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## Prevalence of Low Back Pain Related Disability in Physiotherapy Students of WIRS, Abbottabad

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### Abstract:

Every age group is impacted by the prevalent condition known as low back pain. It is one of the main musculoskeletal issues that the physiotherapy students deal with. The goal of this descriptive cross-sectional study was to find out the prevalence of LBP related disability in DPT students of WIRS Abbottabad. A descriptive cross-sectional study was conducted at Women Institute of Rehabilitation Sciences, Abbottabad, Pakistan. A sample size of 121 students was estimated suitable for the study calculated via RaoSoft sample size calculator. Students from 1<sup>st</sup> to final semester were asked to fill a self-administered demographic questionnaire followed by 2 well standardized questionnaires namely NPRS and Oswestry Disability Scale Questionnaire for pain intensity and low back pain related disability after seeking informed consent. Convenient sampling technique was gauged. The data was further analysed using IBM SPSS 20 (IBM Corp., Armonk, NY) statistical software. Out of 121 participants that were recruited, 57.9% reported to have low back pain while 42.1% did not have the said condition. Out of the participants having LBP, 61.0% reported to have experienced mild low back pain on NPRS, 35.5% reported to have moderate pain and 2.5% reported to have severe pain. Moreover, according to the Oswestry Disability Scale, absence of disability was reported by 49.6% students, mild disability was reported by 43% students, 6.6% reported moderate disability while 0.8% reported severe disability due to low back pain which interfered with the daily activities. Thus it was concluded that majority of the students had a mild disability and very few to none had severe disability. Moreover, a considerable number of subjects inclined toward seeking analgesics for pain relief instead of exercise.

**Keywords** Prevalence, Low Back Pain (LBP), disability, physiotherapy, Numeric Pain Rating Scale (NPRS), Oswestry Disability Index (ODI).

### Introduction:

Low back pain is characterized as pain and uneasiness, restricted beneath the costal margin and superior to the inferior gluteal folds, regardless of leg pain (1). Another definition, as per S.Kinkade, which bears resemblance to the European rules is that low back pain is "pain that occurs posteriorly in the area between the lower rib edge and the proximal thighs"(2). Low back pain is normally classified into 3 subtypes: intense, sub-intense and persistent low back pain. This classification depends on how long you have had the back pain. Acute LBP is an episode of LBP for less than a month a half, sub-acute LBP lies somewhere in the range of 6 and 12 weeks and chronic LBP is for 3 months or more (3). LBP that has been bothering you for longer than 90 days is thought of as chronic. Over 80% of all medical care expenses can be credited to chronic LBP (4).

Approximately 60% of LBP episodes happen as a result of work-related injuries. PT students have high recurrence of LBP when compared with other medical field pupils and this influences their work and relaxing moments strikingly (5). In addition to affecting the students' academic performance, poor posture and other back pain-related risk factors would also have an impact on their socioeconomic and physiological activities (6). Regardless of the fact if a PT student has yet to be graduated or not they will continue to experience the same occupational hazards like bad working postures and constant manual handling activities, regularly attempted in tough conditions. As the numbers are expanding

day by day, under that impact we fostered a prevalence study to track down the predominance of LBP in physiotherapy pupils of Abbottabad (7).

The lumbar spine has five vertebrae in total (L1-L5). These strong vertebrae are combined to form the complicated lumbar spine structure, which is joined by tendons, ligaments, muscles, and joint capsules. The spine must be extremely strong in order to protect the spinal cord and its nerve roots. Simultaneously, it has exceptional flexibility, accommodating movements in various planes (8). The neural arch and vertebral body are the two distinct parts of each lumbar vertebra. The cephalad to caudal dimensionality of the vertebral body, which is located anteriorly, gradually increases. The neural arch is located behind the vertebral body and is made up of two pedicles that emerge from the superior posterolateral aspect of the vertebral body and connect with two laminae that are located further back. The upper surface of the vertebral body is broader transversely and resembles a kidney when viewed from above (9-10). When compared to the cervical and thoracic spines, the lamina is thicker and positioned more vertically in the sagittal plane. The cephalic and caudal partitions of the lamina are the two divisions. The ligamentum flavum is attached to the caudal half, which has a bumpy internal surface, while the cephalic part is curved and has a smooth internal surface. The isthmus or pars interarticularis, which is the typical location for pressure breaks, is a portion of the lamina located between the upper and lower articular processes and slightly below the level of the pedicle. The cervical and thoracic regions, which are oriented in the sagittal plane, are different from the upper and lower articular facets. The lower articular surface is convex and faces anterolaterally, whereas the higher articular surface is concave and faces posteromedially in the lumbar region. The facet angles that match the sagittal plane range from 120° to 150°, and they gradually decrease from L1 to L5. Over the midline of the transverse process at the levels above L4, the projection point of the pedicle pivot is located. The projection point at L4 is close to the transverse process's midline. This is situated at L5, below the transverse process's midline (9).

Mirza Babar et al. conducted a study in 2021-22 on medical students of United Medical and Dental College, Karachi. A total of 400 participants were recruited and the results showed that a year period prevalence of LBP was found in 255 (67.28%), a week's prevalence was found in 124 (31.95%). The prevalence of LBP in first year students was 27 (7.12%) and the prevalence of LBP in the last year students was 128 (33.77%). Thus concluding that there was a high prevalence of LBP among medical students, with the prevalence being highest among students in their last year (11).

Kashif et al. in 2022 described a study result on frequency of LBP, conducted in Riphah College of Rehabilitation Sciences in Faisalabad which they determined that 40 (36.4%) of the 110 students had a point prevalence (7-day prevalence) and 61 (55.4%) had a year prevalence of LBP. Only 25 of the 61 students with LBP reported skipping university because of their back pain, and 32 (52.2%) said that discomfort interfered with their work. 16 (26.7%) of the 61 students with back pain had mild LBP, 23 (37.7%) had nagging LBP, 19 (31.1%) had distressing LBP, and 3 (4.9%) had severe LBP (12).

## **2. Methodology**

### **2.1. Study Design**

This was a descriptive and cross-sectional study. It was carried out at Women Institute of Rehabilitation Sciences, Abbottabad. Convenient sampling technique was used to draw the sample size. Inclusion criteria for participants were (a) Students enrolled in the 5-year DPT program, (b) 18-25 years of age, (c) students with minimum 6 hours of continuous sitting, (d) willing participants and (e) female participants (12). The exclusion criteria for samples were (a) Students who had pain due to nerve root irritation, (b) history of vertebral column, fracture/trauma/structural or congenital deformity like scoliosis, (c) Students having back pain due to any inflammatory disease of vertebral column (d) unwilling participants and (e) male participants (12).

### **2.2. Sample Size**

A sample size of 121 participants was deemed appropriate which was calculated using Raosoft online sample size calculator.

### **2.3. Study Population**

The study population was the DPT students of Women Institute of Rehabilitation Sciences, Abbottabad who fulfilled the inclusion criteria of the research.

### **2.4. Ethical Considerations**

After the approval of Research Ethical Review Board of WIRS, Abbottabad, the study was formally started. An official consent from WIRS Abbottabad department of Physiotherapy was sought for the sake of data collection.

### **2.5. Data Collection**

Data was collected in two phases. In the first phase, the consenting participants were recruited. Students were screened on the basis of inclusion and exclusion criteria and demographics were recorded. Students were provided with all the information needed about the questionnaire. Participants were asked to fill a self- structured questionnaire to determine the subjectivity of LBP and mode of treatment used while a standardized Oswestry LBP Disability scale was also requested to fill in. The confidentiality of the data was ensured.

### **2.6. Data Analysis**

Data was analysed using the IBM SPSS 20 (IBM Corp., Armonk, NY). Percentage and frequencies were calculated to determine the prevalence of low back pain related disability in

physical therapy students of WIRS, Abbottabad. All the procedures were carried out following standardised guidelines.

### 3. Study Findings

1. Bar chart 1 shows which age group the participants were in. 38% were between the age of 18 and 21 while 62% were in the age between 22 and 25.

2. Bar chart 2 shows the prevalence of LBP in the participants. 57.9% stated that they have experienced LBP, 42.1% stated that they have not experienced LBP.

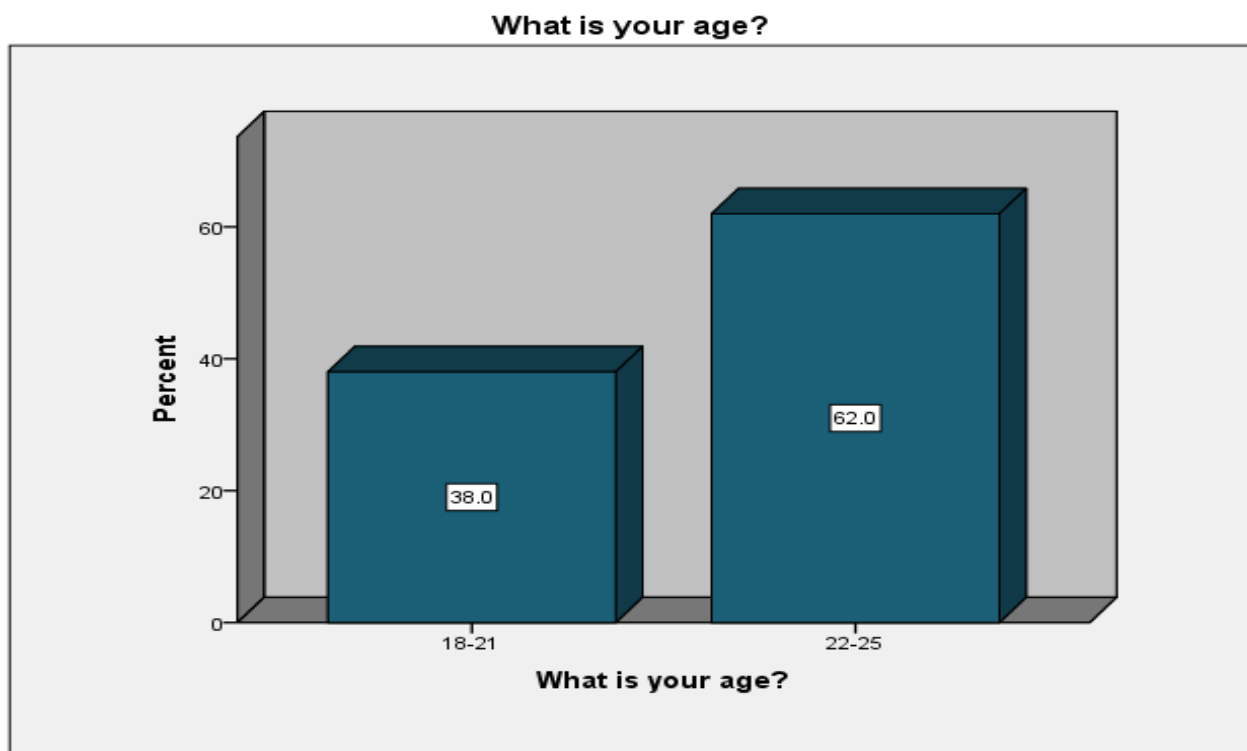
Bar chart 3 shows how often the participants experienced LBP. 42.1% reported they do not experience LBP at all, 32.2% reported that they experienced LBP several times a month, 15.7% reported that they experience LBP several times a week and 9.9% reported that they experience LBP several times a day.

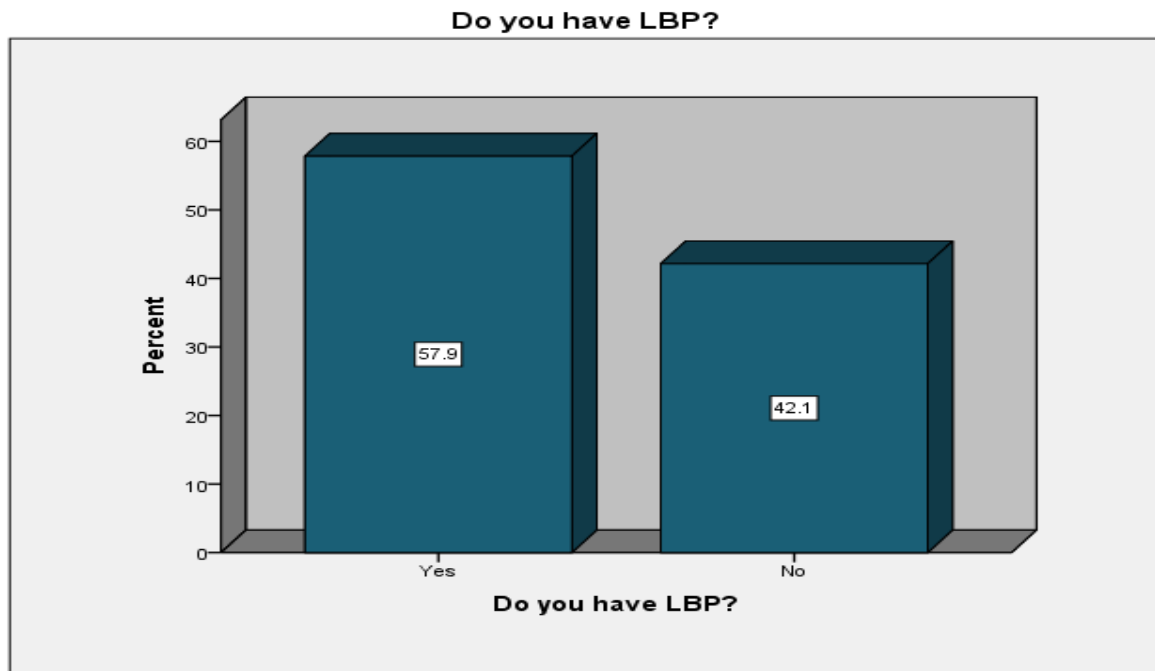
Bar Chart 4 shows the amount of times the participants consumed analgesics. 70.2% reported they never took painkillers, 20.7% reported they took painkillers several times a month, 7.4% reported they took painkillers several times a week and 1.7% reported they took painkillers several times a day.

Bar Chart 5 shows if the participant's daily life activities were affected due to LBP. 33.9% of those with LBP claimed that it had an impact on their daily lives, 66.1% who said it had no impact on their daily lives.

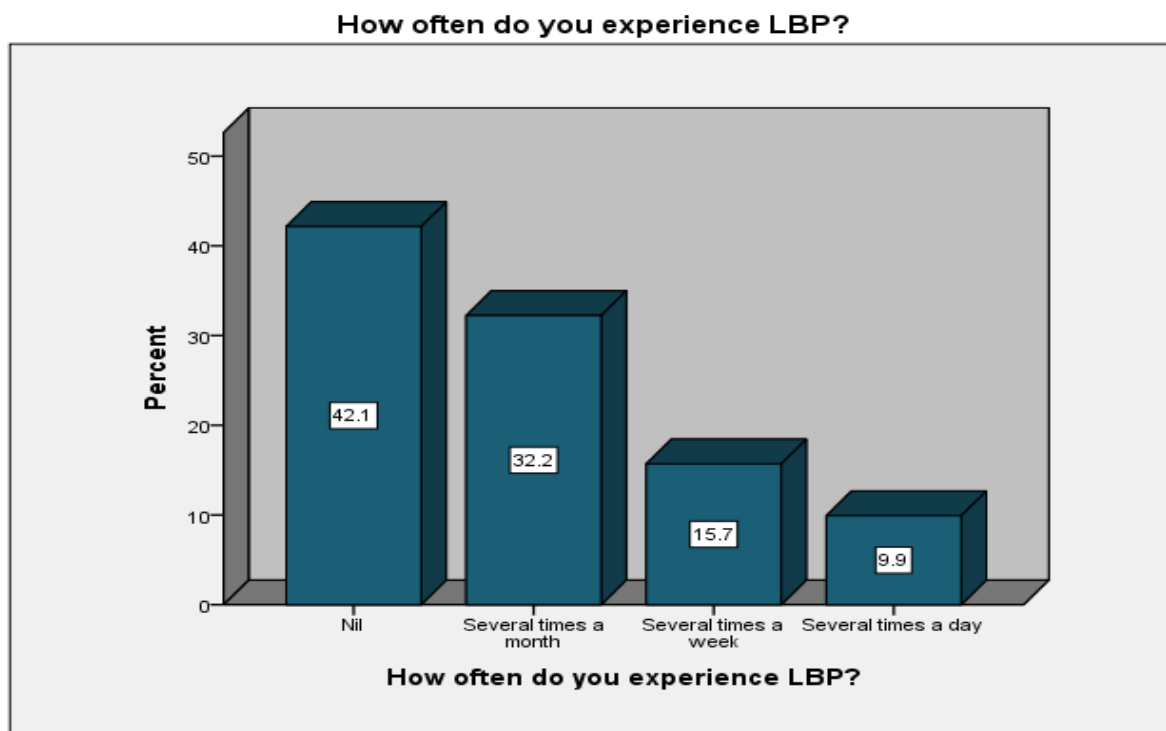
Bar chart 5 represents Oswestry Low Back Disability Questionnaire interpretation of participants recruited. 49.6% reported absence of disability, 43.0% reported mild disability, 6.6% reported moderate disability and 0.8% reported severe disability.

#### Bar Chart 1

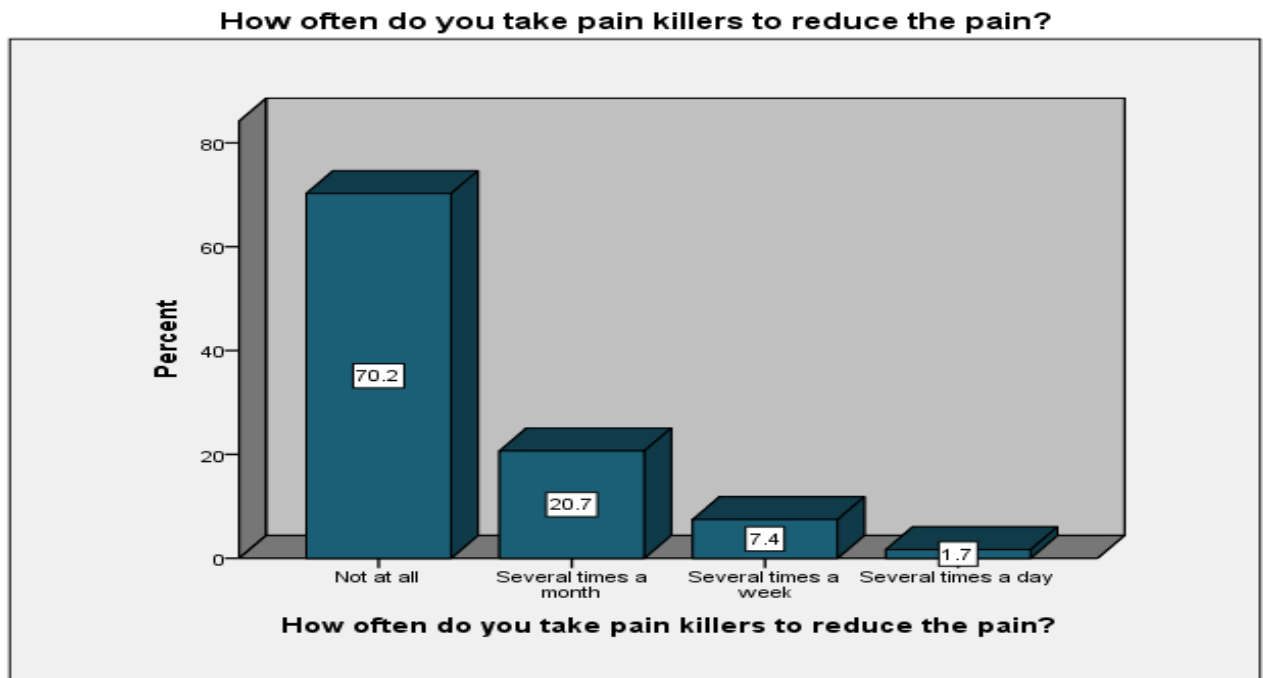




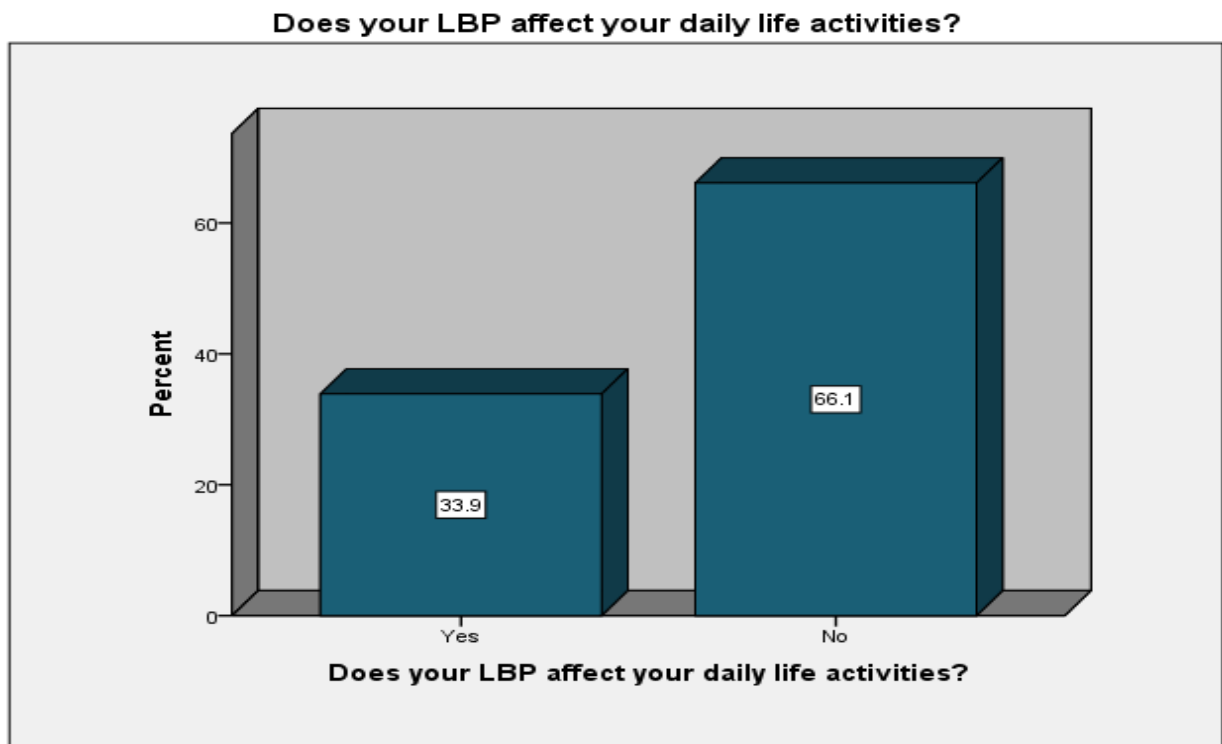
Bar Chart 2



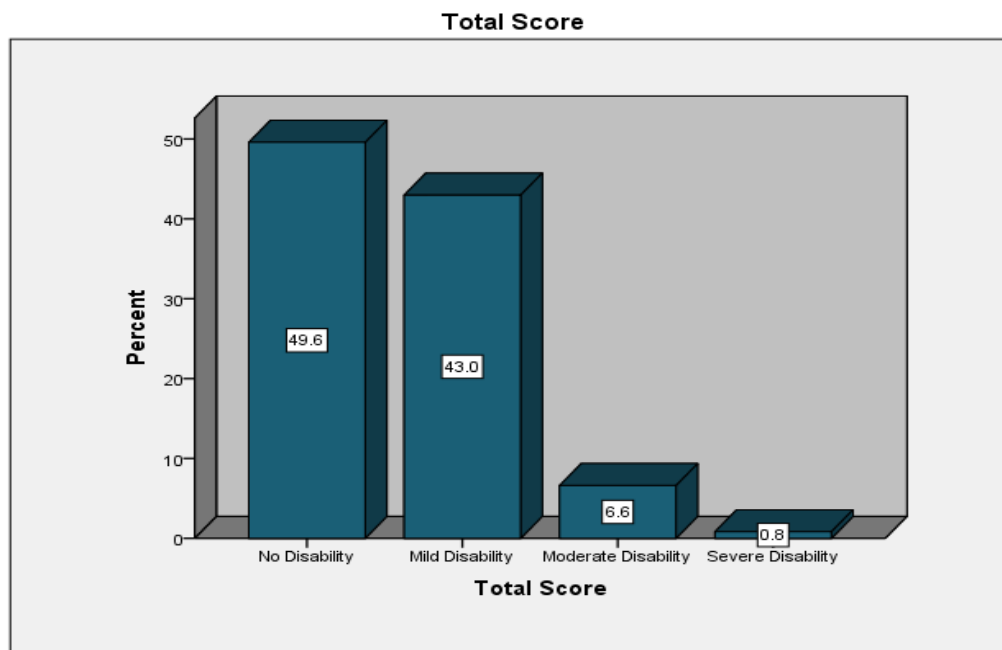
Bar Chart 3



Bar Chart 4



Bar Chart 5

**Bar Chart 6**

#### 4. Discussion

Muscle tension and spasm may be a potentially important contributor to Low Back Pain. Prolonged sitting hours and poor posture while performing manual techniques cause a number of biomechanical changes.

Natassja et al. carried out a study to determine the prevalence of LBP and associated factors among graduate medical students and to estimate the level of disability that this pain may cause. The research recruited 200 members, of whom 58% reported Low back pain. 94% of the pupils who complaint of low back pain had the least disability score and 6% a moderate score. None of the members came under severe or greater disability score (13). According to our study, 6.6% reported moderate disability score and 0.8% came under severe disability score which is consistent with the previous study.

Mirza Babar et al. conducted a study in 2021-22 on medical students of United Medical and Dental College, Karachi. A total of 400 participants were recruited and the results showed that a year period prevalence of LBP was found in 255 (67.28%), a week's prevalence was found in 124 (31.95%). The prevalence of LBP in first year students was 27 (7.12%) and the prevalence of LBP in the last year students was 128 (33.77) (11). Comparably our study shows LBP is minimal in first year students due to being freshly enrolled. But on the contrast the prevalence was highest amongst 3<sup>rd</sup> year students instead of final year students. This change was due to proper ergonomics sitting posture and proper awareness of LBP related risk factors in the final year students.



Kashif et al. In 2022 described a study on frequency of LBP, conducted in Riphah College of Rehabilitation Sciences in Faisalabad. It concluded that 26.7% had mild LBP, 37.7% had nagging LBP, 31.1% had distressing LBP and 4.9% had severe LBP (12). According to our study 61% reported mild pain, 35.5% reported moderate pain and 2.5% reported severe pain which is more than the previous study.

## 5. Conclusion and Recommendations

Based on study findings, it has been that majority of the students had a mild disability and very few to none had severe disability. Appropriate measures should be taken to address and treat this alarming condition. Moreover, a considerable number of subjects inclined toward seeking analgesics for pain relief instead of exercise.

More studies should be carried out all over Pakistan by using random sampling and having a larger sample size. Further research can be done to include other departments of Medical Sciences all over Pakistan and it is recommended to male participants as well to compare the gender related LBP. The cause and effect association determination with a wide spread geographical area is further recommended.

**Conflict of interest** The authors report no conflict of interest.

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