



Back Pain among Emergency and Orthopaedic Nurses: Prevalence and Perceived Risk Factors

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1 INTRODUCTION

Back Pain is a common health problem among variety of occupational groups as well as general population. Many epidemiological studies have been carried out to specify the role of individual and occupational factors as possible causes. Studies across the globe have published with proven evidences that their higher prevalence among nurses.

The operational definition for back pain used in this study is “pain or annoyance in upper or lower back sustained for more than three days”. Occurrence of back pain among nurses is multi-factorial phenomenon. It can cause by bio-mechanical, organizational, psycho-social, and individual factors (Anap *et al.*, 2013). While bio-mechanical demands increase the risk of back pain, psycho-social and individual factors can amplify the effects of physical exertion. Most of nursing activities require lifting heavy loads, physically demanding postures, transferring patients and operating hazardous equipment which exceeds body tolerance. These physical and psychological job demands put them at high risk for acute and cumulative back injuries.

Nursing is inherently a female dominant occupation. This gender base identity has been found as an important determinant for back pain in many studies (Lorusso, *et al.*, 2007; Nur-Azma, *et al.*, 2016).

Furthermore, shift duty, lack of ability to control on and off time of duty, working on off days, unplanned extended schedules, and mandatory overtimes makes nurses physically and psychologically stressful. According to many studies nurse’s work environment is highly stressful and filled with pre-disposing factors for developing a back pain. (Smeldley *et al.*, 1997). Female nurses with additional responsibilities at home as a working woman are more vulnerable to get a back pain.

The type and amount of workload is partly determined by the type of unit or specialty which nurses are working (Ex. ICU vs. Clinics). In clinical settings with heavy work load such as Emergency Treatment Units, Orthopaedic Wards, nurses compelled to working on longer hours with few to no breaks and often little time for recovery between shifts. Therefore, nurses working in Emergency departments and orthopaedic sections are more vulnerable to developing back pain.

The annual incidents rate back pain among nurses in developed as well as developing countries are in same level. Sri Lankan nurses had reported 44% of highest incidence rate for back pain among other musculoskeletal disorders (Warnakulasooriya *et al.*, 2013). Further he reported that job dissatisfaction and time pressure was significantly associated with low back pain of Sri Lankan nurses.

This pattern of prevalence globally and locally evidence the need of a study among Sri Lankan nurses working in emergency departments. Accident and orthopedic section in the National Hospital of Sri Lanka (NHSL) is one of the busiest places in Sri Lankan health care system. Nurses provide around the clock duty in this unit and handling critical patients in large numbers.

The purpose of this study is to determine the prevalence and perceived risk factors for back pain among nurses working in Accident and Orthopedic Section in National Hospital of Sri Lanka and to identify whether there are associations in between prevalence of back pain and perceived risk factors.

2 METHODOLOGY

This was a quantitative study in descriptive cross sectional design. Study population was registered nurses working in Accident and Orthopedic Section in NHSL. Two hundred registered nurses were recruited into the study using systematic random sampling technique. Attendance registries of this section were used to draw this sample of nurses by selecting every other name from pre-prepared name list. Age and sex was not concerned and the Ward/Unit managers and student nurses were excluded from the sample. A self-administered questionnaire consisting four sections based on objectives was used as the data collection tool. Content validity and face validity was established consulting supervisor of the study. Questionnaire was sent to the subject experts and their inputs and suggestion were incorporated into the final version. It was pre-tested among ten nurses other than who recruited to this study. Ethical approval granted by Ethics Review Committee of NHSL. A written informed consent was taken from every participant prior to the collection of data. The data was collected within two-week duration in April 2016.

Data analysis was done using Statistical Package for Social Sciences (SPSS) - Version 20. Pearson Chi-squared Test was applied to find associations between categorical variables. Level of significance was assessed by setting probability level at 0.05 ($p < 0.05$).

3 RESULTS AND DISCUSSION

3.1 Demographic Characteristics

The study sample consisted 87.5% female and 12.5% male nurses. Majority was Sinhalese, 99.5% while, 0.5% are Tamil. From them 72% of subjects was married while 28 % were unmarried. Highest proportion of them (75.5%) are nursing diplomate while 0.5 % having specialty training relevant to working place.

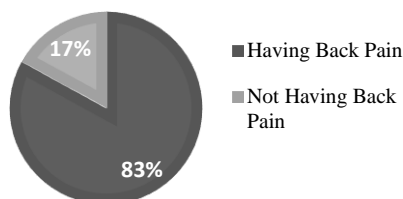


Figure 1: Prevalence of back pain among study participants

Results shows 83% prevalence of back pain among the population while 17 % reporting for not experiencing back pain (Figure 1). From the low back pain prevalence point of view, nurses are placed in 3rd place among employed people globally (Yip, 2004). Sri Lankan studies confirmed this high prevalence of back pain among nurses (Warnakulasuriya *et al.*, 2012; Munidasa, *et al.*, 2015). Working place is a significant factor for occurrence of back pain among Sri Lankan nurses; working in ICU, time presser to complete tasks and poor perception of general physical health are among other factors.

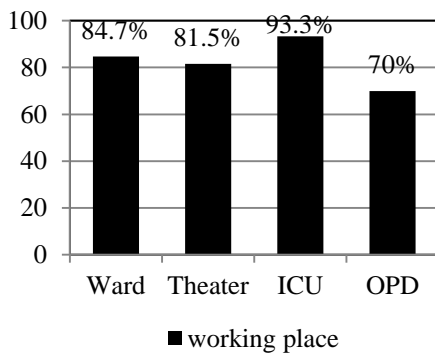


Figure 2: Prevalence of back pain in relevance to working place

3.2 Prevalence of Back Pain with relevance to Tenure of Service

Results showed increasing the tenure of service positively associated with occurrence of back pain among this population. It says 99% of subjects having more than 15-year service suffered with back pain. This result is consistent with the global trend of research findings of back pain (Wong *et al.*, 2010; Yassi and Lockhart, 2013).

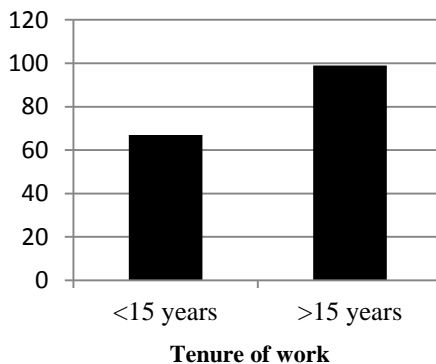


Figure 3: Prevalence of back pain relevant to tenure of work

3.3 Factors Associated with High Prevalence of Back-Pain

Besides individual risk factors which is commonly identified, common nursing works involving joint burden, extreme flexion of the trunk, frequent heavy

lifting, maintaining an awkward or static posture, bending, twisting, hard physical work and psychological stress are reported as causal factors for back injuries in several studies (Smeldly *et al.* 1997; Yip, 2004). Heavy physical activities like transferring and lifting patients play an important role in nurses' Low Back Pain (Yip, 2004). But most of the researchers believe that the physical factors justify only a portion of LBP. The relationship between the psycho-social activities and LBP has been mentioned as an important finding in many recent studies (Anap *et al.*, 2013; Nur-Azma *et al.*, 2016)

Table 1: Factors associated with high prevalence of back pain.

Description of the factor	Prevalence
Work place stress	80%
Working on Off days	73.50%
Lifting Patients>10times/6 hour shift	55.40%
Bending >10 times/6 hour shift	66.30%
Walking > 4 hours / 6 hour shift	16.30%
History of having Back Pain	96.60%

Table 2: Significantly Associated Perceived Risk Factors with Back Pain among Participants.

Perceived Risk Factors	P value
Marital status (Married)	0.04
History of previous back pain	0
Frequent Bending at patient handling	0.04

4 CONCLUSIONS

Back Pain is a common health issue among Emergency and Orthopaedic nurses working in National Hospital of Sri Lanka showing 83% prevalence among the study population. Perceived associated factors for occurrence of back pain which identified in the study were work place stress, working on off days, lifting patients, bending > 10 times per shift, walking > 4 hour per shift, marital status, and history of having back pain.

5 RECOMMENDATIONS

Recommend using safety techniques (lift team) and devices (back plate) for handling and transferring patients. Training and workshops for nurses to introduce lift-team concept will be beneficial to most at-risk department such as ICU, Theatres. Rotation and equally distribution of nurses within hospital departments considering requirement is an urgent need to prevent working on off days and reduce occupational stress.

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