



Research Article

MUSCULOSKELETAL DISCOMFORTS AND PHYSICAL ACTIVITY LEVEL IN NURSES

Neeomi Patel and Megha Sheth

SBB College of Physiotherapy, Ahmedabad

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ABSTRACT

Introduction: Musculoskeletal disorders (MSDs) are a public health problem with significant effects on work ability. Physical activity simply means movement of body uses energy (walking, gardening, climbing, etc). Working condition of nurses may significantly contribute to these discomforts. Nursing activities involve force and awkward postures. Because of their lifestyle physical activity levels may be low in hospital working nurses. Aim of study was to investigate musculoskeletal discomforts and level of physical activity in nursing profession.

Method: An observational study was conducted among 79 hospital working female nurses aged 25-60 years using convenience sampling at general hospital. Presence of musculoskeletal discomfort was evaluated using CMDQ (Cornell Musculoskeletal Discomfort Questionnaire) and physical activity levels were evaluated using IPAQ (International physical activity questionnaire-short version).

Results: Mean \pm SD of Age (43.45 \pm 9.80) years, working years (18.50 \pm 9.53), median 142.5 for IPAQ score (838.83 \pm 389.92) and CMDQ score (16.96 \pm 26.63). 56 nurses were found to have MSDs. Upper back pain was most prevalent in (32) nurses. Level of physical activity was found to be moderate in 60 nurses and low in 19 nurses. Mean difference in MSD scores between young and middle aged nurses, U= 3.00, p<0.001. Mean difference in MSD scores between nurses having low and moderate level of physical activity was U =461, p=0.20.

Conclusion: Upper back pain is a common complaint among nurses. Physical activity levels were found to be low to moderate in nurses. MSD's prevalence was different with age and activity level.

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INTRODUCTION

Musculoskeletal disorders are the injuries or disorders that affect the human body's movement or musculoskeletal system (muscles, tendon, ligament, nerves, blood vessels, etc). It can arise from making same motion repeatedly or a sudden exertion. Working condition of nurses may significantly contribute to these discomforts.¹ When a person has pain they tend to avoid symptomatic activities but continue to function in order to complete routine necessary tasks such as activities of daily living, recreational and vocational pursuits. In order to accomplish these regular activities, symptomatic areas are protected by relative disuse and compensatory actions are utilized.²

A professionally registered nurse begins her career at the age of 21-22 years up to the age of 58-60 years, a span of 36-38 work years. She spends the maximum part of her life in the service of mankind. She receives credit for the healing touch, caring smile and gentle care, but at the same time she also

becomes prone to work related health problems which can be physical and psychological in nature for example musculoskeletal disorders like back pain, leg pain, neck pain etc.³

During the stressful situations, even the most experienced staff member can forget the importance of ergonomics. So nurses are at an increased risk for work-related musculoskeletal injuries as a result of the cumulative effects of manual patient-handling tasks.³

Physical activity simply means movement of the body using energy (walking, gardening, climbing, etc). Because of their lifestyle the physical activity levels of nurses may be low in hospital working nurses.⁴ Nurses have barriers to promote the physical activity within their clinical practice so that they are able to maximise opportunities to promote active ageing.⁵

The risk factors for musculoskeletal complaints among hospital nurses, and assessment of physical exertion was obtained by asking nurses how physically strenuous their work tasks were every day. Musculoskeletal conditions are an increasingly common problem across the globe due to increased longevity and increased exposure to risk factors such as obesity and lack of physical activity.^{6,7} The aim of the study

*Corresponding author: Neeomi Patel

SBB College of Physiotherapy, Ahmedabad

is to investigate prevalence of musculoskeletal discomforts and level of physical activity in the nursing profession. Also comparison of MSD's and Physical activity between the middle and young age group nurses were done.

Aim of the study is to investigate musculoskeletal discomforts and physical activity in the nursing profession. To compare MSD's with level of physical activity in nurses.

METHODOLOGY

An observational study was conducted among 79 hospital working female nurses using convenience sampling at general hospital. The study approval was taken from head of institute. To obtain sample of nursing staff, nursing staff members were explained about the study. Inclusion criteria were female nurses aged 25-60 years. Exclusion criteria were work experience less than 5 years, history of congenital musculoskeletal problem and who have undergone any musculoskeletal surgery. Written informed consent was taken from the participants.

Also they were asked to fill the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) female version for musculoskeletal discomforts. It consist of three set of questions in which nurses described their pain and discomforts that happened during last week while working, also how much it was uncomfortable it was because of pain and lastly did it affect their ability to work.⁸

They were asked questions about last 7 days physical activity using International Physical Activity Questionnaire IPAQ) short version to find about the kinds of physical activities that they did as part of their everyday lives, as vigorous, moderate and low.⁹

Statistical Analysis

Level of significance was kept at 5%. Data was collected and entered in Microsoft excel spread sheet and analysed using SPSS version 16. As the data was not following normal distribution, non parametric test was used for analysis. Comparison between MSDs in young and middle age group and low and moderate IPAQ score group was done using, non parametric, Mann Whitney test.

RESULTS

The nurses were divided 2 groups above and below 40 years. Table 1 shows the demographics including mean of age, work experience, MSD's and IPAQ.

It was observed that in nursing staff out of 79, MSD's were mainly present in Neck(10), shoulder(24), upper back(32), lower back(26), and lower leg (20) as noted as shown in fig 1. Mean IPAQ scores is 838.83 (±389.92). Level of physical activity was found to be moderate in 60 nurses and low in 19 nurses. In the study, it was observed that the nurses had a moderate level of physical activity, having MSD's present which affects their work (N= 56, Approx70%).

The mean difference in MSD scores between young and middle aged nurses, U= 3.00, p<0.001. The mean difference in MSD scores between low and moderate level of physical activity was U = 461, p=0.20 as shown in table 2.

Table 1 Mean (SD) of variables of the population

Variables	Mean(SD)
Age(years)	43.45(±9.80)
Work Experience(years)	18.50 (±9.53)
IPAQ	838.83 (±389.92)
CMDQ	16.96 (±26.63).

Table 2 Mean difference in MSD scores in groups

Groups	Mean difference (SD)	U-value	P-value
Young and middle age	43.12 (±12.10)	3.00	<0.001
Low and moderate IPAQ score	675.08 (±446.19)	461	0.20

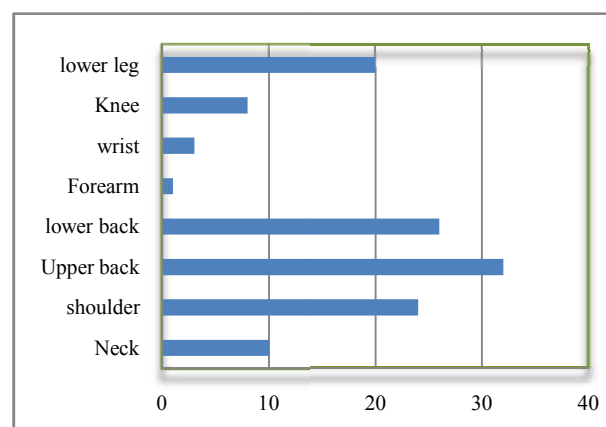


Fig 1 Frequency of subjects having discomforts using CMDQ

DISCUSSION

In the study, it was observed that the nurses had a moderate level of physical activity, having MSD's present which affects their work (N= 56, Approx70%). It was observed that in nursing staff MSD's out of 79, Neck(10), shoulder(24), upper back(32), lower back(26), forearm(1), wrist(3), knee 8 and lower leg (20) are noted.

It can happen due to lack of proper care and faulty posture. Assessing physical workload alone may not be sufficient to explain the variation in musculoskeletal discomfort among nurses. In a previous study 90% of all nurses report at least one complaint, 60% reported at least two complaints and 36% reported as three complaints of musculoskeletal discomfort.¹⁰ Nursing aides have a higher exposure to at-risk nursing MSD'S was seen by Menzel *et al* with higher injury in LBP.¹¹ Daraiseh. E. A in his study about MSD's and Ergonomics in nurses said that in comprehensive assessment of musculoskeletal discomforts after ergonomic advise and rehabilitation program less MSD's are noted. Work-related NSU musculoskeletal disorders are prevalent among nurses and physicians, although studies in the latter population are comparatively few.¹²

Sun fie *et al* in 2013 studied the relationship between physicians' and nurses' personal physical activity and their physical activity promotion practices. The majority of studies found that a higher personal physical activity level was associated with higher physical activity promoting practices and that health professionals with positive attitudes towards physical activity were more likely towards patients.¹³

Cornell MS Discomfort Questionnaire (CMDQ) is a well-designed data collection tool which was developed by Professor Alan Hedge and ergonomics graduate students at Cornell University (Cornell University Ergonomics Web, Hedge et al., 1999). CMDQ Addresses 7-day frequency, severity and working ability interference effects of MS discomfort across 20 body parts. It has been used in assessment of MS discomfort among different working populations such as nursing personnel (Menzel et al., 2004) and data entry employees in a large Canadian telecommunication company (Fagarasanu and Kumar, 2006).¹⁴ Paul H lee *et al* in 2011, has done systemic review on IPAQ-SF, Correlations between sections of the IPAQ-SF for vigorous activity or moderate activity level/walking and an objective standard showed even greater variability (-0.18 to 0.76), yet several reached the minimal acceptable standard. Only six studies provided comparisons between physical activity levels derived from the IPAQ-SF and those obtained from objective criterion.¹⁵

The result of the present study shows no significant difference in MSD's between different physical activity levels and MSD's, but it shows significance difference with age. With increase in age MSD's increase, may be due to degenerative changes. However, similar to present study Trinkoff AM found that moderate and high perceived physical demands were significantly associated with reported neck, shoulder, and back MSD cases, even after adjustments for demographic and lifestyle-related covariates.

Present study found low to moderate level of physical activity in nurses. As nursing profession demands for more physical activities, they should concentrate more on physical fitness and proper posture should be maintained. Sedentary lifestyles are rising in many countries which have implication for global health. Health professionals are well placed to promote increased physical activity to their patients. The study highlights a need for training on physical activity related counselling.

The sample size was taken from only 1 general hospital compared to what might be needed to detect an association due to the high prevalence of musculoskeletal discomfort. Future studies can be conducted on the effect of ergonomic intervention and postural correction in nurses. The regular physical activity can promote and maintain health and reduce risk of chronic disease.

CONCLUSION

Physical activity levels were found to be low to moderate in nurses with upper back pain being common. Upper back pain is a common complaint among nurses. MSD's prevalence was different with age and activity level.

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