Work-Related Health Problems among Nursing Personnel

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Abstract
Work-related injuries among nursing personnel are quite frequent and costly problems in terms of both workers’ pain and suffering as well as medical expenses, and lost work for organisations. A descriptive study was conducted in Christian Medical College, Vellore to assess the prevalence of selected work-related health problems among nursing personnel. Total of 500 Nursing personnel were included in the study. The instruments used were Modified Cornell Musculoskeletal discomfort questionnaire to assess and score the musculoskeletal discomfort and CEAP (C-clinical, E-Etiologic, A-Anatomic, P-Pathophysiologic) classification to assess the presence and grade the varicose veins. Results demonstrated that 84.4 percent of the participants had musculoskeletal discomfort and 29.6 percent of the participants had varicose veins. Findings of the study demonstrated that there is a need to increase the awareness among nurses regarding the problems and to follow specific strategies to prevent work-related health problems.

Nursing is a healthcare profession focused on the detail-oriented care. By virtue of the nature of their work, nurse and other health care providers are at risk for injury in the work place. Nursing is consistently listed as one of the top ten occupations for work-related musculoskeletal disorders with incidence of 8.8 per 100 in hospital settings and 13.5 per 100 in nursing home settings (US Bureau of Labour Statistics, 2002). Long hours of standing and inadequate rest throughout the day predispose the nurses to a common condition called varicose veins. It is estimated that 41 percent of all women will suffer from abnormal leg veins by the time they are in their 50s (Padaria, 2007).

Studies on the prevalence of work-related health problems among health professionals in the developing countries especially in Indian context have been quite few. Therefore the present study was conducted to assess the prevalence of work-related health problems among nursing personnel.

Objectives
The present study attempted to:
1. Assess the prevalence of selected work-related health problems among nursing personnel.
2. Identify the severity of musculoskeletal discomfort.
3. Identify the severity of varicose veins.
4. Find the association between work-related health problems and selected demographic and clinical variables.

Methods
The descriptive design based on quantitative approach was utilised. The study was conducted in Christian Medical College, Vellore. The population consisted of Baccalaureate Nurses, Diploma Nurses, Auxiliary Nurse Midwives/Multipurpose Health Worker and Hospital Auxiliaries, who provide direct patient care. The sample size was 500. The study was conducted over a period of six weeks, using stratified random sampling technique. The researcher explained the purpose and voluntary nature of the study and written consent was obtained. The participants were asked to fill the self-administered questionnaire to assess the prevalence of musculoskeletal discomfort and the presence of varicose veins was assessed and graded by the observer using observation checklist.

Instruments
The tool used for data collection consist of the following:
Part 1: Demographic characteristics
Includes gender, age, professional qualification, year of experience, marital status and clinical variables like body mass index, major abdominal surgeries, smoking, area of work.
Part 2: Modified Cornell musculoskeletal discomfort questionnaire

This is a standardised valid and reliable tool. Kappa coefficients ranged between 0.617-0.917. It had three domains. First domain was to assess the frequency of discomfort using 5-point scale, second domain was to assess the severity of discomfort using 3-point scale, and third domain focused on assessing the interference with the ability in work, using 3-point scale. The scoring is calculated by adding the frequency score with the discomfort score and interference score and graded as mild discomfort = 0-4.0 moderate discomfort=4.1-8, severe discomfort = 8.1 -12, and very severe discomfort =12.1 -16.

Part 3: CEAP observation checklist

This is mother standardised valid and reliable scale. The calculated value using Scott Coefficient formula was 1. It consists of following components.

- C0 – No visible venous disease, C1 – Talengectasis or reticular veins with or without healed ulcerations, C2 – Varicose veins, C3 – Oedema, C4 – Skin changes without ulceration, C5 – Skin changes with healed ulceration, C6 – Skin changes with active ulceration.

The presence of varicose veins are graded as C1 - C2: Mild varicose vein, C3 – C4: Moderate varicose veins, C4 –C6: Severe varicose vein.

Ethical Consideration

The study was performed after approval from the Dissertation Committee of the College of Nursing Superintendent and Heads of the Nursing Departments of Christian Medical College, Vellore. Written consent was obtained from all the study participants. Confidentiality and anonymity was maintained on all the data that was collected from the participants.

Results and Discussion

Analysis of demographic data revealed that 97.8 percent of participants were females, 65.6 percent of them were between the age group of 20-30 years. Majority (81.2%) of them were Diploma nurses. Clinical data revealed that majority of the participants (54.45%) had body mass index 19-25.

Among the study participants 86.8 percent had selected work-related health problems in terms of musculoskeletal discomfort and varicose veins as presented in Figure 1.

The available literature supports that those women with work consisting of heavy lifting have twice the frequency of back pain compared with those with similar work but with less heavy lifting (Kumar, 2004).

The study findings revealed that among the affected, 65.8 percent participants had musculoskeletal discomfort without varicose veins, 2.77 percent had varicose veins and 31.34 percent had both musculoskeletal discomfort and varicose veins as presented in Figure 2.

These findings are well supported by those of Jui & Judith (2006), where 91.6 percent of the nurses had musculoskeletal discomfort. Regarding varicose veins, Em et al (2004) reported that 35 percent of nurses had varicose veins.

The findings suggest that 422 (84%) participants had musculoskeletal discomfort, 52.2 percent of the participants had lower back discomfort, 51.8 percent had right leg discomfort followed by left leg discomfort in 50.2 percent as shown in Figure 3.

Our findings are supported by studies of Morken (2003), Daraish (2003) and Hou & Shiao (2006) which reported that 91.6 percent of nurses experienced the musculoskeletal discomfort. Lower back was the most commonly reported site of discomfort, followed by lower legs, shoulders and neck. This could
be because the tasks that nurses perform especially lifting, shifting, and positioning the patient exerts the strain on the back.

Lower back discomfort was present in 85 percent of ICU participants followed by 72 percent in PMR and Orthopaedics and 71 percent among general medical wards. These findings are very much supported by Viera et al (2006) that 65 percent of the Orthopaedic nurses and 58 percent of ICU nurses develop debilitating low back pain at some point in their careers. The lower limb discomfort was very high among participants from General surgical wards (Rt Leg 67% Lt Leg 56%) followed by operation room, cardiac catheterisation lab, and emergency department (Rt Leg: 56%, Lt leg: 57%) and ICU (Rt Leg: 56%, Lt. leg: 54%). This may be due to prolonged hours of staying on the feet while standing and walking and the strenuous work pattern in these critical areas.

In regards to prevalence of varicose veins, 29.6 percent of participants had varicose veins. These findings are similar with the findings of Soes Fritschi (2004), who reported that 35 percent of nurses had varicose veins.

The study revealed that the participants from Cardiac cath lab, Operation Theatre, Dialysis unit and Emergency Department and higher percentage (44.5%) of varicose veins than in other departments as shown in Figure 4.

D1 – Maternity wards, D2 – Paediatric wards, D3 – General Medical wards, D4-General Surgical wards, D5-PMR (Physical Medicine and Rehabilitation), Orthopaedics wards, D6- Intensive care units, D7- Operation room, Cardiac catheterisation laboratory, Dialysis unit and Emergency department, D8- Speciality wards, D9- Private wards, D10 – Endoscopy rooms, Central Sterile Supply Department and Outpatient department.

These findings are consistent with those of Zachariah (2006), which revealed that 41 percent nurses working in operation theatre had varicose veins.

The findings suggest that majority of the participants had moderate degree of musculoskeletal discomfort as follows; neck 61 percent, right shoulder 54.2 percent, lower back 53.3 percent, right leg discomfort 42.9 percent and left leg 41.4 percent. These findings are congruent with the findings of Menzel et al (2004), where 62 percent of subjects reported 7 days prevalence of moderately severe discomfort; 89.2 percent of the participants had mild degree of varicose veins, 68.2 percent of them had varicose veins involving both legs. These findings are similar to the findings of Evans et al (2008), which showed that 92 percent had grade 1 varicose veins.

Association between musculoskeletal discomfort and selected demographic and clinical variables was analysed. A significant association was found in gender, age, marital status and years of experience. Among the affected, majority (98%) of the female participants had musculoskeletal discomfort; 65 percent of the participants were between 20-30 years, 32 percent of the participants had 6-15 years of experience and 53 percent of married participants had musculoskeletal discomfort. These findings are supported by Menzel et al
(2004), who reported that musculoskeletal discomfort was significantly higher in female participants (66%) than in male participants (31%). Lower back discomfort was present among 52.2 percent of participants, among them who had discomfort 97 percent were female. These findings are supported by Cromie (1999) that 82.2 percent for the female physiotherapists had musculoskeletal discomfort.

Association between varicose veins and selected demographic and clinical variables were assessed. A significant association was found between age, professional qualification, years of experience and major abdominal surgeries. Among the study participants 40.5 percent of participants between 30-40 years of age and 72.3 percent of the diploma nurses had varicose veins; 45.3 percent had varicose veins with 6-15 years of experience; 26 percent of the participants had varicose veins who undergone major abdominal surgeries. These findings are very much supported by findings of Zachariah (2006), that 87 percent of general nurses had varicose veins.

**Nursing Implications**

The education regarding the prevention of work-related health problems in nursing students should start at beginning of the course. This will help them take preventive measures from the first year of training. The highest number of health professionals are nurses in any health care setting, and they are predominantly women, and it is sad fact that women are more prone to back pain. Musculoskeletal disorders are the most common work-related health problems, in which back pain contributes to a higher percentage. In the present time, the presence of varicose veins is becoming a major problem in nursing profession. The importance of training in good body mechanics, mechanical lifting and pre-employment screening are described as measures to reduce the number of nurses injured. It is essential that nurses follow precautionary techniques to prevent and minimise work-related health problems.

**Conclusion**

Nursing is often cited as a particularly stressful occupation because nurses need to meet the demands of the patients immediately. Compared to other occupations, nursing personnel are the highest at risk for musculoskeletal disorders. After such an injury, many health care workers leave the field either temporarily or permanently. Nurses seek medical attention with varicose veins due to discomfort rather than cosmetic reasons. They have historically been trained to use ‘proper’ body mechanics to prevent injury; however, questions arise as to the true value of body mechanics training. Cost-benefit analysis has shown that assistive patient handling technology successfully reduces workers compensation and medical treatment costs for musculoskeletal disorders. Nurses need to be sensitive to these issues, so that work-related health problems can be prevented/minimised, and productivity and job satisfaction can be improved.

**References**


