International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Prevalence of Low Back Pain and Associated Disability in Medical Students

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Abstract

Background: Low back pain (LBP) is a serious health problem among medical students. This study aimed to investigate the prevalence and associated factors for LBP among MIMSR Latur medical students. Low back pain is the leading cause of disability and inability to work in medical students, and is expected to affect the activities of daily living. The activities of these professional are related to the development of this pain. It is estimated that up to 60% of low back pain events in medical student is work related. In fact, medical students are potentially exposed to the low back pain occupational risk as graduates, such as poor working postures.

Aim: This study aimed to verify the percentile value of low back pain and associated disabilities in medical students of MIMSR campus Latur.

Methodology: 104 samples were selected according to criteria of study. Consent was taken on consent form. Low back pain was measured on NPRS Scale and associated disabilities are taken by OSWESTRY LOW BACK DISABILITY QUESTIONNAIRE. The collected data was analyzed statistically and on the basis of result, the discussion and conclusion were made.

Result: The prevalence of low back pain among medical students of MIMSR campus Latur, were total number of subjects(n=104) physiotherapy 33%(n=35), nursing 31%(n=33), medical 26%(n=27), dental 9%(n=10), and associated disability according to ODI score in overall population is 52.4% which is moderate disability. Data was analyzed by JAMOVI (Version 2.3) 2022 and MS EXAL 2019, were significant associations were found between low back pain and associated disability, ODI table contains ODI mean scoring in %, mean and SD of ODI 9.90 and 7.90 respectively similarly mean and SD of NPRS 7.06 and 2.56 respectively, p-value is set to be at 2.00 significant 0.005.

Conclusion: The high prevalence of low back pain in medical students of MIMSR campus Latur which is associated with poor study habits, lifestyle habits, and psychological factors highlight a need for life skills training, education, counselling, and restructuring of the medical curriculum.

Keywords: Low back pain, Medical student, Associated disability

Introduction

- Low back pain is the leading cause of disability and inability to work, and is expected to affect up to 90% of people at some point in their lives [1]. In fact, medical students are potentially exposed to the low back pain, occupational risk as graduate, such as poor working posture [2]. Low back pain is commonly associated with functional limitations and disabilities among all medical students [3].

- Low back pain is the most common orthopedic problem worldwide. According to some estimate approximately 60-80% of the general population. The onset of low back pain commonly occurs around the age of 20 to 35, the low back pain is no longer disease of old population. In India low back pain has been reported as the major factor responsible for limiting people's activities in age group of around 25 to 35, and is a common frequent reason for hospitalization and surgery [4].
- This article does not deal with low back pain that result from trauma, osteoporotic fractures, infection, neoplasm, etc.
- In India, approximately 35% of people suffer from low back pain which significantly hampers their day-to-day routine. It also has correlation with bad sleeping posture, physical inactivity, poor posture, and heavy back packs. In medical curriculum specially in India it calls for long hours of sitting during study, hence predisposing to low back pain [5].
- The physical ergonomic features of work that are most frequently as MSD risk factors include rapid work pace and repetitive motion patterns; insufficient recovery time; heavy lifting and other forceful manual exertions; non-neutral body postures (either dynamic or static); mechanical pressure concentrations; vibration; and temperature variation [5].
- Low back pain is a standout amongst the most widely rec-cognized injuries endured by experts who work at outward clinic and it is a standout amongst the most well-known reasons for non-appearance from work [6].
- Medical professionals are incorporated into the records of large amounts of occupational pain. The side effects meddle with the execution of day-to-day exercises and range from constraints of development to temporary invalidity, contingent upon the force of the pathology. The rate of low back pain (LBP) in the general and working populaces has been an issue for a long time [6].

NEED FOR STUDY

In MIMSR campus Latur, from last few years it has been noticed that the low back pain is more in medical student due to awkward posture during learning, and due to inappropriate working environment, the reason may be prolong sitting for study without back support or inappropriate working environment The exact number is not known, and till now this study has been not conducted in Latur campus

AIM AND OBJECTIVES

AIM of the study is to verify the prevalence of low back pain and associated disabilities in medical students of MIMSR campus Latur.

OBJECTIVE-To know the prevalence of low back pain in medical students, by using NPRS and to know the associated disabilities in medical students, by using ODI score.

METHODOLOGY

Study design- Observational
Study sample- low back pain
Study population -low back pain in medical student
Sampling method -simple random sampling
Number of samples -104
Sampling formula -4pq by L square
Duration of study - 6 months

Study setting -MIMSR, Physiotherapy college Latur.

MATERIALS

Assessment form, Consent form, Pen, NPRS (numeric pain rating scale), ODI (Oswestry Disability Index)

CRITERIA FOR STUDY

Inclusion Criteria: Medical students of age group 20 to 30 of both gender male and female. Exclusion Criteria: Students with back pain due to traumatic history, students having low back pain in post operative cases (e.g., kyphoplasty, artificial disk replacement, foraminotomy, etc.)

PROCEDURE

- Ethical committee approval was taken from institutional ethical Committee.
- Each participant was screened by using simple proforma relevant to the inclusion as well as exclusion criteria, the aim, objectives and method of study was explained to the participants.
- Starting the interventions all the procedure was illustrated as well as consent was taken on the consent form by the participants.
- All the participants with low back pain were taken, the total 104 samples were selected for the study.
- All the participants were randomly selected from MIMSR campus, maximum participants are of age group between 20 to 30
- According to the study outcomes (NPRS, ODI) where taken by the all participants.
- The candidates were given with printed NPRS and ODI scales along with consent form attached to it, which includes questions regarding their demographic data, pain history (being specific about the region that is low back), ODI score includes questions regarding daily functional activities which was hampered due to pain
- After collecting all the data, the data was entered in MS excel sheet and statical analysis was done by using JAMOVI software
- Result was calculated on that bases discussion and conclusion were made.

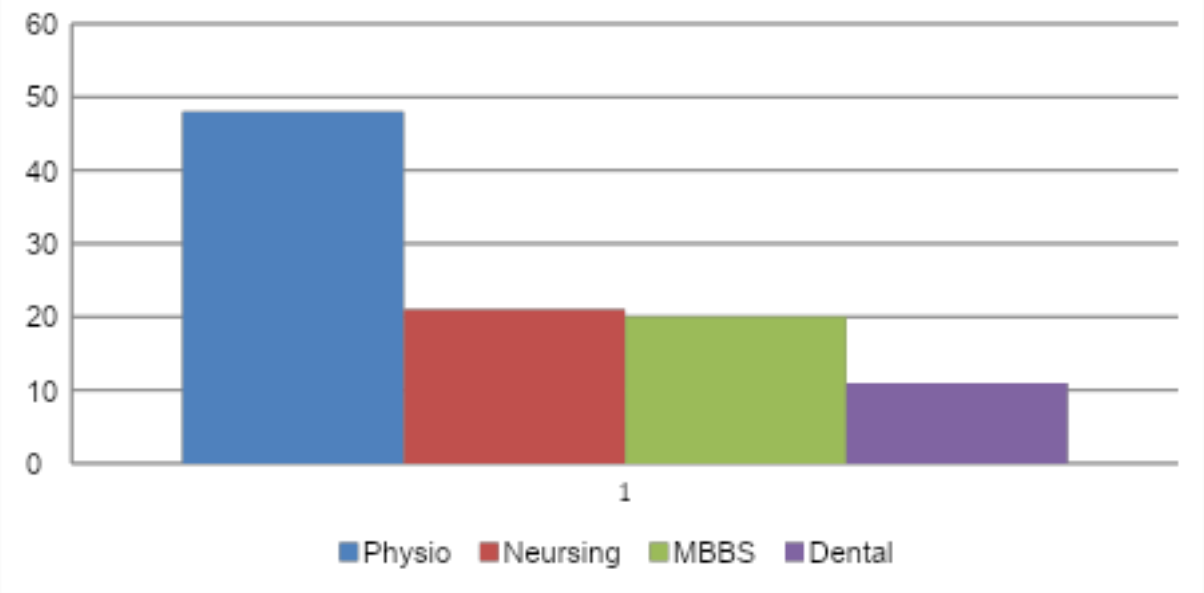
Outcome Measures

1. NPRS (numeric pain rating scale): 10-point scale, 0-means no pain, 5-moderate pain, 10-worst possible pain, reliability of the scale is 0.79-0.95, and validity is 0.92 and required time 1-2 minutes
2. Oswestry Disability Index (ODI): 50-point scale, 0-4=no disability, 5-14=mild disability, 15-24=moderate disability, 25-34=sever disability, 35-50=complete disabled. Reliability 0.94-0.99, and validity is 0.87, required time 2-3 minutes.

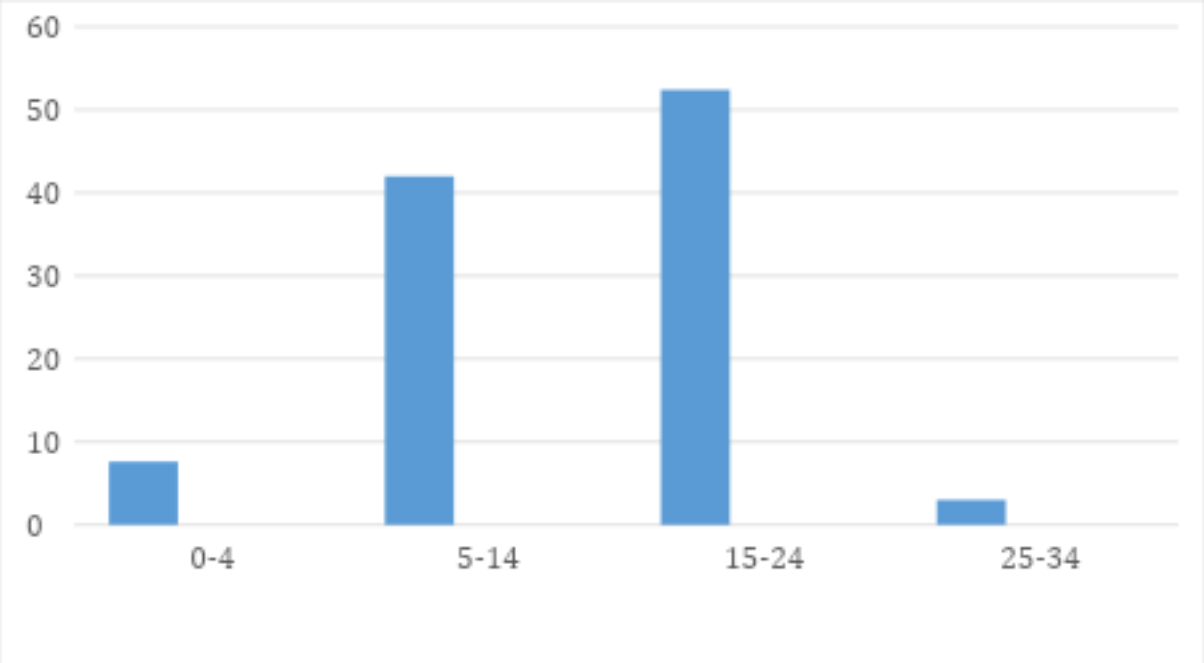
STATISTICAL ANALYSIS

- Data have been collected by using a structured performa.
- Data entered in MS Excel sheet and JAMOVI (V-2.3) 2022
- All the data is expressed in percentage
- T-test is used to find the descriptive statistics of each variable have been presented in the terms of mean, standard deviation,
- P-value of 0.05 considered a significant were as p-value<0.001 is of high significant

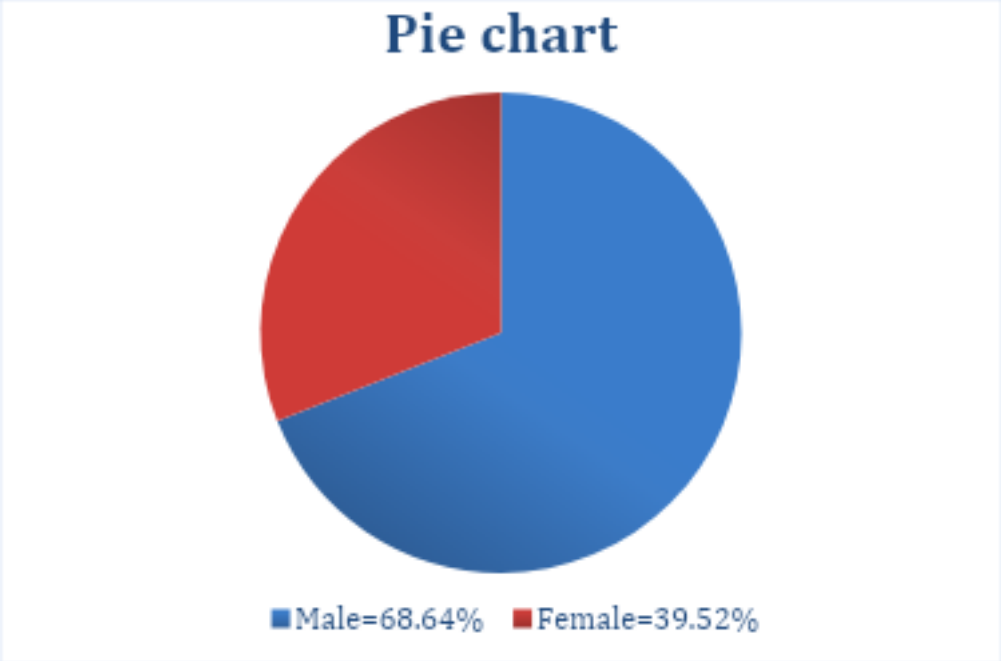
- Out of 104 study subject, 68.64%(n=66) were male and 39.52%(n=38) were female and random samples were collected from four departments of campus that are MBBS, Physiotherapy, Nursing, Dental.
- All the subjects presented with low back pain from last few months and years they were all selected from study's inclusion and exclusion pattern.
- The overall prevalence of low back pain in all selected subject according to department wise is physiotherapy 48%, nursing 21%, MBBS 20%, dental 9%. Physiotherapy students are affected more in percent as compare to another department
- The study also found that students with low back pain have suffer from reduced working efficiency and difficulty in performing day to day activities and which is more in physiotherapy students.
- Prevalence of disabilities due to low back pain according to ODI score 52.4% (15-24) which is moderate disability in overall population.
- The prevalence of low back pain among medical students of MIMSR campus Latur, where total number of subjects(n=104) in that physiotherapy 33%(n=35), nursing 31%(n=33), medical 26%(n=27), dental 9%(n=10), and associated disability according to ODI score in overall population is 52.4% which is moderate disability. Data was analyzed by JAMOVI (Version 2.3) 2022 and MS EXAL 2019, where significant associations were found between low back pain and associated disability, ODI table contains ODI mean scoring in %, mean and SD of ODI 9.90 and 7.90 respectively similarly mean and SD of NPRS 7.06 and 2.56 respectively, p-value is set to be at 2.00 significant 0.005.



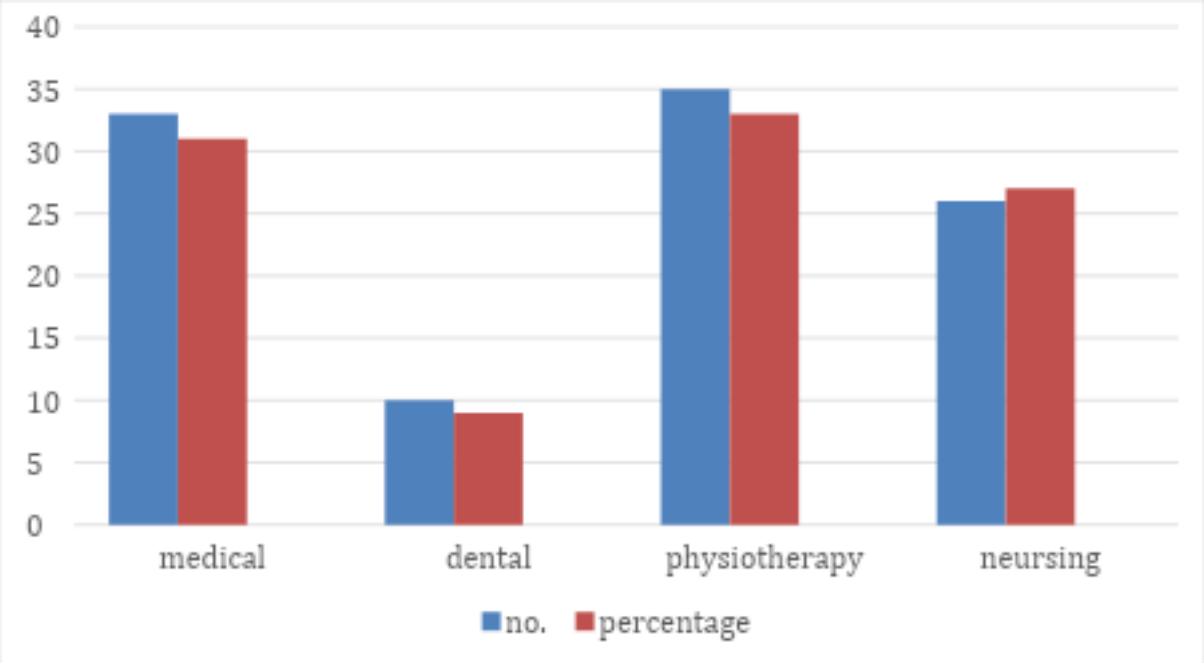
Graph(a): Prevalence of low back pain



Graph(b): Low back pain and related disability



Graph(c): Pie chart showing male - female gender wise distribution



Graph(d): Pole graph showing department wise distribution in percentage of 104 random samples

RESULT

- Out of 104 study subject, 68.64%(n=66) were male and 39.52%(n=38) were female and random samples were collected from four departments of campus that are MBBS, Physiotherapy, Nursing, Dental.
- All the subjects presented with low back pain from last few months and years they were all selected from study's inclusion and exclusion pattern.
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- Prevalence of disabilities due to low back pain according to ODI score 52.4%(15-24) which is moderate disability in overall population.
- This study aimed to verify the existence of a higher prevalence of low back pain in physiotherapy students, for this statical analysis can support and other findings can co-related with parent article
- This study also noted that prevalence of low back pain was higher in physiotherapy students as compare to other departments
- All are variable courses in length, study pattern and duration, we can also observe that physiotherapy students were associated with mild to moderate disability.
- There are limited studies about co-relation between low back pain and disabilities, in present study, nursing students are also more prone to same. And the findings are nearly same with MBBS students, but nursing students' high prevalence of work-related low back $pain^2$
- Although the present analysis was limited to low back pain and disabilities caused by improper working posture, which increases the stress on lower limb and result in low back pain.

- The hectic study curriculum and busy schedules make their lives sedentary devoid of any physical activities like jogging, exercise, yoga, sports, etc. A study done with students of medical field in 2010 revealed that only one-third of medical students were doing the generally recommended amount of physical activity.
- The long college working hours meant that student's study into late night and often with poor posture, leading to complaints of low back pain.
- Therefor it seems that, all selected groups should be known with proper ergonomic factors and should be included in daily curriculum, the technique of carrying, lifting, and the working environment to prevent back injuries.
- A long-term study duration is required to determine the etiology and risk factors related to the same.

DISCUSSION

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