Prevalence of Low Back Pain in Medical Students of United Medical and Dental College Karachi

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ABSTRACT

Objective: To determine the prevalence of low back pain in medical students of United Medical and Dental College Karachi.

Methods: This cross sectional study was conducted from 22nd March 2021 to 22nd January 2022 in department of Orthopaedics, United medical and dental college Karachi. The data was collected from medical students of MBBS studying in United Medical and Dental College Karachi. The data was collected with the help of modified version of Standardized Nordic questionnaire. Participants were asked for any discomfort, pain and ache in lower back at any time during the last 7 days and 12 months. (period prevalence)

Results: We enrolled 400 medical students of MBBS for this study but 388 participants completed and returned the questionnaire. The mean age of our study sample was 21.36 ± 1.59 years. Female students were 240(61.85 %) and males were 148(31.95. The 12 months period prevalence of low backache was 67.28%(n=255) while 07 days prevalence was 31.95% (n=124). The prevalence of low back pain was lowest in first year students (7.12%,n=27) and highest in the final year students(33.77%,n=128).

Conclusion: High prevalence of low back pain was reported among medical students of United Medical and Dental College Karachi. The prevalence of low back pain was higher among fifth year students, students carrying regular bag packs, those sleeping on soft mattress and in lateral position, those not using backcare cushions and those not doing regular exercise.

Keywords: Low back pain, Medical student, Musculoskeletal pain, Nordic questionnaires

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INTRODUCTION

Low back pain is a very common health problem affecting both young and elderly population worldwide.[1] It is defined as pain located on the back side of lumbosacral region with or without radiation to lower limb.[2] Low back pain is more common than knee and shoulder pain among medical students due to repeated overload of lower back muscles, long and stressful curricular activities and incorrect body positions.[3] Mental stress attained by medical students, lack of regular exercise, long hours of sitting in chairs and abnormal body posture predispose medical students to develop low back pain.[4] Persistent low back pain can cause significant disability and economic burden because therapeutic measures often have limited proven efficacy.[5] Most students with acute low back pain improve within few weeks time, however minor pain can persist in some students.[5] Identification of risk factors for low back pain can prevent the progression of acute low back pain to chronic low back pain.[6] Persistent low back pain can lead to decreased muscle strength and postural imbalance.[7] Early onset low back pain in young adults is a serious health problem and warrants prompt treatment and formulation of preventive stratgies.[8]

The objective of our study was to determine the prevalence of low back pain in medical students of United Medical and Dental College Karachi. The results of our study would be useful to formulate national low back pain prevention program for Pakistani medical students. Moreover modification in

class rooms sitting arrangements and relevant changes in the medical curriculum can be considered to prevent low back pain in medical students so that their performance is improved.

METHODS

We conducted this cross sectional study in department of Orthopaedics, United medical and dental college Karachi from 22nd March 2021 to 22nd January 2022.The data was collected from medical students of MBBS studying in United Medical and Dental College Karachi. All students of both gender and all ages studying in first year to final year MBBS classes were included in this study. Students with prolapse intervertebral disc, history of back surgery, neuromuscular disorder, spine deformity and rheumatological diseases were excluded from the study. Ethical approval of our study was obtained from Institutional review board (IRB) of United medical and dental college. Informed consent was given by all study participants. The data was collected by the principal author in person with the help of modified version of Standardized Nordic questionnaire.[9] Participants were asked for any discomfort, pain and ache in lower back at any time during the last 7 days and 12 months. The 07 days andc12 months prevalence of low back pain was referred to the number of medical students who suffered low back pain in the last 7 days and 12 months respectively. Any pain below the 12th rib and above the inferior gluteal fold was considered as low back pain.[10,11]

The sample was collected randomly from medical students of all five year classes. All study participants were provided with a printed copy of modified version of Standardized Nordic questionnaire. Students were given adequate time to read and complete the questionnaire. All the completed questionnaires were checked at the time of collection and if any information was found missing students were asked to complete the questionnaire. All the questionnaires were anonymized. Questionnaire included questions regarding the demographic characteristics of students (age, gender, academic year of study and body mass index), presence or absence of low back pain (in last 07 days and 12 months) and their associated risk factors (daily curricular activities, carrying backpacks, mattress used, back posture, sleeping posture, use of back care cushion, exercise and family history of low back pain).

All the data was entered into SPSS version 24 for analysis. Continuous variables were represented as means ± SD and categorical variables as frequency and percentages. Data was presented in table where necessary.

RESULTS

The total number of participants in this study were 388. The mean age of our study sample was 21.36 ± 1.59 years. Female students were 240(61.85 %) and males were 148(31.95. Majority(97.68%,n=379) of our students reported low back pain. The 12 months period prevalence of low backache was 67.28%(n=255) while 07 days prevalence was 31.95%(n=124). The prevalence of low back pain was higher in female gender and in fifth year MBBS students as shown in table I.

Table I: Demographic characteristics of prevalence of low back pain.

Demographic Characteristics		Low back pain prevalence in last 07 days (n,%)	Low back prevalence in last 12 months (n,%)	Total
Academic Year	First Year MBBS	6 (22.22 %)	21 (77.77%)	27(6.95%)
	Second Year MBBS	19 (33.33 %)	38 (66.66 %)	57(14.69%)
	Third Year MBBS	30 (32.60 %)	62 (67.39 %)	92(23.71%)
	Fourth Year MBBS	26 (34.66 %)	49 (65.33 %)	75((19.32%)
	Fifth Year MBBS	43 (33.59%)	85 (66.40 %)	128(32.98%)
Gender	Male	42 (32.55 %)	87 (67.44 %)	129(33.24%)
	Female	82 (32.8%)	168 (67.2 %)	250(64.43%)

Analysis of questionnaires for 12 months low back pain prevalence revealed that majority (54.90%,n=140) of MBBS students with low back pain had normal body mass index while 15.68% (n=40) were underweight and 6.66%(n=17)%) were obese. The 12 month prevalence of low back pain was 53.3% (n=136) in those students who carried regular backpacks than those not carrying backpacks (16.86%,n=43). Students who used to sit for more than 6 hours a day for their curricular activities had more prevalence of low back pain (26.66%,n=68) as compared to students who used to sit for less than 6 hours per day(12.54%,n=32). Sitting in leaning forward posture during their curricular activities had

more prevalence of 12 month back pain (66.27%,n=169) compared to sitting in straight posture (30.98%,n=79). Students who used back care cushions had lower prevalence of lower back pain(18.03%,n= 46) compared to those who did not use any back support(48.62%,n=124). Students sleeping on soft mattress had more prevalence of low back pain(60.78%,n=155) than those using firm mattress (37.64%,n=96).Students who used to sleep in lateral position had more prevalence of low back pain (57.64%,n=147) compared to students who used to sleep in supine position(25.88%,n=66). Students who did daily exercise had lower prevalence of low back pain(18.03%,n=46) compared to students who did not do regular exercise (35.29%, n=90). Students with family history of low back pain had more prevalence of low back pain (48.23%.n=123) than those without any family history (13.72%,n=35).

DISCUSSION

In our study the 12 months period prevalence of low back pain in MBBS students was 67.28%(n=255) while 07 days prevalence was 31.95%(n=124). Globally variable prevalence of low back pain in medical students has been reported in literature. The 12 months prevalence of low back pain was 47.5% in Indian medical students,[1] 46.1% in Malaysia,[12] 53.4% in Austria[13] and 59.9% in Brazilian medical students.[14] The causes for this differences in prevalence is multifactorial and ranges from differences in races, genetics, life style, sitting arrangements, duration of study hours and sitting and sleeping habits. Moreover authors have used different methodologies for collection of data. Vujcic[4] collected the data of 459 fourth year medical students and reported that the point prevalence of low back pain was 17.2%,12 months prevalence was 59.5% and lifetime prevalence was 75.8%. Like our study the 12 months prevalence of low back pain was higher in female medical students. Boszczowski[15] interviewed 200 medical students and reported that 58% had low back pain. Alshayhan[16] collected the data of 1163 Saudi medical students of five health sciences. The low back pain data was collected with the help of Nordic questionnaire. He documented that point prevalence of low back pain was 21.2%,12 months prevalence was 48.8% and life time prevalence was 56.6%.Male students and dentistry students were more prone to low back pain than other students. Smith[17] reported the prevalence of low back pain in Chinese medical students by analyzing the data obtained from 207 students. He noted that 7 day prevalence of low back pain was 20.8% and 12 months prevalence was 40.1%. In one systematic review and meta-analysis Wong *et al*[18] analyzed 16 studies with 7072 medical students and noted that the 12 months prevalence of low back pain was 53%. Female medical students had more prevalence of low back pain than male students. Amelot[19] collected data of 1243 medical students utilizing the standadarzied Nordic Questionnaire. The prevalence of low back pain was 72.1%(n=835).Smith and colleagues[20] studied 261 Australian medical students and reported that the prevalence of low back pain was 51.6%.Female students reported lower back pain 1.8 times more than male students. Second year students were more likely (0.4 times) to have lower back pain than other classes. In one local study by Haroon and Mehmood, [21] 360 medical students were asked to fill questionnaires. The 7 days prevalence of upper back pain was 9.2%(n=33) and 12 months was 23.1%(n=83).The 7 days prevalence of lower back pain was 16.1%(n=58) and 12 months prevalence was in 38.6%(n=139).

In our study we had documented that students who sit in leaning forward positions, sitting for more than 6 hours, carrying regular backpacks, sleeping on soft mattress and in lateral position, lack of regular exercise, not using back care cushion and those with positive family history for low back pain had more prevalence of low back pain than others. Similar findings are reported in previous studies in the literature as well.[1,14,15,17,22]

Our study had few limitations. We were not able to analyze all the risk factors for low back pain and their correlations in detail. The extent of disability due to low back pain could not be determined. Further studies are therefore recommended to confirm our results.

CONCLUSION

High prevalence of low back pain was reported among medical students of United Medical and Dental College Karachi. The prevalence of low back pain was higher among fifth year medical students, students carrying regular bag packs, those sleeping on soft mattress and in lateral position, those not using backcare cushions and not doing regular exercise.

Conflict of Interest: None

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