



Original Article

Prevalence Of Low Back Pain Among Medical Students Post Covid-19 Pandemic In 2023

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ABSTRACT

Background: Epidemiological studies indicate that low back pain (LBP) is not only experienced by the elderly but also affects the younger population. The presence of LBP in medical students can impact their functionality and daily practices after graduation. This study aims to provide an overview of the prevalence of LBP among medical students at the Faculty of Medicine, Universitas Pembangunan Nasional Veteran Jakarta.

Methods: The study included a total of 738 subjects representing clinical and four levels of undergraduate programs. The Nordic questionnaire and the Oswestry Disability Index (ODI) were employed to assess LBP and its impact on daily life.

Results: The prevalence of LBP was 61.2%, with 6.6% experiencing moderate disability. Gender, exercise habits, and a family history of LBP were statistically significant.

Conclusion: Institutions need to implement interventions to mitigate LBP among medical students.

INTRODUCTION

Low back pain (LBP) stands as a major contributor to chronic life disability (years lived with disability = YLDs) in 65% of the world's countries and remains a primary cause of chronic life disabilities in all high-income nations¹. In 2019, an estimated 223.5 million cases of LBP and 63.7 million disability-adjusted life years (DALYs) associated with LBP were recorded globally². According to the latest data from the Global

Burden Disease 2019 (IHME School of Medicine University of Washington, 2019), the age-standardized prevalence, incidence, and YLDs of LBP experienced a slight decrease from 1990 to 2019. However, the prevalence, incidence, and YLDs have substantially increased³. LBP continued to be a leading cause of YLDs worldwide in 2019⁴. LBP is not solely experienced by the elderly but also affects the younger population. The age group most frequently affected by LBP is between

31-40 years old⁵, although several studies have indicated that LBP can occur in children and adolescents^{6,7}. Several studies highlight that medical students are a population prone to experiencing LBP^{8,9,10}. This situation is exacerbated by the presence of the Covid-19 pandemic, which promotes sedentary behavior, thereby increasing the prevalence of LBP among students^{11,12,13}.

LBP can significantly impact both personal and professional lives. Abolfotouh et al. (2015) revealed that over a third of professional nurses with LBP experienced difficulties in sleeping and daily functioning, with 77% of them requiring sick leave due to LBP¹⁴. Evolving evidence indicates that medical students tend to experience LBP during their academic years (young adulthood)^{15,16}, potentially increasing the risk of recurrent LBP in the future¹⁷ (da Silva et al., 2019). Ultimately, the presence of LBP among medical students can influence their daily functioning and practices after graduation..

METHOD

This study was conducted at the Faculty of Medicine, Universitas Pembangunan Nasional Veteran Jakarta (FK UPNVJ) from August to October 2023. A minimum of 385 subjects was required for this research. The study subjects were active students in the undergraduate (preclinical) and clinical programs. Preclinical students were divided into first-year (2023), second-year (2022), third-year (2021), and fourth-year

(2020). LBP were measured using a modified Nordic Questionnaire¹⁸, while the impact of LBP on daily life was assessed using the Oswestry Disability Index (ODI). Subjects with a history of upper/lower back injuries and those with anatomical abnormalities (such as scoliosis, lordosis, kyphosis) were excluded from this study. Data collection was conducted in a hybrid manner, with all preclinical students assessed in person and a portion of professional students assessed online. Data analysis was performed using SPSS version 25, employing bivariate tests using chi-square to obtain the Prevalence Ratio (PR) and 95%..

RESULT

The number of participants in this study was 779 individuals out of a total of 1101 active students, 41 individuals excluded due to a history of injury, spinal anatomical abnormalities, and incomplete information. Among the eligible 738 subjects, 452 students experienced Low Back Pain (LBP), accounting for 61.2%. The highest proportion of LBP occurred among second-year students (29.9%) out of the 452 students experiencing LBP. The majority of students with LBP had minimal disability, comprising 93.4% (see **Table 1**).

Table 2 illustrates the variables of gender, exercise habits, and family history having a relationship with the occurrence of LBP. Females have a 1.371 times greater risk of experiencing LBP compared to males.

Table 1. Univariate Analysis

Variable	<i>n</i>	(%)
Program:		
Preclinical		
1 st year	197	26,7
2 nd year	201	27,2
3 rd year	109	14,8
4 th year	120	16,3
Clinical	111	15,0
Gender		
Male	207	28,0

Variable	n	(%)
Female	531	72
Body Mass Index (BMI)		
Underweight	82	11,1
Normal	449	60,8
Overweight	151	20,5
Obesity class I	47	6,4
Obesity class II	6	0,8
Obesity class III	3	0,4
Marriage status		
Married	17	2,3
Unmarried	721	97,7
Exercise		
Not at all	73	9,9
Irregular	556	75,3
Regular and routine	108	14,8
Smoking		
Yes	20	2,7
No	718	97,3
Stretching exercise		
Yes	284	38,5
No	454	61,5
Family history of LBP		
Yes	141	19,1
No	597	80,9
Students with LBP		
Yes	452	61,2
No	286	38,8
Students with LBP based on academic stage		
Preclinical		
1 st year	128	28,3
2 nd year	135	29,9
3 rd year	47	10,4
4 th year	69	15,3
Clinical	55	16,2
ODI in students with LBP		
Minimal disability	422	93,4
Moderate disability	30	6,6

Table 2. Bivariate Analysis

Variable		LBP		Not LBP		p-value	PR (CI 95%)
		n	%	n	%		
Program	Preclinical	379	60,4	248	39,6	0,289	0,919 (0,792-1,066)
Gender	Clinical	73	65,8	38	34,2	<0,0001*	1,372 (1,177-1,600)
	Female	352	66,3	179	33,7		
	Male	100	48,3	107	51,7		
BMI	Obesity class I, II, III	38	67,9	18	32,1	0,540	1,065 (0,878-1,292)
	Overweight	83	55	68	45	0,056	0,863 (0,735-1,013)
	Underweight	45	54,9	37	45,1	0,130	0,862 (0,700-1,061)
	Normal	286	63,7	163	36,3		
Marriage status	Married	12	70,6	5	29,4	0,424	1,157 (0,846-1,581)
	Unmarried	440	61	281	39		
Exercise	Not at all	50	68,5	23	31,5	0,011*	1,383 (1,082-1,767)
	Irregular	348	62,6	208	37,4	0,011*	1,263 (1,034-1,543)
	Regular and routine	54	49,5	55	50,5		
Smoking	Yes	9	45	11	55	0,131	0,729 (0,448-1,188)
	No	443	61,7	275	38,3		
Stretching exercise	No	274	60,4	180	39,6	0,528	0,963 (0,857-1,082)
	Yes	178	62,7	106	37,3		
Family history of LBP	Yes	100	70,9	41	29,1	0,009*	1,203 (1,061-1,363)
	No	352	59	245	41		

* statistically significant

DISCUSSION

Study on LBP among medical students conducted at several universities worldwide shows variations in the prevalence of LBP: University of Tunis reported a 37.8% point prevalence⁹, University of Belgrade reported a 17.2% point prevalence¹⁶, Faridpur Medical College (Bangladesh) reported a 25.6% point prevalence¹⁹ and the International Medical University (Malaysia) reported a 68% prevalence²⁰. A meta-analysis study involving multiple countries (Sweden, Australia, USA, Hong Kong, India, France, Singapore, Hungary, China, Serbia, Ethiopia) found a 53% point prevalence of LBP among medical students²¹. The prevalence of LBP among medical students at Faculty of Medicine Universitas Pembangunan Nasional Veteran Jakarta is 61.2%, lower than Malaysia

but higher compared to other countries. Several studies indicate increased LBP among students during the pandemic^{11,12,13}. Normal activities resumed in-person since 2022, and the pandemic situation in Indonesia was declared over on June 21, 2023. This study was conducted at least 1 year after students resumed normal in-person learning activities, and the prevalence of LBP tends to be higher among first and second-year students, raising the question: could these figures result from Covid-19? Medical students experiencing LBP generally do not have disrupted daily activities (93.4% minimal disability), yet further evaluation is necessary to understand the progression of complaints.

The results of this study indicate that female students are more susceptible to experiencing LBP, aligning with the findings of

Vujcic et al. (2018). Exercise habits have a significant association with LBP, as reported in the study by Amelot et al., (2019). Previous studies have linked smoking to LBP^{22,23}, while this study suggests no association between smoking and LBP. Amelot et al. (2019) demonstrated that third-year medical students are more prone to LBP⁸. In contrast, other studies indicated that clinical students are at higher risk of LBP²⁴. However, contrary to these two studies, this study found no association between academic stage (preclinical/clinical) and LBP, similar to the findings of Tavares et al. (2019)¹⁰. Body Mass Index (BMI) showed no correlation with LBP, consistent with the study by AlShayhan and Saadeddin (2018)²⁵. Marital status did not

exhibit statistical significance, aligning with the findings of Hendi et al. (2021)²⁶. Stretching exercises are known to alleviate LBP symptoms²⁷, leading to the assumption that stretching affects LBP. However, the results of this study indicate no association between stretching exercises and LBP.

CONCLUSION

Higher education institutions in Indonesia need to implement preventive measures among medical students. Further study, such as exploring the prevalence and risk factors among high school students, might offer insights into the condition of prospective medical students, enabling preventive actions at the school level.

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