29 are classified as moderate stress, and respondents with a total score > 29 are classified as severe stress.

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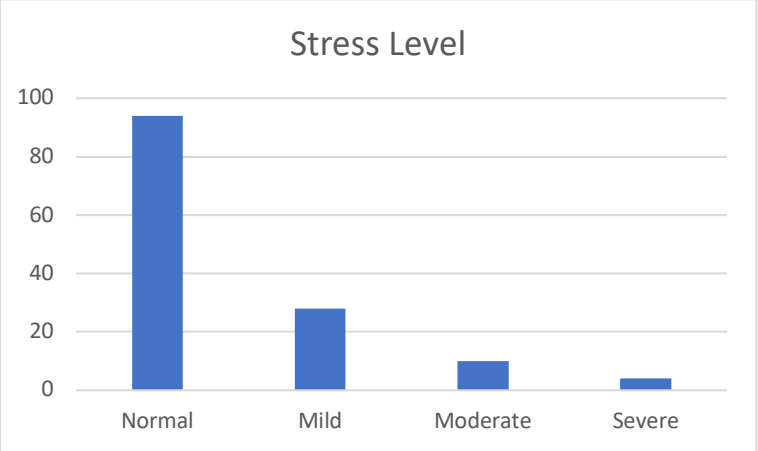

Figure 6. Distribution of Respondents' Stress Levels

From the picture above, it can be seen that the level of stress most frequently experienced by respondents was the normal stress level with 94 (69.12%) respondents, while the lowest frequency of stress level was the severe stress level with 4 (2.94%) respondents. The research and distribution of questionnaires was carried out one week before the OSCE and block exams so that from the interview results it was found that respondents did not feel stressed because they had not gone through tough times in preparation for the OSCE and block exams.

Sports Activities

In this research, sports activities were classified using the IPAQ (International Physical Activity Questionare) measuring instrument (Dharmansyah & Budiana, 2021). Classification of sports activities into 3 levels, namely light, medium and high sports activities. This classification is determined based on 27 questions from the IPAQ questionnaire, so that the results will be processed and classified using the following criteria: mild < 600 METs-min/week, moderate > 600 METs-min/week, severe ≥ 1500 METs-min/week.

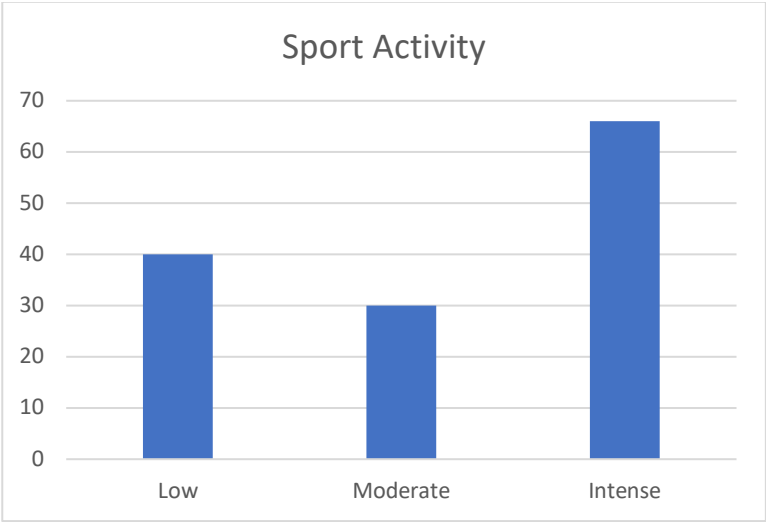

Figure 7. Distribution of Sports Activity Respondents

From the picture above, it can be seen that the majority of respondents carry out high and regular sports activities, namely 66 (48.53%) respondents, while there are 40 (29.41%) respondents who regularly do light exercise. This shows that medical faculty students in Solo take time out of their busy schedule to exercise and this is a good habit, because exercising can prevent stress and increase endorphin hormones.

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This research uses a bivariate test analysis with spearmen rank correlation test, because the observations of 2 variables are variable X (Sports Habits) and variable Y (Stress level), both in the form of an ordinal scale.

Spearman Rank Correlation Analysis Test on the Effect of Sports Habits on Stress.

To test whether there is an influence of exercise habits on stress levels, the test used is the Spearman rank correlation test, using SPSS 26. The results of the Spearman rank correlation test analysis can be seen in table 1.

Table 1. Spearman Rank Correlation Analysis Test on the Effect of Sports Habits on Stress Levels

			Sport Habit	**Stress Level**
Spearman's rho	Sport Habit	Correlation Coefficient	1.000	.203**
		Sig. (1-tailed)	.	.009
		N	136	136
	Stress Level	Correlation Coefficient	.203**	1000
		Sig. (1-tailed)	.009	.
		N	136	136

**. Correlation is significant at the 0.01 level (1-tailed).

Based on table 1 above, it can be seen that N shows the number of respondents as many as 136 respondents, the sig value. (1-tailed) is 0.009. This value is smaller than the critical limit α = 0.01 (0.009 < 0.01), meaning that there is a significant relationship or influence between exercise habits and stress levels. Meanwhile, the level of correlation strength is 0.203**, which means that the correlation between exercise habits and stress is weak and the direction of the relationship is positive, namely 0.203**, which means that the two variables, namely exercise habits and stress levels, are said to be in the same direction, if the exercise habit variable increases then The stress level variable will also increase.

Table 2. Distribution of Respondents Based on the Effect of Sports Habits on Stress

Sport Habit	**Stress Level**						**Correlation Test Result sig.(1-tailed)**
	Normal		Not Normal		Total		
	N	%	N	%	N	%	
Low	33	24.26	7	5.18	40	29.41	0.009
Moderate	21	15.44	9	6.62	30	22.06	
Intense	39	28.68	27	19.85	66	48.53	
Total	93	68.38	43	31.62	136	100	

Based on table 2, the number of respondents who have a habit of light exercise with normal stress levels is 33 (24.26%) respondents, and respondents with abnormal stress levels are 7 (5.18%) respondents. Respondents who had moderate exercise habits with normal stress levels were 21 (15.44%) respondents, and respondents with abnormal stress levels were 9 (6.62%) respondents, and respondents who had high exercise habits with normal stress levels were 39 (28.68%) respondents. respondents, and respondents with abnormal levels of stress were 27 (19.85%) respondents.

From the results of the bivariate analysis of the Spearman rank correlation test, the sig value was obtained. (1-tailed) is 0.009, this value is smaller than the critical limit α = 0.01 (0.009 < 0.01). So it can be concluded that there is a significant relationship or influence between exercise habits and stress levels. The results of this study are in accordance with Rony Wahyudi's research which shows that there is a significant relationship between exercise habits

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and the stress level of first year students at the Faculty of Medicine, Riau University (Wahyudi et al., 2017).

Judging from the research results of respondents whose sports activities were high, 66 (48.53%) respondents had a predominantly normal stress level, in accordance with the theory which states that if we do exercise with regular and regular intensity it can reduce or avoid stress. Apart from that, judging from the research results which are not in accordance with the theory that 14 (10.29%) respondents with moderate or high exercise intensity experienced severe levels of stress, the results of this research are very interesting for researchers to interview directly, why this happened. Interviews showed that he had many personal problems, and despite intense active sports, he was unable to cope with stress due to stressors that had not been fully resolved. As a result, he was unable to manage the stress he faced.

From the research results, it was found that 19 (13.97%) respondents who experienced moderate and severe stress were students who were far from their parents (boarding/renting). The majority were students from the Class of 2023. Based on interviews, these results could be influenced by factors such as distance. from parents, large lecture workloads, target achievement scores (GPA), and changes in learning styles from high school to college level.

Judging from the research results of respondents who were active in organizations experiencing moderate and severe stress, there were 12 (8.82%) respondents, this causes many work programs in student organizations on campus which causes students to be burdened and ultimately stressed, as well as problems interacting with friends and the surrounding environment.

Based on the research results, it shows that academic-related stressors (GPA) are the stressors that trigger the highest stress in respondents. This is because of the differences in the new learning system which is not the same as learning in high school for first year medical faculty students, they are still unable to adapt, because they do not have time management skills so many tasks are neglected and they are less diligent in studying. From the explanation above, it can be concluded that there are many negative impacts caused by stress if it cannot be handled properly, support from family and the surrounding environment and the personal desire to avoid stress by one of them being regular exercise.

Conclusion

The results of statistical tests show that there is a relationship/influence of exercise habits with stress levels with a sig value. (1-tailed) is 0.009. This value is smaller than the critical limit $\alpha = 0.01$ ($0.009 < 0.01$), meaning that there is a significant relationship or influence between exercise habits and stress levels. By carrying out this research, it is hoped that future researchers will examine the factors that manage stress in a positive way associated with exercise habits.

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