

Work-related injuries and stress level in nursing professional

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Abstract

Background: Nurses form an essential constituent of the health-care system. During the fulfillment discharge of their duties, nurses experience various types of work-related injuries and stress, which harmfully impacts their health and nursing quality.

Objective: To estimate the prevalence of work-related injuries among nurses and to find the stress level among nurses.

Materials and Methods: A hospital-based cross-sectional study was conducted by selecting participants through simple random sampling technique. A total of 185 nurses with minimum 3 years of working experience in the same hospital were included in this study. The duration of work, type of injuries, time spent in direct patient-care activities within working hours, and various other factors such as job stress were assessed.

Result: Needlestick injury was reported in 5.4% of nurses while working in last 1 year, whereas 19.5% nurses experienced varicose veins. Hospital-acquired infections were encountered by 7.4% of nurses. Occasionally stressful situation was reported by 56.9% of nurses, followed by 35.9% nurses being frequently stressful while working in the hospital. The most stressful situation for the nurses was to “deal with violence/abuse from patients” with mean of 2.3 and standard deviation 0.91 measured on 4-point scale. Moreover, the least stressful situation was “difficulty in working with a particular nurse,” with mean of 1.56 and standard deviation 0.70.

Conclusion: Appropriate training and awareness should be given to the nurses to develop skills to deal with work-related injuries and stress during their nursing education.

KEY WORDS: Nursing professional, needlestick injuries, hospital-acquired infections, stress

Introduction

Globally, there are 39.47 million health service providers, which comprise 66.7% of the total health workforce; among

them, nurses play vital element of the health workforce throughout the world.^[1] In India, approximately 0.21 million nurses add on to the workforce each year and provide valuable health-care services to the patients.^[2] They may experience a variety of health consequences owing to physical, chemical, biological, and psychosocial hazards.^[3] The apprehension of these health hazards not only leads to health problems but also accounts for psychological stress and absenteeism among the nursing professional.^[4]

Nurses are selected to be the focus of attention in this study because work-related injuries and stress are very common in nursing professionals and it has been a major public health concern as they contribute the largest cadre of health-care workers.

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This study aims to provide the prevalence of work-related injuries among the nursing professionals and the job stress encountered by them. This study was designed to find out the prevalence of work-related injuries among nurses and to find the stress level among nurses.

Materials and Methods

This was a hospital-based cross-sectional study carried out at Kasturba Hospital, Manipal (a tertiary-care private hospital) located in Udupi taluk, Karnataka, India. In this study, baseline population (nurses) was 1,882, as of October 2012, of which 354 was target population with minimum 3 years of experience at Kasturba Hospital, Manipal. Thus, estimated study population was 185 nurses, by considering prevalence of 50% and precision 5%. Participants were selected by a simple random sampling technique, and the data for the study were collected through a self-administered questionnaire from each randomly selected participant.

The research protocol was approved by Department of Public Health of Manipal University (India) and by medical and nursing superintendents of Kasturba Hospital and concerned body of the institution. Written informed consent was obtained from each study participant before inclusion in the study.

Statistical Analysis

We used pretested structured questionnaire and collected details on work-related injuries and stress level during working hours in the hospital. Modified Extended Nursing Stress Scale was used to find the stress among nurses. Data were analysed using Statistical Package for Social Sciences (SPSS), version 15. We used descriptive analysis to find the prevalence and used *t*-test and cross-tab to find out any correlation; however, we could not get any correlation between variables. Thus, we did not report them in this article.

Results

The majority (35.7%) of the nurses were between the age group 30 and 40 years, followed by 31.4% and 28.1% in the age group 40–50 years and 20–30 years, respectively. Only 4.9% of nurses belonged to 50–60 age group. More than two-third nurses (83.8%) were married, whereas less than one-third (16.2%) nurses were unmarried. The majority (93%) of the nurses pursued a Diploma in Nursing degree, whereas 4.3% of nurses possessed BSc Nursing degree and a small proportion (0.5%) MSc Nursing degree. Most of the nurses (43.2%), spent 50%–75% of their working time in direct patient care, followed by 37.3% of nurses spending more than 75% of their working time in direct patient care, whereas, 2.2% of nurses spent less than 25% of their time in direct patient care during their working hours. In the current study, 60.5% of nurses revealed more than 10 years of working experience as a nurse, whereas, only 39.5% of nurses possessed less than 10 years of working experience.

In this study, 91.4% of nurses did not encounter any type of needle or sharp object injury in last 1 year of service at Kasturba Hospital, Manipal [Table 1]. Needlestick injury was encountered by 5.4% of nurses, followed by 3.2% nurses who had encountered injury from sharp objects. Of 5.4% of nurses who had encountered needlestick injury, 2.2% experienced a needlestick injury during filling of syringe injection and 1.1% while opening syringe cap.

A total of 16 nurses had encountered occupational injury (injury from needle and sharp objects) in last 1 year of working experience. Among them, seven nurses did not report injury to the concerned authority of the hospital. A large proportion (31.3%) of nurses did not think injury was significant, whereas, nurses did not report injury because they thought that injuries were just part of the job and there was no mechanism to report injury, accounting for 6.3% each.

Nurses may get occupational injury and illness during their professional career because of their work, prolonged standing, and exposure to hospital acquired infections and also the job stress to handle the patient as well as patient family members including health staffs of the hospital [Table 2]. Most of the time, nurses have to work in prolonged standing position, which in long term of their professional career may increase the chances to develop varicose vein. It is one of the concern issues, and, thus, nurses and concerned hospital authorities must have to focus on it to bring out the mechanism, which may decrease the prolonged standing position for nurses. In this study, 19.5% of nurses had reported varicose veins. Although the proportion of nurses who experienced varicose vein is small but it is a major concern for the nurses and hospital management and, thus, need to be addressed effectively.

Hospital is a place where chances to get infected and fall sick are high, and this is a more common observation in nurses because they are the one who come frequently in contact with patients and infectious organisms. In this study, 7.4% of nurses were hospitalized owing to hospital-acquired infection in their professional career. Among them, majority of the nurses experienced bronchitis, cough and cold, viral fever, and chick-enpox, whereas some of the nurses revealed tuberculosis, H1N1, pleural effusion, hepatitis B, typhoid, and methicillin-resistant *Staphylococcus aureus* [Table 3].

Nurses are the backbone of hospital and, thus, have more responsibility to deal with patient and patients' family, physicians, and other working staffs of the hospitals and fear to get work-related injuries and diseases. At the other side, nurses have to take care of their family members too, including household works. Therefore, they are susceptible to exposure of job stress, which may lead to decrease in the work quality and efficiency of the nurses and, ultimately, affect the treatment and care of the patient and decrease the revenue of the hospital. In this study, the response rate for job stress questionnaire was 82.7% (153/185 participants). Among them, 56.9% of nurses reported that they were occasionally stressful, followed by 35.9% of nurses being frequently stressful during working hours in the hospital. Moreover, 5.2% of nurses reported that they were extremely stressful; this is a major concern for medical and nursing superintendents of the hospital.

Table 1: Occupational injuries among nursing professional encountered in last 1 year (N = 185)

	n	%
Type of incident		
Needlestick injury	10	5.4
Injury from sharp object	6	3.2
None	169	91.4
Needlestick injury		
While opening syringe cap	2	1.1
Filling of injection	4	2.2
Giving injection to patient	1	0.5
Recapping the syringe	1	0.5
Draw bleeding	1	0.5
Recapping the syringe and putting IV cannula	1	0.5
Report of injury		
Yes	9	56.2
No	7	43.8
Reasons injury were not reported		
Did not think injury was significant	5	31.2
No mechanism for reporting injury	1	6.3
Injuries are just part of job	1	6.3

Table 2: Occupational illness among nursing professional (N = 185)

	n	%
Experienced from varicose vein		
No	149	80.5
Yes	36	19.5
Hospitalization owing to HAI		
No	168	90.8
Yes	14	7.4
Did not responded	3	1.6

HAI, hospital-acquired infection—includes MRSA, viral fever, bronchitis, cough and cold, chickenpox, typhoid, hepatitis B, pleural effusion, H1N1, tuberculosis; MRSA, methicillin-resistant *Staphylococcus aureus*.

Only, 2% of nurses reported that they were never stressful in dealing with patients and hospital staffs, including their colleague nurses. The most stressful situation for the nurses was “to deal with violence/abuse from patients,” with a mean of 2.3 and standard deviation 0.91 measured on 4-point scale, followed by situations dealing with the patient’s family making unreasonable demands and dealing with abuse from patients’ families. The least stressful situation was difficulty in working with a particular nurse, with a mean of 1.56 and standard deviation 0.70 [Table 4].

Discussion

The work-related injuries and job-stress among nurses is important in developing policies that can reduce the injury

and stress within the nursing profession. Even though several studies have highlighted the occupational injuries and job stress among nurses, this study further adds the derogation of the health status of the nurses as measured by work-related injuries and job stress. The results of this study differ owing to the selection criteria of participants, as we had focused only on those nurses who treat/care for patients and showed minimum 3-year experience at Kasturba Hospital, Manipal.

The needlestick injuries not only impact the quality of health-care service offered but also the safety and health of the nurses. They have enhanced risk of exposure and experience significant fear and anxiety, which may result in decrease in the quality in health-care services. It is one of the important occupational injuries among nurses, and regardless of its serious consequences, they continue to be abandoned, and majority of them are underreported.

In the current study, 5.4% of nurses encountered needlestick injury in last 1 year, which is a major concern for both the nurses and nursing superintendent. Similar studies conducted in different part of India reported that 27.4%, 37.4%, and 67% of nurses encountered needlestick injury in last 1 year in their career, respectively.^[5-7] Few similar studies showed variations in the proportions of nurses encountered with needlestick injury. They reported 73% and 75.6% of needlestick injury among nurses during their professional career, respectively.^[8,9]

Needlestick injuries encountered were during different procedures that deal with opening syringe cap, filling and giving injection, recapping the syringe. Therefore, syringes and needle should be handled with care to avoid any needlestick injury, and these precautions should be learned during their nursing academic. In our study, we found 2.2% of nurses experienced needlestick injury while filling injection. In addition, some of the nurses had encountered needlestick injury while drawing blood and putting IV cannula. Although the proportion is low in our study, but it is still an alarming sign for the nurses and concerned authority of hospital to take care of it and further reduce the needlestick injury occurrences.

In addition, we found 0.5% of nurses reported needlestick injury while recapping the syringe in last 1 year, whereas a higher percentage (31.5% and 37.3%) of needlestick injury was reported at the time of recapping the syringe.^[5,10]

In current study, we found that 1.1% of nurses reported needlestick injury while opening syringe cap. A study conducted at Pakistan mentioned that 24.5% of nurses were injured while opening syringe cap.^[10]

Everyone at some point of time in their professional working career experience occupational injury and other health problems, but they should not hide it; it should be informed to the concerned authority of the organization. In a similar way, when nurses inform injuries to the concerned health authority/department, they should take immediate preventive and curative treatment. Unless nurses will not report work-related injury and health problems, the concerned department will be in dark; not only this, but the nurses will also lose their productive working hours, and this may affect the overall treatment and care of the patient. Many of the nurses do not take their health

Table 3: Stressful subscales for nurses (*N* = 153)^a

Stress-related situations	Mean	SD
Having to deal with violence/abuse patients	2.3	0.91
Patient's family making unreasonable demands	2.28	0.84
Having to deal with abuse from patients families	2.26	0.95
Making a decision concerning a patient when the physician is unavailable	2.19	0.87
Criticism from nursing administration	2.14	0.95
Lack of support from other health-care administrators	2.12	0.87
Patients making unreasonable demands	2.07	0.80
Having to make decisions under pressure	2.04	0.89
Not enough time to respond to the needs of patient's families	2.03	0.85
Being blamed for anything that goes wrong	2.02	0.85
Criticism by a physician	2.01	0.88
Uncertainty regarding the operation and functioning of specialized equipments	1.95	0.80
Lack of support of my immediate supervisor	1.93	0.98
Being in-charge with inadequate experience	1.91	0.92
Being exposed to health and safety hazards	1.87	0.80
Lack of an opportunity to share experiences and feelings with other personnel in the work setting	1.73	0.73
Fear of making a mistake in treating patient	1.72	0.83
Disagreement concerning the treatment of a patient	1.70	0.81
Difficulty in working with a particular nurse	1.56	0.71

^aOnly 153 of 185 nurses responded for stress scale questionnaire

Table 4: Stress category

Stress category	Frequency	%
Mild stress (total score, 25 or less)	14	9.2
Moderate stress (total score, 25–50)	121	79.1
Severe stress (total score, >50)	18	11.8
Total	153	100.0

Total stress score varied between 19 and 64, and mean of the total score on 19 items representing stressful situation was 37.82 with a standard deviation of 9.75.

problems serious and, hence, do not report it to the hospital. In this study, we found that 43.8% of nurses did not report the injury to the concerned department of the hospital. Among them, 31.2% of nurses did not think injury was significant and, hence, did not report, while other do not know the mechanism for reporting injury, whereas one nurse said that injuries are just part of job and, therefore, not reported to the concerned authority of hospital. However, a similar study found that 27.5% of nurses reported their injury to a supervisor or senior staff.^[6] A similar result was observed in another study, and they found that 49% of nurses informed to the higher officials about needlestick injury.^[10]

Because of the nature of work, nurses have to stand for prolong duration, and it is a predisposing factor to cause varicose vein. In this study, varicose vein was reported by 19.5% of the nurses. Nurses are at high risk for susceptible to hospital-acquired infection. Thus, most of them use preventive

measures to protect themselves from infection, but still few of them get infected by hospital infection and organism. In our study, we found that 7.4% of nurses were hospitalized owing to hospital-acquired infection.

In our study, we found out that the most stressful situation for nurses were to deal with violence/abuse patients and patient's family making unreasonable demands. A similar finding was seen in a study conducted by Alnems et al, where the most stressful for staff nurses was the "uncertainty concerning treatment," followed by conflict with physician, work load, lack of support, inadequate preparation, inadequate information from a physician regarding the medical condition of a patient, a physician ordering what appears to be an inappropriate treatment for a patient, a physician not being present in a medical emergency, and not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment. In this study, we found the least stressful situation to be "difficulty in working with a particular nurse," whereas a contrast result was observed in the study conducted by Alnems et al., where "conflict with other nurses" was one of the most stressful situations.^[11]

This study indicated a need for further research on developing a reporting system for work-related injuries or illnesses along with periodic stress reduction modules for nursing professionals. In addition, nurses need to be aware of factors that cause increased stress, which are considered as occupational health hazards. In addition, personal measures to reduce occupational health problems including stress have

to be practiced. Moreover, appropriate training should be given to the nursing fraternity to develop skills to deal with patient violence and work-related injuries during their nursing education.

The limitation of this study was not able to gather information on the same from other tertiary-care hospitals owing to lack of time and funding. Thus, these findings are specific to one particular reputed tertiary hospital. Furthermore, we could not able to compare stress of nurses working within different departments because their posting changes every 3 months. In addition, we were not able to come on conclusion that which working shift nurses (day or night working shift) experienced more stress because again their working shift changes frequently.

Conclusion

In this study, varicose veins were reported to be high among nurses, followed by hospital-acquired infections and needlestick injuries. Some of the nurses did not report needlestick injury because they considered it as insignificant. A plausible explanation may be accepted of the injuries as a part of their profession or adaptation to the existing working conditions. The most stressful situation for nurses was having to deal with violence/abuse from patients, whereas the least stressful situation was difficulty in working with a particular nurse.

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