

A Study to Assess Prevalence of Developing Work Related Musculoskeletal Disorders Among Nursing Students at KPGU University – A Cross Sectional Study

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ABSTRACT

Background: Work-related musculoskeletal disorders (WRMSDs) present as pain or discomfort in the musculoskeletal system that individuals experience from work-related activities. Substantial research evidence exists on qualified nurses with WRMSDs, but there is a distinct lack of research regarding nursing students and their work environment in Vadodara. The aim of the study was to find out the prevalence of musculoskeletal disorders among nursing students in Vadodara.

Methodology : A cross sectional study involving a self administered questionnaire was initiated among the undergraduate nursing students at the KPGU University, Vadodara. All 100 undergraduate nursing students were given the opportunity to participate by completing the questionnaire. Data analysis consisted of frequencies, descriptive and custom tables. The Chi-square test for association was used to test the associations between variables

Result: The study found a 60% prevalence of MSDs. Musculoskeletal disorders occurred most commonly in the lower back (46%), neck (12%) and shoulder(10%), ankle/feet(17%) regions.

Conclusion: At the Drs Kiran and Pallavi Patel Global University (KPGU), there is a high frequency of MSDs (60%) among undergraduate nursing students. The highest prevalence rate for lower back pain during the past 12 months was observed.

Keywords: Nursing students, work related musculoskeletal disorders, KPGU university.

INTRODUCTION

Musculoskeletal disorders that occur from a work-related event are known as work related musculoskeletal disorders (WMSDs).¹ Manual lifting, frequent bending/twisting, using too much power, and poor working posture are all risk factors for WMSDs.² Repetitive Motion Injuries (RMI), Cumulative Trauma Disorder (CTD), and Repetitive Strain Injuries (RSI) are all terminologies that have been used to refer to WRMSDs.³ The World Health Organization

(WHO) states that when the working activities and conditions are significantly increased, Work-related musculoskeletal disorders (WMSDs) exacerbate.⁴ This can result in symptoms like pain, burning, numbness, and/or tingling, which can reduce productivity and it affects working hours. When these factors are properly assessed and addressed, the disorders are frequently resolved when no treatment is received, symptoms may begin as intermittent and mild and then worsen with time and lower

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limbs which typically result from a combination of physical factors (such as repetition, force and awkward postures) as excessive work rates or durations, inadequate breaks, and a variety of psychosocial workplace characteristics). When these factors are properly assessed and addressed, the disorders are frequently resolved.⁵ Ergonomic issues in the lower back are related to heavy lifting and repetitive trunk bending. Twisting or bending the neck while also twisting, raising, and abducting the shoulders for extended periods of time is a common cause of neck disorders.⁶

Nurses who work in hospitals are more susceptible to occupational health risks than other healthcare professionals.⁶ They are an integral part of the healthcare team, as they bridge the gap between doctors and patients, and facilitate healthcare delivery in hospitals. Female nurses are more liable to endure WRMSDs, as they are also fulfilling responsibilities after work, including taking care of children and household work, with insufficient rest time and a lack of exercise.⁽⁷⁾ College students have just begun to experience MSDs as a public health issue, with different regions of the world reporting prevalence rates ranging from 32.9% to 89.3%.⁸ Musculoskeletal diseases are more common on an annual basis, according to studies in at least one human body part and/or region that varied between 40 and 95% in a sample of Asian nurses. In Western populations, the low back, neck, and shoulders are the most severely affected body parts, with prevalence of 29-64%, 34-63%, and 17-75%, respectively.⁽⁷⁾ The most common WRMSDs found in nurses are lower back, ankle, knee, shoulder, neck, hand and wrist pain, with lower back pain being the most prevalent. Foot and ankle injuries are the second-most common MSD among nurses. Nearly half of the time that nurses are on their feet is spent moving between wards.⁶

Nursing is a type of profession which is highly engaged in patients care. And as there is scarcity of literature available about the prevalence of WRMSDs among undergraduate nursing students Hence there is need arise to evaluate the prevalence of WRMSDs (According to WHO). This will help us to create proper ergonomic posture in their health care practice.

METHODOLOGY

Sampling and population

Ethical Approval was obtained from institute committee. An informed consent was obtained in the first page of the study's questionnaire. A convenient sampling method was used to choose 100 undergraduate nursing students. This sampling method was used for all the undergraduate nursing students at the KPGU University were given the opportunity to participate. Inclusion criteria included Male and female KPGU university Nursing students between the ages of 18 and 25 year old and students who were willing to participate in a study. Those with a history of TKR surgery or musculoskeletal injury from an accident are excluded.

Data Collection

A self-reporting questionnaire with 8 questions was prepared and distributed to nursing students in Vadodara that covered personal factors, basic demographics like age, gender, and academic year in order to answer the research questions. The questionnaire mainly focused on the prevalence of MSDs. In these studies, the key concepts were related to the presence or absence of pain, duration, location and frequency of pain. Students were also asked to rate their level of pain on a scale of 0 to 10, with 0 denoting "no pain at all" and 10 denoting "the worst pain they have ever experienced". The survey was prepared in online form through Google Forms. The questionnaire is distributed via whatsapp group given the internet link of online form to the nursing students.

Data Analysis

Continuous data are presented as mean \pm standard deviation, whereas categorical data are presented as frequencies and percentages. Continuous data were compared using unpaired t-test and categorical data by Chi-square test. In all statistical tests, a value of $p < 0.05$ was considered significant

RESULT

Demographic characteristics : Out of 100 participants 70 (70%) were female and 30 (30%)

were male, and mean age was 21.15 years (SD = 0.70). Out of all academic years third year students were more exposure to clinical hours.

Intensity, frequency and type of pain

Table 1 showed pain score of 3.81 (SD=2.081) and experiencing deep and dull aching pain (64%) mostly during clinical work(55%).

Table 1 characterize pain according to pain frequency,perception

Intensity of pain	Mean/SD
0-10	3.81/2.08
Frequency of pain	Percentage
Daily	12%
Weekly	21%
Monthly	14%
During work	53%
Type of pain	Percentage
Throbbing	12%
Deep and dull aching	64%
Pin pricking	9 %
Tingling and numbness	13%
Sharp shooting	2%

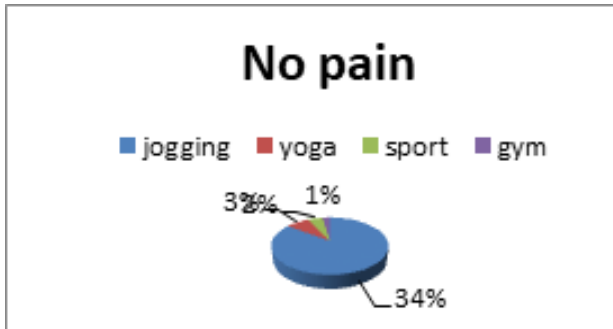


Fig. 1:

Correlation Between Pain And physical activity Perform :-

Figure1 showed Out of 100 undergraduate students, 60 students report having pain, whereas the remaining 40 do not. 60 students (60%) engaged in walking, running, or jogging, yoga (19%), sports activity (15%), and gym exercise (10%).

Correlation between pain and type of work

With the use of the chi squared test it was determined that out of 30 (14%) of students

Table 2: Show physical activity and WRMSDs in different body region

1.Do you perform exercise ?	Percentage
Yes	56%
No	44%
2. Type of exercise ?	Percentage
Walking/ running/jogging	65%
Yoga	16%
Gym activity	8%
Playing sports	10%
3.Type of activity perform most of the time	Percentage
Using electronic gadgets	11%
Sitting prolong period of time during lectures	26
Long standing hours in laboratory /clinic	30
Preparing lecture note	10
Prolong sitting and reading	23
4.Prevalence of musculoskeletal disorders during last 12 month:-	Percentage
Lower back	46%
Ankle/ankle	17%
Neck	12%
Shoulder	10%
Knee	9%

with long-standing clinical hours experienced lower back discomfort, with a significance level of $p < 0.0001$. Ankle/feet (9%) was the second-most painful body part, with a significance level of $p < 0.0001$.

DISCUSSION:

At the Drs. Kiran and Pallavi Patel Global University Varnama, Vadodara, a study was conducted to identify the prevalence of MSDs among undergraduate nursing students. Several nursing student between the ages of 18 and 25 Participated in the study. Surprisingly, a substantial 60% of the group had an overall MSD prevalence.

Less clinical hours are posted by first and second year students than by third year students. Third-year students have more back and ankle pain due to a lack of knowledge regarding ergonomic posture during clinical posting hours.

Consequently, from first-year students should get instruction on how to maintain ergonomic posture while moving patients or performing other tasks related to patient care. Additionally, it is said that among nursing students, back pain is the most prevalent musculoskeletal problem(46%). Furthermore, some claimed that standing posture, work habits, and other demographic traits could be connected to the frequency and location of pain as well as other symptom.

The sample of nursing students in the current study demonstrated a significant prevalence of pain and discomfort in various body regions. The lower back (46%), neck (12%), shoulder(10%), ankle and foot (17%), and knee(9%) were the body parts with the highest prevalence rates over the past 12 months. However, a common trend amongst all the studies as well as in current study, back pain is the most common type of chronic pain.⁽⁹⁾ According to research on working professionals in general, lower back pain is frequently correlated with occupational, organizational, lifestyle, and psychosocial aspects.⁽¹⁰⁾

Based on the above results, it has been determined that out of 100 people (40%) who do not experience any pain conduct daily walking, jogging, or running (34%). This is after comparing the relationship between pain and physical activity performance. In considering this, the study suggests that WMSD is less common in those who engage in daily physical exercise like walking, jogging, or running.

The second association between pain and the sort of maximal work performed by the population indicates that the highest proportion was observed in long standing hours in hospitals and clinics (30%), with 14% and 9% of those complaining of lower back and ankle/feet pain, respectively.

In the past year, more than one-third of the nursing population under study have experienced WRMSDs in the ankles or feet. Comparatively, the prevalence was lower than those recorded in Australia (55.3%) and Iran (59.0%). However, Saudi Arabia (41.5%) and China (34.4%) saw greater prevalence rates than their international equivalents. As part of their duties, nurses had to walk a lot and stand for extended periods of time. Although there are several factors that can

contribute to the development of WRMSDs in the ankles and feet, the most well-known one is wearing improper footwear that lack of support (such as high heels, thin insoles) has increased the risk..

Similar research has found that women tend to have higher rates of MSDs than males do across disciplines.⁽¹¹⁾⁽¹²⁾ For our investigation, this was also accurate. Men are underrepresented in the nursing profession, as well as in this sample group, thus it is important to keep this in mind when evaluating gender disparities.⁽¹¹⁾

Following were a few limitations that were identified during the course of the study: The study relied on students' self-reports of their experiences with and opinions on MSDs. There is a chance that some students may not have been able to accurately recall all of their experiences and perceptions, making some of their responses to questions less reliable. The University of KPGU provided the sole sample for the study. Therefore, it cannot ensure that the conclusions may be applied to students enrolled in other universities or health programs.

CONCLUSION

The study concludes that, there is a high frequency of MSDs (60%) among undergraduate nursing students. The highest prevalence rate for lower back pain during the past 12 months was observed. The occurrence of these MSDs is influenced by a variety of factors as well. In order to prevent a spread of MSDs, it is our suggestion that educational interventions for managing and preventing work-related MSDs be provided to students.

Authors Contribution

All three authors contributed to the study's idea and design, data analysis and interpretation. In addition the first author helped with data collection and analysis.

Conflicts of Interest: None

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