# Musculoskeletal Discomfort Among Nurses

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**Abstract**

Very few Indian studies have concentrated on this aspect of the nursing profession. The main aim of this study is to probe the prevalence of Work-Related Musculoskeletal Discomfort among nurses. The results revealed that the nurses experience pain in at least one part of their body over the past 12 months. Chi-Square analysis revealed Lower Back, Forearm (right), Wrist (Right), Thigh (right) and Lower Leg (Right and Left) as the significantly affected pain areas (p<0.05). The most stressful patient-handling tasks are reported as bathing patients in bed, transporting patient off unit, transferring the patient from bed to toilet, helping patient sit up and lifting patient from floor (p<0.05). Education, Awareness and Training programs on prevention and coping strategies for Musculoskeletal disorders should be made mandatory for all healthcare professionals. This will be of prime importance to ensure their good health and also to promote efficiency in patient care.

*Keywords:* *Ergonomics, Musculoskeletal Pain, Nurses, Occupational Injuries, Poor Postures.*

## 1. Introduction

Nursing is an integral part of any health care system. It covers the promotion of health, prevention of illness, and care of the disabled, physically and the mentally ill, in all health care and other community settings. It is globally dominated by female workers.

Though basics of the profession remain the same, nursing practices have changed around the world along with technological advancements. Nursing is no longer limited to just delivering expert physical care to the sick, but also involves helping the patient to adjust to unalterable situations such as personal, family and economic conditions. However, during the course of providing health care, nursing personnel themselves become affected by complex interactive factors including social, cultural, economic and political situations. Besides being strenuous (physically and emotionally), nursing being a 24x7x365 days profession involves shift work. All this, not only disrupts the circadian rhythm, but also causes several acute and chronic health problems.

Studies carried out in other countries have shown that nursing profession is associated with health disorders including many musculoskeletal problems, especially low back pain.(1). It is established that nurses suffer varying degrees of musculoskeletal disorders (MSD) that results in frequent loss of work days. There are about 1.5 million registered nurses employed in health sector in India, who are affected by these compounding factors.

Work-related Musculoskeletal Disorders (WMSDs) are a major category of Occupational Injury (2). Each job has its own set of health problems; medical personnel are not an exception. WMSDs risk factors activities such as manual lifting, frequent bending/twisting, excessive force and poor working posture (3). A systematic review of midwives, nurses and physicians reported a high prevalence of work-related neck, shoulder and upper back MSDs. of Various studies have testified that medical and healthcare personnel suffer from musculoskeletal disorders more than construction, mining, and manufacturing workers (4). WMSDs lead to impaired daily activities, or debilitating conditions for nurses, assistants and hospital workers (5).

Nurses are experiencing higher workloads than before due to four main reasons:
- **i.** The demand for nurses is increasing as a result of population aging.
- **ii.** The supply of nurses is not adequate to meet the current demand, and the shortage is projected to grow more severe as future demand increases and nursing schools are not able to keep up with the increasing educational demand. When a nursing shortage occurs, the workload increases for those who remain on the job.

iii. In response to increasing health care costs since the 1990s, hospitals reduced their nursing staffs and implemented mandatory overtime policies to meet unexpectedly high demands, which significantly increased nursing workloads and directly impacted their health.

iv. Increasing cost pressure forced health care organizations to reduce patient length of stay. As a result, hospital nurses today take care of patients who are sicker than in the past; therefore, their work is more intensive.

There are several important consequences of high nursing workload. Research shows that a heavy nursing workload adversely affects not only the nurse's health; but also impacts patient safety (6). Furthermore, it adversely affects nursing job satisfaction and, as a result, contributes to high turnover and adds to the issue of nursing shortage. (8)

Work system factors and expectations also contribute to the nurses' workload: nurses are expected to perform nonprofessional tasks such as delivering and retrieving food trays; housekeeping duties; transporting patients; and ordering, coordinating, or performing ancillary services (3)

The factors causing MSDs across five countries was reported (7) as being constrained postures, forceful movements, high emotional strain, carrying large patients, pressures due to staff shortage, high psychological and physical demand from patients, time pressures, low job control, lack of support at work, low job satisfaction etc. The study further states that 17 – 39% nurses across these five countries had planned to leave their jobs due to these factors.

Logistics indicated that nurses in rural Japan (8), who were regularly involved in handling of patients had an increased incidence of low back pain (LBP) risk when compared with nurses who were not manually handling patients. This indicates that adoption of correct working postures along with use of mechanical lifting/transferring device will help obtain good occupational health among the nursing professionals.

In India, fewer studies have concentrated on this aspect of the nursing profession. A study on WMSDS among nurses in rural Maharashtra (9) states lower back, shoulder, neck and knee is the most affected areas. Subjects suffering from WMSD have described that working in the same positions for long periods, lifting or transferring dependent patients, treating an excessive number of patients in one day and carrying, lifting or moving heavy material or equipment are the most perceived Job risk factors triggering WMSDs during their hospital duties.

A comparative study on two different hospitals in Delhi reported 48% of the nurses in an urban general hospital suffered from low back pain whereas only 33% of nurses suffered from low back pain in a small Oncology department in another hospital. The study concluded that low back pain in the nurses varied depending upon the hospital and department where the nurses work. The pain reported in some regions of the body are more (ankle, foot, wrists, hands). This study also stated that though the pain in lower back reported was less than that in ankle and feet, the nurses continued to function normally in spite of the discomfort and pain experienced. This may be due to the work pressure and service rules which prevent them from complaining (10).

Although, several studies have been conducted, reported and well documented on the prevalence of WMSDs among nurses globally, studies/research data on prevalence of WMSDs in the Indian sub-continent are few, and it is practically nil in Mumbai city (or its nearby suburbs).

## 2. Objectives of the Study

This study was conducted with the aim to ergonomically assess the Musculoskeletal Discomfort experienced by Nurses working in hospitals in Mumbai city and its suburbs. The specific objective being to identify the high-risk work tasks and symptoms of pains/ache experienced among nurses.

## 3. Methodology

This study is based on primary data to probe the prevalence of work-related Musculoskeletal Discomfort among nurses in Mumbai city and its suburbs. The convenient (permission to conduct the study) and purposive sampling method was

employed. The present study was conducted on 340 staff nurses (with varying years of experience and designations) aged 20 – 60 years from 49 multi-speciality hospitals in Mumbai city and its suburbs.

A self-constructed questionnaire was used to collect personal as well as demographic data. Questionnaires allowed the respondents an opportunity to identify various physical injuries suffered and discuss areas of ergonomic concerns within the workplace. Nurses were also observed on a one-on-one basis in their work environment.

The self-constructed questionnaire is divided into 3 parts. Closed ended and open-ended question have been included. Since some of the research questions are qualitative in nature, open ended questions helped to better understand the current situation.

- Participant's background information such as educational qualifications, marital status, and economic status was obtained through Part A of the proforma.
- Part B explored the occupational health of the nurses and sought to elicit information on years of practice, work status, work setting, nursing activities, shift systems and use of mechanical aids.
- Part C contained items on perceptions on job risk factors that may contribute to development of Work-related Musculoskeletal Disorders along with the frequency, force, duration of work and all the environmental factors affecting their work as well as the workspace layout.

Cornell Modified Musculoskeletal Discomfort Questionnaire (CMDQ) was also administered (11). The CMDQ consisted of a body map that identifies twelve areas where pains/aches can be experienced. Nurses were interviewed and observations for each participant were made so as to obtain a comprehensive representation of the nurses in Mumbai city and its suburbs. Analyses were performed using SPSS software for Windows (version 25, 2017, IBM Corporation, Armonk, New York, United State).

## 4. Results

### 4.1 Sample Profile

A cross sectional study was conducted in 340 nurses to determine the prevalence of Musculoskeletal Discomfort. Table 1 gives the age and anthropometric characteristics of nurses in the current study. The minimum age of nurses was 20 years and maximum was 65 years. The mean age of nurses was 32.8±10.4 years. The mean weight was 60.4±9.2 kg and BMI was 26.3±5 kg/m2.

Table 1: Age and anthropometric characteristics of study population

|  | *Minimum* | *Maximum* | *Mean ±SD* |
|---|---|---|---|
| Age (years) | 20 | 65 | 32.8±10.4 |
| Height (cm) | 123 | 171 | 171±7.8 |
| Weight (kg) | 39 | 87 | 60.4±9.2 |
| BMI (kg/m$^2$) | 16.1 | 49.2 | 26.3±5 |

Figure 1 gives distribution of study participants according to age group. Maximum nurses in the study were 20 – 30 years of age. Very small percentage of nurses were >60 years of age. Using the Asian cut-offs for BMI, 10 (2.9%) nurses were underweight (BMI<18.5 kg/m2), 79 (23.2%) nurses had normal weight (BMI 18.5 to 23 kg/m2), 109 (32.1%) nurses were overweight (BMI 23 to 27 kg/m2) and 142 (41.8%) were obese (BMI >27 kg/m2). Almost 50% of the nurses had completed



Figure 1: Age group



Figure 2: Details About Working Hours and Shift
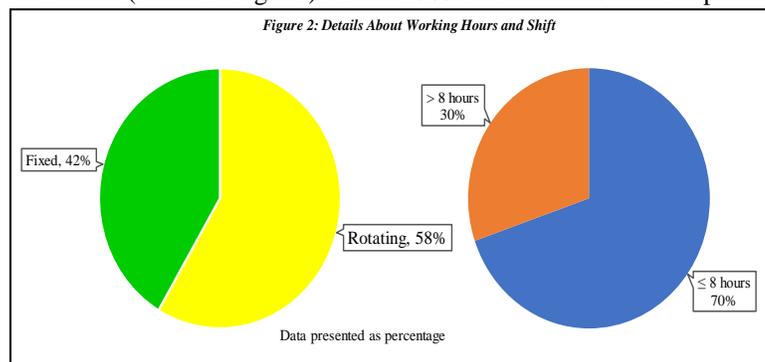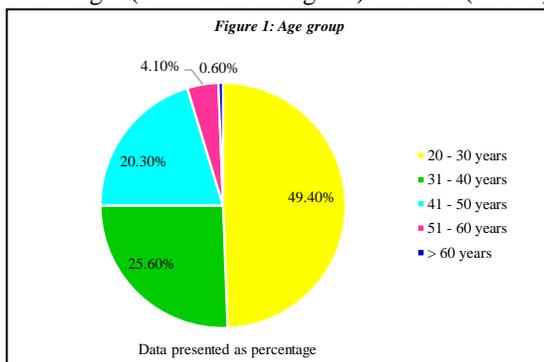
H.S.C. + GNM followed by S.S.C. + GNM. Highest percentage of nurses (45.3%) were staff nurses followed by 27.4% nurses who were senior nurses. 12.4% were sister-in-charge and 15% were ANM.

Almost 70% nurses worked for less than or up to 8 hours/day (Figure 2) whereas the rest had fixed work shift (either 7 am to 3 pm or 8 am to 4 pm) and 199 (58.5%) were on rotational work shifts (night shift of 9 p.m. to 8 am or evening shift 12 to 8 pm. etc.)
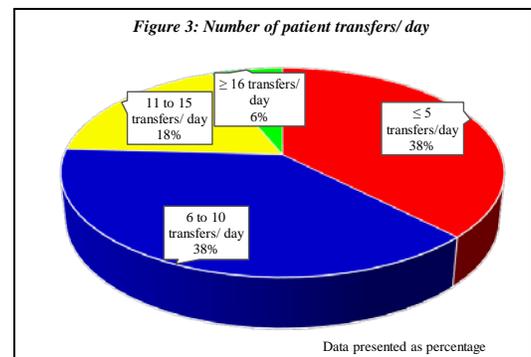
Table 2: Physical Activity details

|  | Percentage |
|---|---|
| **Do you exercise** | |
| Yes | 53.2% |
| No | 46.8% |
| **Frequency of exercise** | |
| Not applicable | 46.8% |
| Once/ week | 2.6% |
| 2 to 3 times/ week | 4.1% |
| 3 to 4 times/ week | 15.6% |
| 4 to 5 times/ week | 3.5% |
| Daily | 27.4% |
| **Type of physical activity** | |
| Not applicable | 46.8% |
| Walking / running | 30.6% |
| Gym/ exercise | 13.2% |
| Yoga/ aerobics/ dance/ Zumba | 9.4% |

Table 2 gives details regarding physical activity undertaken by nurses. 159 (46.8%) did not exercise. Highest percentage of nurses exercised for 3 to 4 times/ week. The most commonly performed exercise was walking/ running.

4.2   Patient Handling Tasks

Tasks performed by the staff can be categorized as patient handling tasks and non-patient handling tasks. Helping the patient sit up in bed, turn in bed, repositioning a patient, inserting a bed pan, transferring the patient in chair, rolling patient from side to side for access when washing or changing on the bed, patient care and adjusting patient's bed during feeding sitting, bed making with patient in it, lifting of patient from lying to sitting on bed, dressing of patient on bed are the patient handling tasks performed by the nurses across all designations. The non-patient handling tasks performed are bed making, moving furniture, pulling/pushing equipment etc.



Figure 3: Number of patient transfers/ day

≥ 16 transfers/ day 6%

11 to 15 transfers/ day 18%

≤ 5 transfers/day 38%

6 to 10 transfers/ day 38%

Data presented as percentage

The minimum number of patient transfers undertaken by nurses per day was 1 whereas maximum number of patient transfers taken by nurses was 22. The mean patient transfers undertaken by nurses was 8±5 transfers/ day. Figure 3 gives the frequency of number of patient transfers undertaken by nurses. Most nurses either did 1 to 5 to 6 to 10 patient transfers per day.

Table 3 gives number of patient transfers undertaken by nurses when classified according to years of experience, designation of nurses, shift system, rest breaks or body weight. There was no significant difference in the number of patient transfer done by nurses when classified according to years of experience, designation of nurses, shift system, rest breaks or

body weight (p>0.05). This indicates that irrespective of years of experience, shift system, designation, number of working hours, body weight or rest, the number of patient transfers undertaken by nurses was similar.

Table 3: Number of patient transfers when classified according to when classified according to years of experience, designation of nurses, shift system, rest breaks or body weight

| | Minimum | Maximum | Median | Mann Whitney U Z score/ Krukal-Wallis H | P value |
|---|---|---|---|---|---|
| **Years of experience** | | | | | |
| <5 years (n=154) | 1 | 22 | 7 | 0.231* | 0.891 |
| 5 to 15 years (n=108) | 1 | 22 | 8 | | |
| >15 years (n=78) | 1 | 21 | 8 | | |
| **Designation of nurses** | | | | | |
| ANM (n=51) | 1 | 20 | 6 | 3.243* | 0.356 |
| Staff nurse (n=154) | 1 | 22 | 8 | | |
| Senior nurse (n=93) | 1 | 22 | 7 | | |
| Sister-in-charge (n=42) | 1 | 18 | 7 | | |
| **Shift system** | | | | | |
| Rotating shift (n=199) | 1 | 22 | 8 | -0.368** | 0.713 |
| Fixed shift (n=141) | 1 | 20 | 7 | | |
| **Working hours** | | | | | |
| <8 hours (n=237) | 1 | 22 | 8 | -1.195** | 0.2232 |
| >8 hours (n=103) | 1 | 20 | 7 | | |
| **Number of rest breaks** | | | | | |
| None (n=46) | 1 | 16 | 7 | 2.246* | 0.325 |
| 1 break (n=208) | 1 | 22 | 8 | | |
| 2 or more breaks (n=86) | 1 | 15 | 8 | | |
| **Adequacy of rest break** | | | | | |
| Rest break not adequate (n=205) | 1 | 22 | 8 | -0.808** | 0.419 |
| Rest break adequate (n=135) | 1 | 22 | 7 | | |
| **Body Weight Status** | | | | | |
| Normal weight (n=89) | 1 | 22 | 8 | 1.515* | 0.469 |
| Overweight (n=109) | 1 | 20 | 7 | | |
| Obese (n=142) | 1 | 22 | 8 | | |

Data presented as median (minimum-maximum) *Mann Whitney U Z score ** Kruskal- Wallis H Score

Table 4 gives the frequency of high-risk patient handling tasks. As seen, more than 50% nurses had high frequency of transferring patients from bed to stretcher/ chair, helping patient sit-up and making an occupied bed. Around 40 – 50% nurses had high frequency of transferring patient to and fro between bed and toiler, undressing/ dressing patients and repositioning patient in bed from side to side. About 30 – 40% had high frequency of lifting patients up from floor, weighing a patient, bathing a patient in bed, feeding bed-ridden patient, inserting bed pan and transporting patient off-unit. Almost 30% nurses had high frequency of transferring patient from bathtub to chair, bathing patient in shower chair/ shower trolley and repositioning patient in wheelchair.

Table 4: Frequency of high-risk patient handling tasks

| Patient Handling Tasks | None | Low | Moderate | High |
|---|---|---|---|---|
| Transferring patient from bathtub to chair | 21.8% | 22.9% | 27.1% | 28.2% |
| Transferring patient to and fro between bed and toilet | 20.6% | 22.6% | 14.7% | 42.1% |
| Transferring patient from bed to stretcher/ chair | 19.1% | 9.7% | 19.1% | 52.1% |
| Lifting patient up from floor | 17.6% | 23.2% | 26.8% | 32.4% |
| Weighing a patient | 27.6% | 17.4% | 20.3% | 34.7% |
| Bathing patient in bed | 27.4% | 18.5% | 18.8% | 35.3% |
| Bathing patient in shower chair/ shower trolley | 29.7% | 35% | 20.9% | 14.4% |
| Undressing/ dressing patient | 15.3% | 19.1% | 25.3% | 40.3% |
| Helping patient sit-up | 19.1% | 6.8% | 21.5% | 52.6% |
| Repositioning patient in bed from side to side | 15% | 9.4% | 28.8% | 46.8% |
| Repositioning patient in wheelchair | 31.8% | 14.7% | 30.6% | 22.9% |
| Making an occupied bed | 19.4% | 3.5% | 25.6% | 51.5% |
| Feeding bed-ridden patient | 18.5% | 16.8% | 26.5% | 38.2% |
| Inserting bed pan | 25.9% | 16.8% | 27.1% | 30.3% |
| Transporting patient off-unit | 21.5% | 22.9% | 21.2% | 34.4 |

Data presented as percentage

There was a significant association of stress level for transferring patient from bathtub to chair, repositioning patient in wheelchair, inserting a bed-pan and transporting patient off-unit with years of experience (p<0.05). Higher percentage of nurses with >15 years of experience reported negligible or no stress for these tasks whereas least percentage of nurses with <5 years of experience reported negligible stress for these tasks, indicating that stress endured by nurses for these tasks reduces as the years of experience increases.

On the other hand, there was a significant association of stress level for transferring patient to and fro between bed and toilet and transferring patient from bed to stretcher with years of experience (p<0.05). Higher percentage of nurses with >15 years of experience had high stress level for these tasks as compared to nurses with <5 years or 5 to 15 years of experience, indicating that nurses with >15 years of experience are more stressed for these tasks. There was no other significant association of stress level suffered by nurses when handling high risk patient tasks when classified according to years of experience, indicating that stress experienced by nurses for other tasks was not significantly different when classified according to years of experience (p>0.05).

The risk factors to MSD can be categorized as being: Force applied, Long duration of work, Repetitive actions and use of Awkward postures.

Figure 4 gives the percentage of percentage of nurses performing various patient handling tasks that require force. Highest percentage of nurses 263 (77.4%) did jobs that require difficult and forceful gripping with hands followed by 252 (74.1%) nurses that lifted, lowered or carried patients. About 205 (60.3%) nurses had difficulty transferring/ moving patients. Lowest percentage of nurses used hands to pound or hammer things or used tools that require a great deal of effort to hold, control/use.

Figure 4: Use of Force while performing Patient Handling tasks:

- Use force in other tasks: 47.9%
- Use the hands to pound or hammer things: 17.6%
- Use tools that require a great deal of effort to hold, control/ use: 20.3%
- Do jobs that require difficult and forceful gripping with the hands: 77.4%
- Have difficulties transferring/ moving patients: 60.3%
- Lift, lower or carry patients: 74.1%

Data presented as percentage

Figure 5: Maintaining these awkward postures while handling patient tasks

- Picking up or holding things using difficult grips: 22.1%
- Need to bend or twist the wrist: 78.8%
- Bend or twist the neck forward, back or to the side or hold neck on one side: 78.8%
- Bend or twist the back/ trunk: 95.9%
- Do jobs with one or both arms behind the body: 26.2%
- Work with hands above shoulder or held far away from the body: 76.5%
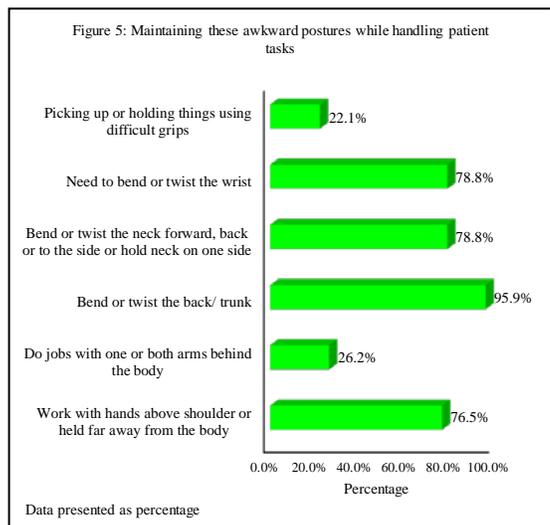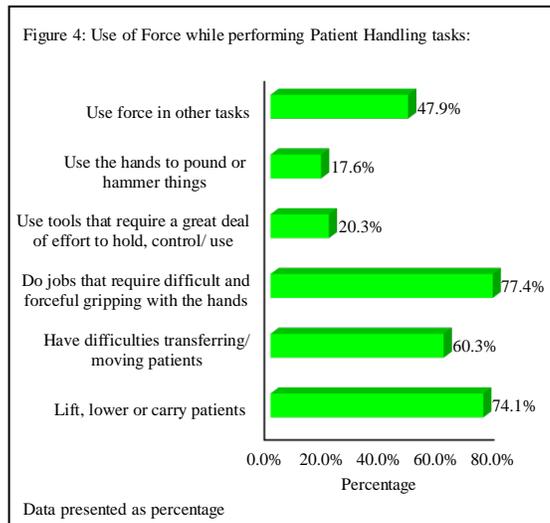
Data presented as percentage

Figure 5 gives the percentage of nurses who retained various awkward position while performing various patient handling tasks. Almost 96% nurses bent or twisted back/ trunk. Around 75-80% nurses worked with hands above shoulder or held far away from the body, bent or twisted the neck and bent or twisted the wrist. Comparatively less did jobs with one or both arms behind the body and picked up or held things using difficult grips.

Figure 6 gives the percentage of nurses doing repetitive patient handling tasks. (97.4%) reported repetition of certain tasks every 30 seconds for 1 hour or more as being strenuous. And mentally fatiguing. 96.5% stated sitting/standing in the same posture for long duration as in during a complicated surgery as next highly repetitive task.

### 4.3 Presence of Bodily Pains and Aches

All nurses had lower back ache sometime during the week with about 36.5% suffering from lower back ache once every day and about 14.7% had lower back ache several times every day. Figure 7 depicts the body sites of pain experienced by the sample. Right forearm and lower leg pain were also prevalent in >90% nurses. About 5.3% nurses suffered from forearm aches several times every day. About 8.5% nurses suffered right lower leg aches once every day and 11.2% nurses suffered right lower leg aches several times every day. 10.6% nurses also suffered from left lower leg pain once every day. Right knee pain was suffered by 8.8% nurses once every day.



Figure 6: Repetition of Patient Handling Tasks

Data presented as percentage
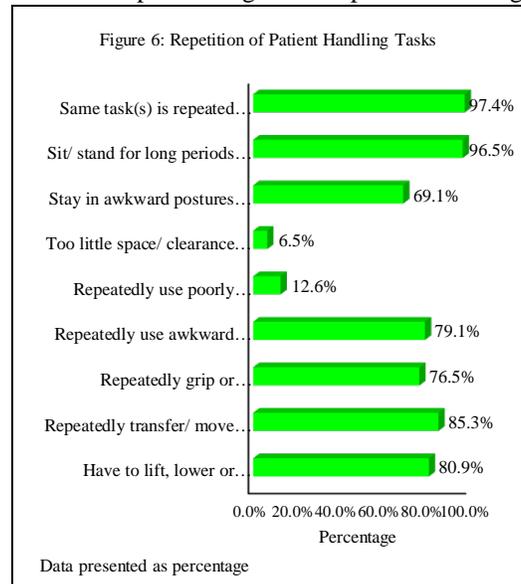
making an occupied bed (51.5%) and repositioning patient in bed from side to side (46.8%). All participants reported symptoms at least in one part of their bodies over the past 12 months. Among these, low back pain was the highest (100%), followed by lower left leg (98.8%), lower right leg (95.9%), forearm right (91.8%) and pain in right wrist (88.5%). Severe pain in the right thigh was reported by 272 (80%) nurses.



Figure 7: Body sites of Pain/Discomfort Experienced

Data presented as percentage
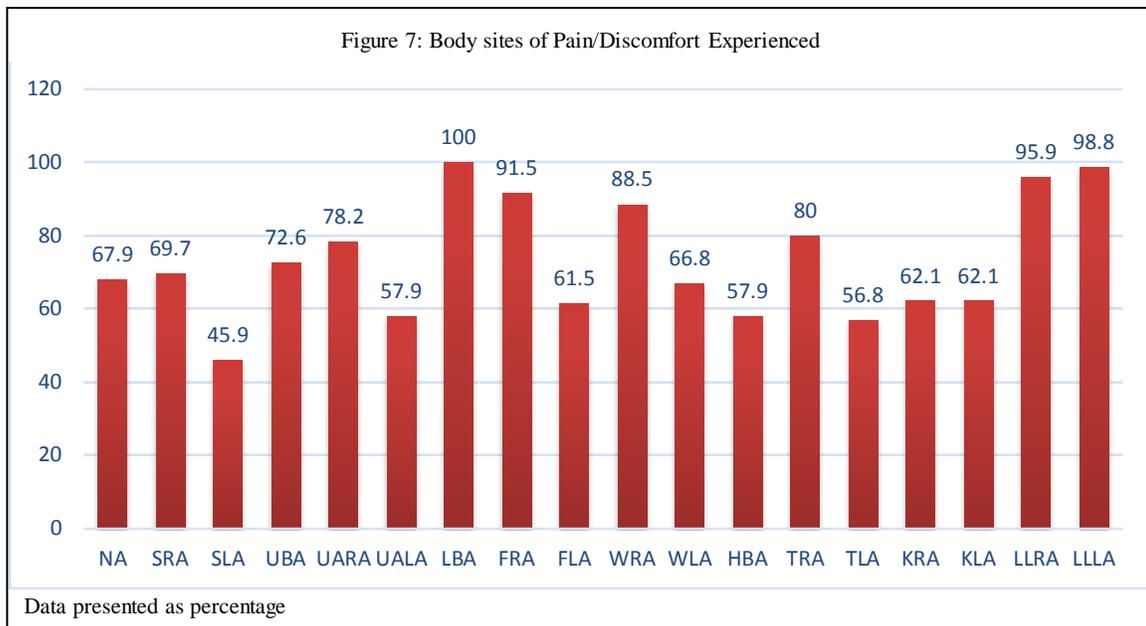
When asked if the musculoskeletal discomfort experienced interfered with the ability to perform work, the nurses reported that highest discomfort was felt in lower back with 48.2% feeling moderately uncomfortable and 42.9% feeling very comfortable in lower back. Almost 88% nurses felt uncomfortable in the right wrist. Around 40.6% nurses felt moderately

uncomfortable in left forearm and almost half (49.4%) nurses felt moderately uncomfortable in right lower leg. Highest percentage of nurses experienced no discomfort in left shoulder (58.5%) and left upper arm (54.7%).

Correlating the reported stressful patient handling tasks with the extent of discomfort experienced, this study reveals:
- There was a significant positive correlation of frequency of lifting patient up from floor with discomfort felt in the right shoulder, left upper arm, left forearm, left wrist, thigh (both right and left) and left knee ($p<0.05$).
- There was also a significant positive correlation of frequency of bathing a patient in bed with discomfort felt in shoulder (both right and left), upper back, right upper arm, left forearm, left wrist, hand, thigh (both right and left) and knee (both right and left) ($p<0.05$).
- Positive correlation was observed between frequency of transporting patient off-unit and discomfort felt in shoulder (both right and left), left forearm, left wrist, hand and lower leg (right and left) ($p<0.05$).
- Frequency of repositioning patient in bed from side to side was positively correlated with discomfort felt in right lower leg ($p<0.05$).
- There was a positive significant correlation of frequency of repositioning patient in wheelchair with discomfort felt in left upper arm and left wrist ($p<0.05$).

About 70.8% nurses considered discomfort caused by a task as problem and 68.8% missed work due to discomfort cause by a task. Only 38.5% informed a supervisor when they experienced a discomfort.

## 5. Discussion

The study included a wide range of nurses aged 20 – 60 years. Incidences of pain in the lower legs, lower back and right wrist indicate a risk of the onset of Musculoskeletal Disorders (MSDs). This was evident among the nurses involved in patient handling tasks. Results revealed that transferring patients from bed to stretcher, repositioning a patient in bed from side to side and inserting the bed pan are the most stressful tasks that require the nurses to adopt awkward postures and forceful actions. Both these factors coupled with multiple repetitions of similar jobs and long duration of work are a high risk to the development of occupational diseases including MSDs in the future.

Body pains and aches are the first signs of physiological fatigue.
- The most common mechanical devices used to aid patient handling tasks are trolleys, stretchers and wheelchairs. Some of the private hospitals have few sophisticated patient transfer devices such as shift transfer assist trolley, sliding swivel transfer bench etc., however, these were in accessible to the nurses. Due to non-availability of space, they were stacked far from patient handling areas, making it difficult to access in times of need

Health issues such as blood pressure, insomnia, indigestion, gastritis and acidity are common among older staff and it is due to these reasons that some doctors (in private clinics) prefer to appoint young nurses for shift work and seniors are given fixed shifts. In rotational shifts they get very less sleep. On occasions when their shift timings change or they have double duty (two shifts together), it makes them even more sleepy and tired. This will consequently reduce the nurses' efficiency and competence.
- On the contrary, the young (20 – 30 years) nurse feel that though rotational shifts are convenient, it results in bias because the senior nurses get the best slot like the day shift or the straight shift and the rest of them get evening or night shift. They also feel that night shift nurses get most of the work as most casualty occurs during midnights or early mornings. Hence the day shift staff have less pressure.
- To counter this argument, the senior nurses (41 – 60 years) stated that they have also done duty with the odd work timings when they had joined the workforce as young staff nurses. *With added years of experience comes the privilege to choose day shifts!*

Shift work disorder, is a combination of difficulty sleeping and excessive sleepiness while awake, known to affect night workers. Nurses who often return to work with less than 8 - 10 hours between shifts are at higher risk of sleep problems and severe fatigue than others. Nurses must have enough time for both, commute to home as well as have full sleep before the next shift starts. *Recovery time is essential for everybody, but it is "human" to think that long free day periods are better than having enough free time between consecutive shifts.*

## 6. Conclusion

The study concludes

- Nurses were found to be the high-risk group, with high exposure to hazards.
- Individual risk factors and the professional risk factors noted in this survey were in accordance with most literature findings.
- It is concluded that a high proportion of nurses reported work related musculoskeletal disorders in one or the other body region, *with lower back and right wrist area being the most commonly affected area.*
- The high prevalence of low back pain and wrist pain requires multidisciplinary involvement in order to reduce the disability and cost imposed.

It is recommended that education, awareness and training programs on prevention and coping strategies for Musculoskeletal disorders be made mandatory for all healthcare professionals, especially nurses, in order to reduce the occurrence of work related musculoskeletal disorders among them not only for their better health but also to promote efficiency in patient care.

As a first step towards this, an effective awareness and communication programme needs to be promoted by the regulatory bodies and make it mandatory for hospitals and nursing homes to conduct regular awareness programmes for its nurses on such matters. While it will definitely improve the nurses working conditions, it will also sensitize other co-workers to be more empathetic. An integrated health promotion model should be planned for healthcare professionals.

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