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Characteristics of Low Back Pain in Medical Students of Muhammadiyah Jakarta University Class of 2019 After Online Class for One Semester

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ABSTRACT

Introduction: Lower back pain (LBP) is a complaint that is often felt by everyone in everyday life. In 2010 the Global Burden of Disease Study estimated low back pain to be one of the top ten diseases and injuries with the highest number in the world. According to research conducted by Altinel in 2008, about 62% of adults experience LBP as a result of sitting too long in the wrong position. The wrong sitting attitude of someone at work will affect the unfavorable results of their work.

Method: This research is a descriptive analytic survey research, which aims to know about low back pain of the students of the Medical Education Study Program Class of 2019. approach used in this study is "cross sectional study", with a total sample of 113 respondents.

Result: From the 113 respondents the results of research conducted through a questionnaire, there were 59 respondents (52.2%) who were researched having a low back pain. In the category based on the length of study, 59 respondents (52.2%) experienced LBP complaints and the results of statistical analysis (P = 0.030) where there was a significant relationship between the length of study and LBP complaints. In the category of the relationship between sitting position when doing online, there were 59 respondents (52.2%) and the results of statistical analysis (P = 0.526), there was no significant relationship in the position category when doing online with LBP complaints and in the sitting position category when learning was obtained 59 respondents (52.2%) and the results of statistical analysis (P = 0.183), namely that there was no significant relationship in the category of learning position with LBP complaints.

Conclusion: There is no significant relationship between learning position and length of study with complaints of low back pain in students of 2019 Medicine Program of Muhammadiyah Jakarta University. Because, the improper sitting position and duration of study are not solely factor that lead to low back pain.

Keywords: Low Back Pain, Duration of Siting, Sitting Position, Students

1. Introduction

Low back pain (LBP) is a complaint that is often felt by everyone in everyday life. Low back pain usually affects people whose work requires directing force or excessive repetition of movements that can cause muscle and nerve injuries, static positions with working positions that must be silent or not moving for a long time, movements such as inadequate bending due to overtime and lack of rest cause excessive stretching of the muscles in the spine which can lead to low back pain. [1]

In 2010 the Global Burden of Disease Study estimated low back pain was the top ten of diseases and injuries with the highest number in the world. Based on data from the Institute of Health Metrics and Evaluation (IHME) in Western Europe in 2010 there were around 400,000-500,000 residents with LBP who were categorized based on the age range of 15-29 years. [2]

There is no clear data for the incidence of low back pain in Indonesia, but according to the Ministry of Health in 2018, the prevalence of low back pain in Indonesia is 18% and will increase with age.According to the results of research conducted by Altinel in 2008, around 62% of adults experience LBP due to sitting for too long in the improper position. A person's sitting attitude at work will affect his/her work productivity, where while working with a proper sitting attitude, it will produce good productivity, vice versa. [3]

Medicine students have a high risk of experiencing LBP in the pandemic era due to the tight schedule of online lectures and other activities that necessarily be done online, causing students to do static work, namely sitting for a long time so that not a few students position their bodies in the improper way. Referring to the International Perspectives on Spinal Cord Injury data, the incidence of spinal cord injury in men was 77.8% higher than in women. The incidence of spinal cord injury increases significantly in old age. Spinal injuries can interfere with the patient's quality of life because this injury causes paralysis of the limbs in fulfilling daily needs. Then, research regarding low back pain in medical students in Indonesia, both its prevalence and risk factors, is still rarely carried out. Even though low back pain in medical students based on the research above is quite a high-risk factor due to static movements of these students due to the lecture schedule and other activities which are done online according to the appeal from the Ministry of Health, lockdown in Indonesia. [4] Therefore, this study considerate to conduct a research based on the effect of position and duration of sitting on low back pain in students, especially medical students in University of Muhammadiyah Jakarta Class of 2019.

2. Method

This study used a descriptive method to explain accurately, record either the sitting position and duration. This study used a cross-sectional design where the data collection of independent and dependent variables was carried out once at the time. The population in this study was 113 students in University of Muhammadiyah Jakarta Class of 2019 and required to fill out the questionnaire. The determination of the sample used a simple random sampling technique. The period time of this research lasted from September to November 2020

3. Results

The results of univariate analysis can be seen below:

Table 1. Characteristics of students

Variable	Frequency (N)	Percentage (%)
Sex		
Female	81	71.7
Male	32	28.3
Age		
<20	88	77.9
≥ 20	25	22.1
BMI		
Underweight	10	8.8
Normal	74	65.5
Overweight	14	12.4
Obese	15	13.3
Exercise		
Never	10	8.8
Routine	16	14.2
Occasionally	87	77
Smoking		
Yes	10	8.8
No	103	91.2
Coffee consumption		
Never	42	37.2
Routine	11	9.7
Occasionally	60	53.1

Based on data for characteristics based on sex, it was found that 82 respondents (71.7%) were female, and 31 respondents (28.3%) were male. Based on age, 1 respondent (0.9%) was 17 years old, 13 respondents (11.5%) were 18 years old, 74 respondents (65.5%) were 19 years old, 20 respondents (17.7) were 20 years old, 2 respondents (1.8%) 21 years old, 2 respondents (1.8%) 22 years old, and 1 respondent (0.9%) 23 years old. Based on body mass index (BMI) was found that 10 respondents (8.8%) were underweight, 74 respondents (65.5%) were normal, 14 respondents (12.4%) were overweight and 15 respondents (13.3%) were obese. Based on exercise frequency found that 10 respondents (8.8%) never exercised, 87 respondents (77%) exercised 1 or 2 times a week, and 16 respondents (9.7%) exercised regularly. Based on smoking, it was found that 10 respondents (8.8%) smoked, and 103 respondents (91.2%) did not smoke. For the daily coffee consumption was found that 42 respondents (37.2%) never drank coffee, 11 respondents (9.7%) drank coffee regularly, and 60 respondents (53.1%) rarely drank coffee.

Table 2. Percentage of low back pain in medical students

Low Back Pain	Frequency (N)	Percentage (%)
Yes	59	52.2
No	54	47.7

In research conducted by I Gusti Bagus Teguh Pramana, I Putu Gede Adiatmika in 2020 was found that regarding the correlation between position and duration of sitting using laptops for complaints of low back pain, there were 52 respondents (42.6%) male and 70 respondents (57.4%) female. [5] Whereas in the research conducted by Martina Wulandari, Dwi Setyawan, Alfan Zubaidi in 2017 concerning the risk factors for low back pain in students majoring in prosthetic orthotic Surakarta Health Polytechnic, there were 106 respondents (58.9%) female and 74 respondents (41.1%) male -man. Based on BMI, 46 respondents (25.6%) were underweight, 111 respondents (61.7%) were normal, and 23 respondents (12.8%) were overweight. [6]

Table 3. Characteristics of respondents based on study duration

Study duration	Frequency (N)	Percentage (%)
6-9 hours	74	65.5
>9 hours	39	34.5

Based on this percentage, there were 74 respondents (65.5%) students who had a total study time of 6-9 hours, and 39 respondents (34.5%) students who had a length of study > 9 hours.

Table 4. Characteristics of respondents based on study position before and during online class

Study Position	Before		During	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Sitting	27	23.9	36	31.9
Lie down	11	9.7	20	17.7
Combination	75	66.4	57	50.4

According to the study position before online, there were 27 respondents (23.9%) in a sitting position, 11 respondents (9.7%) in a lying position, and 75 respondents (66.4%) in a variety of sitting and lying positions. Then based on the sitting position when carrying out online activities, there were 36 respondents (31.9%) doing it in a sitting position, 20 respondents (17.7%) lying down, and 57 respondents (50.4%) doing it in variations of sitting and lying down.

Table 5. The relationship between study period and low back pain crosstabulation

Study Duration	LBP		No LBP		p-value
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	
6-9 hours	33	29.2	41	36.3	
>9 hours	26	23.0	13	34.5	0.026
Total	59	52.2	54	47.8	

Based on the results above, there were 74 respondents (65.5%) in students who had a study time of 6-9 hours. 33 respondents (29.2%) were bothered by low back pain, and 41 respondents (36.3%) were not bothered by low back pain. while the number of respondents with a study time of >9 hours was 39 (34.5%) respondents. Where 26 respondents (23%) were bothered by low back pain and 13 respondents (11.5%) were not bothered by low back pain. The Chi-Square test obtained a significant value of 0.026. It can be concluded that there was significant relationship between study period and low back pain.

In research conducted by I Gusti Bagus Teguh Pramana, I Putu Gede Adiatmika in 2020, it was found that from 122 respondents, 47 respondents (38.5%) experienced complaints of slight pain, there were 13 respondents (10.7%) who experienced complaints of low back pain due to prolonged sitting. [5] However, in research conducted by Martina Wulandari, Dwi Setyawan, Alfan Zubaidi in 2017 which had a sitting period of 2-4 hours, 22 respondents experienced complaints of lower back pain, as many as 31 respondents with a sitting period of 5-6 hours per day experienced complaints low back pain, and 5 respondents who sat for >6 hours had complaints of low back pain. [6]

Table 6. The relationship between study based on study position before and during online class and low back pain crosstabulation

Online class study position	LBP		No LBP		p-value
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	
Before					
Sit	11	9.7	16	14.1	0.183
Lie down	8	7.1	3	2.7	
Combination	40	35.4	35	31	
Total	59	52.2	54	47.8	
During					
Sit	16	14.2	20	17.7	
Lie down	11	9.7	9	8	0.526
Combination	32	28.3	25	22.1	
Total	59	52.2	54	47.8	

Based on the results of the data above, the p value was > 0.05, the conclusion were that there was no significant relationship between low back pain and study position both before and during online class.

In research conducted by I Gusti Bagus Teguh Pramana, I Putu Gede Adiatmika in 2020 it was found that from 53 respondents (43.4%) sitting in an ergonomic position there were 17 respondents (13.9%) respondents who had complaints of slight pain in the waist lower back, and there were 69 respondents (56.5%) sitting in a position that was not ergonomic, 23 respondents (18.8%) had complaints of mild pain in the lower back, and 7 respondents (5.7%) had complaints of low back pain low part.

However, according to research conducted by Ridho Surya Putra, Legiran, and Mutiara Budi Azhar in 2018 in Palembang, 73 respondents (67.6%) had a sitting position with a leaning position of >90°, while with an upright position of 90°, 27 respondents (25.0%) %) of the 108 research subjects and the category of stoop <90° was 8 respondents (7.4%) of 108 respondents.[7]

It is important to know an ergonomic sitting position so that students or workers who do work in a static sitting position and sit for long periods of time do not experience complaints of lower back pain. Further research is needed regarding complaints of low back pain that often occur in students who have a number of

studies in positions that are not ergonomic for a long time so that they can cause complaints of low back pain. It is expected to pay more attention to the variables for complaints of low back pain, so as to get better research results.

4. Conclusion

Based on the relationship between study period and low back pain, it can be concluded that there was significant relationship between them. In the other hand, there was no significant relationship between low back pain and study position both before and during online class

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None.

Conflict of Interest

The authors declare no conflicts of interest in preparing this article.

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