

# INCIDENCE OF MUSCULOSKELETAL DISORDERS AMONG NURSING STUDENTS DURING CLINICAL POSTINGS

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#### Keywords

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Abstract

Musculoskeletal Disorders, Nursing Students ,Clinical Postings, Neck pain, Ligaments, Physical pain

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Copyright @Author Corresponding Author: \* Syed Uzma Paiam Bukhari Musculoskeletal illnesses (MSDs), which can be caused by a single event or by recurring stress, are characterized by muscular pain or injury to the human support system that can impair daily functioning. To fully comprehend this possible occupational health risk, a targeted inquiry is necessary to determine the degree to which these prolonged work hours contribute to the occurrence and prevalence of musculoskeletal problems among nurses. The research aims to investigate the relationship between prolonged exposure to long working hours and the occurrence of musculoskeletal disorders among nurses working in clinical settings. The research design opted for this researh is correlational ,cross sectional research. The sample is selcted by using probability sampling , simple random sampling approach. The data was collected via likert scale survey form. The collected data is analyzed using SPSS. .Firstly the cronbach alpha is done to check the validity of the questionniare. Secondly the descriptive analysis is done to make the sense of data by getting mean, percentages and frequencies Lastly hypothesis is tested using pearson corelation test. The findings of the study show strong corelation between the muscoskeletal illnesses and prolonged duty hours. The recommendations can give deeper insightes to higher medical board to improve the efficacy of hospital.

## INTRODUCTION

Muscular pain or damage to the human support system that can result from a single incident or repeated stress are known as musculoskeletal diseases (MSDs), and they can negatively affect day-to-day functioning (Ahmad, 2020). According to the World Health Organization, musculoskeletal disorders are ailments that can impact the muscles, bones, and joints. (Elsayed, A. A., 2019). The musculoskeletal system's main roles are to support the body, provide protection, allow motion, and preserve homeostasis. Repetitive activity, exhaustion, heavy weights, low oxygen levels, and overexertion can all cause muscles to contract less(Ou, 2021). MSD can cause a range of

symptoms, including pain, soreness, numbness, and discomfort. It can even interfere with everyday tasks. MSD can affect any area of the body, including the upper and lower extremities and postural muscles (Ahmad, 2020). Low back and neck discomfort are the most prevalent musculoskeletal disorders (MSD), which are the second most common cause of morbidity globally (Behera, 2023). Themost prevalent MSDs are lower back and neck discomfort, which at any given moment affects 43.3% of the population(Moodley, 2020). Early onset of musculoskeletal issues may increase the likelihood of chronic low back pain in later life(Sachdeva, 2022).

Students are more susceptible to musculoskeletal problems because they are frequently exposed to employment risk factors such as prolonged sitting, wearing less ergonomic footwear, and professional physical skills that are required of them as health service students(Kamalia, 2024). Frequent repetition of non-ergonomic work situations might also result in musculoskeletal issues(Shari, 2024). Muscle fatigue can result from both static and repeated muscle activation during prolonged sitting because of the buildup of lactic acid. Additionally, the musculoskeletal system experiences pain or discomfort as a result(Agatha, 2022). Any symptoms resulting from the workplace are referred to as workrelated musculoskeletal diseases (WRMSDs). The most prevalent symptom is pain, which can be categorized as impairment, discomfort, disability, and persistent pain in the joints, muscles, bones, ligaments, and tendons, with or without outward manifestations(Moodley, 2020). Even though medical professionals frequently care about their patients' health, they might not always be aware of it. Numerous WRMSDs in nursing students have been discovered in a number of investigations (Moodley, 2020). WHO claims that work-related musculoskeletal disorders (WMSDs) worsen when working conditions and activities are greatly increased. Pain, burning, numbness, and/or tingling are some of the symptoms that may arise from this, which may impair working hours and lower productivity (Rajpurohit, 2024). Globally, MSDs have a significant impact on people's health, well-being, and careers (AlSahiem, 2023). The locomotor system is impacted by a variety of conditions that make up MSD. Chronic MSD can cause psychological and physical disability, which can reduce productivity and cause workers to miss work. Additionally, MSDs affect the economy (Behera, 2023). Regardless of a person's gender, age, or socioeconomic status, musculoskeletal symptoms are among the most common factors affecting them. One profession where the effects of musculoskeletal complaints are particularly noticeable is nursing (Elsayed, 2019). The duties performed by nursing students participating in hospital practice are almost the same as those performed by nurses on the ward. They occasionally perform autonomous tasks for patients or serve as nurse assistants. When carrying out these duties, they frequently fail to take



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precautions against work-related illnesses, such as using the wrong techniques when pushing, lifting, tugging, carrying, holding, and lowering patients. Muscle damage from this circumstance may progress to musculoskeletal disorders. Because of these duties, nursing is one of the most important predictors of musculoskeletal disorders(Shari, 2024). Because they provide bedside care, healthcare workers-especially nurses-are susceptible to musculoskeletal disorders (MSDs). According to a study done on medical staff from various hospital clinical departments, treating patients while shifting and staying in one spot for extended periods of time are the main causes of workrelated musculoskeletal problems(Naresh, 2023). MSDs can cause discomfort in the lower extremities, including the hips, thighs, knees, and ankles; postural muscles, including the upper and lower back, neck, and shoulders; and upper limbs, including the forearm and wrist. If MSDs are not treated, they may develop into more serious inflammatory and degenerative diseases (Sachdeva, 2022).In the contemporary workplace, musculoskeletal diseases (MSDs) are a serious and widespread risk. Long-term exposure to work-related activities can cause a variety of musculoskeletal symptoms, such as discomfort that radiates to the muscles, bones, tendons, blood vessels, and nerves, ultimately resulting in MSDs(Alrimali, 2024). In order to prepare prospective nurses for the demands of a lifetime profession, nurse education includes the knowledge and skills that are essential. The health risks that student nurses may experience while meeting the demands of clinical work should also be covered in the curriculum. It is often known that nurses are susceptible to musculoskeletal disorders at work (Grabara, 2023). According to earlier research, musculoskeletal diseases (MSDs) are a major global public health concern and a common reason for employee absenteeism (Grabara, 2023). Complaints related to the musculoskeletal system impact nurses' capacity to do their jobs and may lead to their resignation. Nurse retention may be improved in the long run by addressing this issue early and consistently, ideally beginning during nursing school ((Kox, 2022).

## **Problem Statement**

Nursing practice in clinical settings frequently involves extended exposure to long working hours

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(Scott-Marshall, 2024). little is known about the precise association between the length of Labor and the prevalence of musculoskeletal problems in this population. These conditions can have a major effect on nurses' capacity to deliver high-quality patient care, job happiness, and general well-being. To fully comprehend this possible occupational health risk, a targeted inquiry is necessary to determine the degree to which these prolonged work hours contribute to the occurrence and prevalence of musculoskeletal problems among nurses. These conditions can have a major effect on nurses' capacity to deliver high-quality patient care, job happiness, and general well-being. To detect and reduce this possible occupational danger, it is imperative to look into the connection between extended exposure to lengthy working hours and the development of musculoskeletal problems. By examining the relationship between extended exposure to lengthy working hours and the prevalence of musculoskeletal problems among nurses, this study seeks to close this gap.

## **Research Hypothesis:**

**H0:** Prolonged exposure to long working hours is not associated with an increased occurrence of musculoskeletal disorders among nurses in clinical settings.

H1: Prolonged exposure to long working hours is associated with an increased occurrence of musculoskeletal disorders among nurses in clinical settings.

## Literature Review:

Globally, the prevalence of MSDs among nurses can range from 33.0% to 88.0% (Wang, 2024). . The most common areas for MSDs were found to be the lower back, neck, and knee (Bhatia, 2024). The prevalence of MSDs among nurses in Turkey was discovered to be 79.5%, this review's objectives were to assess the frequency of MSDs in nurses and to compile information on risk factors, consequences, and remedies(Soylar, 2018). Musculoskeletal diseases (MSDs) have long been recognized as a major danger to nurses' employment (Mjekaj, 2025). Nurses have observed an increase in shoulder injuries, joint strains, and back pain due to activities such as patient lifting, repositioning, and prolonged standing

(Bellacov, 2025). The growing number of male nurses has brought attention to the ways that gender roles influence the kind and frequency of physical tasks that are allocated, even though the majority of early study focused on female nurses. Male nurses are more likely to get MSDs since they are frequently expected to lift larger patients and conduct other physically taxing duties. Because of societal norms around masculinity, males may underreport their injuries or choose not to seek care, which could have worse long-term effects. Nurses' awareness of MSDs has grown recently, despite ongoing problems. Workplace ergonomics, staffing shortages, and inadequate equipment are still contributing contributors to musculoskeletal injuries (Richardson, 2019). Due to a combination of social pressure, physical hardship, and under representation , the experiences of nurses are less well understood. A lot of body bending and turning is required when nursing staff push, drag, or transfer patients to and from their beds or other locations in a clinical setting (Fray, 2024). Physical discomfort can also affect a person's daily life, and in severe situations, they may need to take time off work or seek medical help (Kocjan, 2024). People who experience physical discomfort may find it difficult to work. The prevalence of MSDs in the nursing field can easily lead to workforce reductions and negatively affect

nursing..Musculoskeletal disorders (MSDs) significantly affect nurses' job performance since they limit physical abilities and increase fatigue. For nurses with MSDs, tasks that involve lifting, bending, or prolonged standing-all essential elements of routine care duties-are sometimes challenging. This physical discomfort can slow down work completion, reduce productivity, and make it more difficult to maintain appropriate patient care (Kamala, 2025). When nurses are forced to take frequent breaks or even reduce their work hours, it affects team productivity and treatment continuity. Chronic pain from MSDs can also affect motivation and focus, making it harder to focus in critical moments.

Nursing practice in clinical settings frequently involves extended exposure to long working hours. little is known about the precise association between the length of Labor and the prevalence of musculoskeletal problems in this population. These conditions can have a major effect on nurses' capacity to deliver high-quality patient care, job happiness, and



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# Sampling Design

The sampling technique was simple random sampling. Simple random sampling is a type of probability sampling in which the researcher randomly selects a subset of participants from a population. Each member of the population has an equal chance of being selected. Data is then collected from as large a percentage as possible of this random subset.N=52 because of small population at the hospital.

#### Data collection Instruement:

The data collection instruments is the indespensable part of quantitative research ,the questionnaire used in the study was self administred google survey likert scale questionnaire. The validity of the constructs muscuskeltal disorders and clinical hours are tested via cronbach Alpha and the Alpha 7.42 cofirms strong constructs. The questionnaire of the study is consisted of four sections with likert scale options. The first section is about musculoskeletal symptoms. The second section deals with clincal hours and physical strain.

## Ethical Considerations:

Ethical principles were strictly observed throughout the course of this study to ensure the protection and well-being of all participants. Informed consent was obtained from all nursing students, and participation was entirely voluntary. Each participant was fully informed about the study's objectives. Confidentiality and anonymity were maintained by assigning codes instead of using personal identifiers, and all data were handled with strict privacy. Ethical clearance was secured from the institutional permission via consent form prior to data collection. In short all the protocols of BERA framework were followed.

## Data Analysis:

Data was analyzed using IBM SPSS version 21.Firstly the validity and relaibility of the questionnaire is tested using Cronbach Alpha,then descriptive analysis was carried out to see the clear picture of data through mean,median mode and standarad deviation.After the descriptive test inferential statistics was followed to test the hypothesis .The hypothesis testing was carried out using pearson corelation test.

occupational health risk, a targeted inquiry is necessary to determine the degree to which these prolonged work hours contribute to the occurrence and prevalence of musculoskeletal problems among nurses. These conditions can have a major effect on nurses' capacity to deliver high-quality patient care, job happiness, and general well-being. To detect and reduce this possible occupational danger, it is imperative to look into the connection between extended exposure to lengthy working hours and the development of musculoskeletal problems. By examining the relationship between extended exposure to lengthy working hours and the prevalence of musculoskeletal problems among nurses, this study seeks to close this gap. Long workdays are common for nurses in clinical settings, which may raise their risk of developing musculoskeletal conditions. These conditions can have a major effect on nurses' capacity to deliver high-quality patient care, job happiness, and general well-being. To detect and reduce this possible occupational danger, it is imperative to look into the connection between extended exposure to lengthy working hours and the development of musculoskeletal problems. Concerns regarding a possible connection to a higher incidence of musculoskeletal problems are raised by the high prevalence of lengthy work hours among nurses in clinical settings. The purpose of this study is to look into the connection between these illnesses' development in this occupational group and extended exposure to long work hours.

general well-being. To fully comprehend this possible

#### Research methodology: Research Design:

The study used quantitative cross section approach conducted at one of the department of a hospital in Karachi.Due to small population of nurses in the department a sample N =52 was taken Correlational research design ,which is a type of non-experimental research that investigates the relationship between two or more variables without manipulating them. It focuses on identifying patterns and assessing the strength and direction of associations between variables, but it doesn't determine if one variable causes changes in the other.

# **Results:**

Table 1 shows the cronbach Alpha value to show the strength of all the constructs in the study. The value of

#### Table 1. Reliability Statistics

Tuble Efferhability Statistics					
Cronbach's Alpha	N of Items				
.742	10				

Table 2 shows the complete variables list with their statistics distribution. The variables are listed in the table, and each variable's answer number, N, is displayed in a column. This indicates that there are 52 complete answers in the data. The very low "Gender" standard deviation (.235) indicates that the responses are concentrated around the mean, which

is close to 1. In conclusion, this table of descriptive statistics displays the distribution and central tendency of the data for each variable. Many nurses face these issues, as evidenced by the scores for the clinical practice-related questions, which generally fall between agree and somewhat agree. The standard deviations of the sample indicate a reasonable level of agreement and disagreement.

#### Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Gender	52	1	2	1.06	.235
I spend long hours standing during	52	1	5	3.54	1.379
clinical practice.					
I often lift or move heavy patients or	52	1	5	3.23	1.246
equipment during clinical duty.					
My clinical hours are physically	52	1	5	3.65	1.235
exhausting.					
I do not get enough rest between my	52	1	5	3.44	1.243
clinical shifts.					
My clinical hours reduce my physical	52	1	5	3.87	1.138
energy					
I feel muscle pain after clinical work.	52	1	5	3.52	1.229
I feel back pain after long clinical	52	1	5	3.79	1.091
shifts.					
My neck or shoulders feel stiff after a	52	1	5	3.27	1.087
clinical day					
I feel joint pain due to clinical work.	52	1	5	3.21	1.054
I feel more body pain during weeks	52	1	5	3.60	1.053
with long clinical hours.					
Valid N (listwise)	52				

Table 3 shows the results of hypothesis testing and shows the association between The p value of .433,p=.001 is found between long clinical hours and muscoskeletal disorders. This shows that there is a significant tendency for greater LCH values are

positively linked to MSD. The strength of the association between LCH and MSD is moderate. According to p-value the corelation is significant at .0.01 level(2-tailed) as shown by double asterisk. The positive corelation shows if one variable



ISSN: (e) 3007-1607 (p) 3007-1593 alpha is .742 this number shows strong internal consistency. rises the other variable does too.



Table 3: Correlations			
		clinicalhours	musculoskeletalpain
	Pearson Correlation	1	.455**
clinicalhours	Sig. (2-tailed)		.001
	Ν	52	52
musculoskeletalpain	Pearson Correlation	.455**	1
	Sig. (2-tailed)	.001	
	Ν	52	52

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation coefficient has a value of 0.455. This suggests that the two variables have a positive association. The degree of musculoskeletal pain tends to rise in tandem with the amount of clinical hours. A somewhat positive link is indicated by a correlation of 0.455. Although the association is not extremely strong (it should be closer to 1), it is also not weak (it should be closer to 0).

The p-value (Sig. (2-tailed)) is 0.001, which is the significance level (two-tailed). This value is below both 0.05 and the standard significance level of 0.01 (shown by the double asterisk  $\uparrow^{\uparrow}$ ). This indicates that there is statistical significance in the correlation of 0.455.

## Discussion:

Musculoskeletal diseases (MSDs) are quite prevalent among healthcare professionals (HCPs) who work long clinical hours, with notable rates of discomfort and disability (Madheswaran, 2025). Long work duties, hours, monotonous and inadequate ergonomic procedures are some of the contributing factors to this problem, which impacts a variety of healthcare positions. The prevalence and particular findings from recent studies are described in depth in the sections that follow. According to a study conducted at a tertiary care hospital, 62% of healthcare professionals reported having MSDs connected to their jobs, with the most common complaints being back, shoulder, and neck discomfort (Kashif, 2023). In Nigeria, 79.8% of respondents reported having low back pain, while 100% of nurses

and dentists questioned reported having MSDs (Godsday et al., 2023).The high mean

of long working hours (M=3.54), frequent lifting of heavy equipmets and patients (M=3.23) and laong exhausting working hours (M=3.65) goes parallel with the previous studies.

The data of the study shows that nurses experience fatigue the mean of 3.87 shows the drained energy levelof nurses and it is obcvious from the mean of 3.44 that they hardly get rest between shifts. This aligns with concern raised in researches. Neck and back pain were more common among surgical practitioners, especially because they worked long hours in operating rooms (Khorshed et al., 2024).Repetitive tasks and long work hours ( $\geq$ 30 hours per week) were found to be important risk factors for MSD development (Khorshed et al., 2024) . Increased prevalence was associated with poor ergonomic practices, such as aberrant postures while working . Absenteeism, reduced productivity, and higher healthcare expenses can result from the high prevalence of MSDs among HCPs (Godsday et al., 2023; Conti et al., 2024). Improving HCP well-being and care quality requires addressing these problems with ergonomic interventions and workplace safety measures (Conti et al., 2024).

Overuse, frequent micro-injuries, psychosocial factors, and workplace features are some of the factors that put healthcare professionals (HCPs) at risk for musculoskeletal diseases (MSDs) (Eminoğlu, 2025). HCPs are more susceptible to MSDs as a result of the demanding nature of the healthcare sector, which

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includes long shifts, on-call work, and overtime, particularly during crises like the COVID-19 epidemic (Sheikhrabori, 2022). The situation is made worse by the lack of healthcare workers, which puts more strain on the musculoskeletal system than it can handle. As a result, the WHO identified high rates of sick leave among HCPs in 2006 (Gur-Arie, 2021).

Nurses' quality of life and work performance are greatly impacted by musculoskeletal ailments, which can result in a number of mental and physical difficulties. According to studies, up to 81.2% of nurses suffer from musculoskeletal disorders (MSDs), which is a startlingly high incidence among nurses (Chandralekha et al., 2022). Beyond just causing physical discomfort, MSDs have an impact on patient care quality and work productivity.Lower back, neck, and shoulder discomfort are common MSDs among nurses.

High-stress situations, prolonged aberrant postures, and repetitive motions are some of the factors that lead to MSDs (Chandralekha et al., 2022). MSDs result in decreased physical capability, more absenteeism, and poorer work efficiency. Because of their physical limitations, nurses express worries about patient safety and treatment quality being affected. Chronic pain-related emotional stress can impact general well-being and job satisfaction (Jakovljević, 2024). Some contend that to successfully reduce these risks, the emphasis should also be on workplace interventions and preventive measures, even though the prevalence of MSDs among HCPs is concerning.

A major factor in the prevalence of musculoskeletal disorders (MSDs) is the physical strain and obligations placed on nurses. According to research, nurses frequently endure heavy physical workloads, awkward postures, and repeated motions, all of which raise their risk of developing musculoskeletal disorders. The connection between physical demands and MSDs, the part played by psychosocial factors, and the nursing management implications will all be covered in this overview. According to a study, 87% of nurses said they had MSDs as a result of forced and repetitive motions, especially in the neck and lumbar areas (Zavala, 2022). 87.5% of nurses with excessive workloads reported substantial concerns, according to another study that showed a clear association between high complaints of musculoskeletal disorders and heavy physical workloads (Du, 2021). The risk of MSDs is increased by perceived stress and a lack of social support. Musculoskeletal complaints were more common among nurses who received little support (Keyaerts, 2022) . It was suggested that addressing the interplay between physical and psychosocial stressors could reduce the risk of MSDs (Afsharian, 2023). Managing MSDs in nurses requires early detection and management techniques. The prevalence of these illnesses can be decreased by putting ergonomic procedures and supportive measures into place (Zavala, 2022).

## Conclusion:

The research reveals that nurses who have long standing working hours, they complain of muscle pain after exerting hours .The nurses who lift heavy patients and equipments during long working hours of their duty ,they feel backpain after clinical shifts.After long physically exhausting days they feel neck and shoulder pain. Nurses with long stathing hours complaint of joint pain as well. Nurses said that their typical routine life leaves them with joint pain, backache and they feel lethargic after long exhausting clinical duties. In conclusion it is found from the statistical results that there is a strong relationship of long clinical hours with musculoskeletal pain of nurses. There is a positive significant association between both the selected variables. The null hypothesis is rejected. This clearly shows that individuals with long working hours report higher level of musculoskeletal pain. The result states that long working hours, taxing duty hours of nurses lead them to musculoskeletal disorders .These exerting, untiring duties bring pain in neck, muscular pains, joint pain, shoulder pain and other musculoskeletal disorders.

In the light of these findings it is suggested that health care institutes initiate implementing ergonomics training programs alongside cutting down the workload of nurses.Working clinical hours needs reduction .Proper lifting aids and equipments provision is required.The number of nurses per hospital needs revision.All these steps can mitigate thier health issues. The healthy nurses can do their duties efficiently.Nurses are the backbone of any hospital.Nurses haelth is cornerstone to run any hospital smoothly.It is evident from the findings that

the core resaon behind the joint pain, leg pain, backache of nurses is because of long tiring working hours which include standing for long hours and heavy lifting . In addition short breaks are directly associated with musculoskeletal disorders. Approprite lifting aids, suitable working hours scheduling and enough breaks can help alleiviate the issue and eventually can lead to better patient safety care routine and reduce the cost that arise cause of staff absenteeism and injuries.

#### **Recommendations:**

It is suggested to increase the strength of nursing staff to alleivate their workload.

The budget of hospitals should be increased to afford more staff.

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