International Journal of Community Medicine and Public Health
Minikumary CK et al. Int J Community Med Public Health. 2023 Jan;10(1):254-257
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20223553

Original Research Article

A study on occupational safety and health among workers at a tertiary care hospital at south India

Minikumary C. K.[1], Jawahar S. K. Pillai[2]*, Ramkrishna Mondal[2]

[1]Former MHA Student, Kerala University, Kerala, India
[2]Department of Hospital Administration, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India

Received: 27 October 2022
Accepted: 12 December 2022

***Correspondence:**
Dr. Jawahar S. K. Pillai,
E-mail: jawahardr@yahoo.com

ABSTRACT

Background: Occupational safety and health (OSH) is important for moral, legal and financial reasons for any organization. Aims of the OSH programs include encouragement of a safe and healthy work environment. This study aimed to study the occupational safety and health among healthcare workers at a tertiary care hospital.
Methods: The cross-sectional descriptive type of study in a tertiary care hospital at south India. In this cross-sectional descriptive study, 120 health care workers were subjected to a pre-tested questionnaire. Along with questionnaire and interview method, inspection round and review of Incident register with 32 case reports were used as secondary source of data. Simple statistical methods were used to analyse the data.
Results: Risk assessment shows out of physical hazards (n=120) 21% Musculoskeletal disorder followed by 13% burns and 10% strain due to uncomfortable posture. Chemical hazards identified were 8% dust, 7% chemical inhalation and 6% sterilization gases. Biological hazards were 12% needle stick injury, 11% splash and 5% sharp injury (n=120). Equipment hazards reported more among nurses. Among psychosocial hazards shift duty stress was highest (17%). Incident register showed slips/falls (28%), equipment hazards (23%) and needle stick injury (19%) as most common hazards (n=32).
Conclusions: The percentage of occupational hazards in the study setting was less compared to national and international standards available. Risk assessment should be done periodically and periodic training and awareness programs for hospital employees directly influences on the quality of patient care.

Keywords: Occupational hazards, Occupational safety and health, Risk assessment, Risk management, Workers safety

INTRODUCTION

All organizations always have a moral duty to keep employees safe. Occupational Safety and Health (OSH) may also protect co-workers, family members employers, customers and many more who are affected by the workplace environment.[1] OSH should aim at the adaptation of each man to his job and of work to man.[2] OSH in a hospital is associated with the type of occupational hazard associated with each department of the hospital. OSH includes physical, chemical, biological, mechanical and psycho social hazards.[3] Emotional stress is the main health hazard. Among healthcare workers of United Kingdom, there were instances of 59% alcoholism and 41% drug addiction.[4] Since 1950, International Labour Organization (ILO) and World Health Organization (WHO) jointly adopted occupational health but in 2003, the thirteen session of joint ILO and WHO at Geneva, the committee recognized the need to raise occupational health issues at the global, regional and national levels and the national OSH programmes was made essential to achieving this goal.[5] In a study at Sahibabad, UP, shows that most of the staff were aware of the risk of injuries from sharps and needles, which is rated as highest. Musculoskeletal health problems like

backache were the most common occupational hazard. This study was able to show that although high level of awareness was found among clinical staff but the practical steps to prevent occupational hazards were still inadequate.[6] Approximately 40% of nurses had experienced injury or illness in past year and mostly (80%) had mentioned back pain, in a study from Philippines.[7] In a study related to sharp injury at Istanbul, Turkey reducing needle stick injuries is an important component of the occupational and patient safety program. Targeted intervention to increase awareness may reduce the incidence of such injuries.[8] In a study at Rawalpindi suggested that needle stick injury was very frequent in doctors. Most of them were sustained during recapping the needle and surgical procedures done in stressful and overworked environments.[9] Another study showed that most needle stick injuries occurred during intravenous line insertion, blood collection and recapping.[10] In a study in different hospitals of Tanzania reported that OSH is observed inadequate in most workplaces in hospitals.[11] The noise level in wards and nursing station was more than the suggested hospital ward sound level, in a hospital at Taiwan.[12] Work place related health impairment, injuries and illnesses causes great human suffering and incur high costs, both for those affected and for society. The total health care workers and their issues are to be dealt with seriously, for the smooth running of patient care institutions.

Primary objective of this study was to perform risk assessment of occupational hazards among healthcare workers based on standard guidelines for occupational safety in the hospital. It also intended to study the existing safety practices and present infrastructure facilities in the study setting. Overall, the study was done to find out new strategies for improvement of safety practices and to avoid occupational hazards in the hospital.

METHODS

The study setup was at 254 bedded tertiary care hospital different categories of staff at south India. The study was a cross sectional descriptive study and made in the year 2016-2018. The methods used were questionnaire, interview, inspection rounds, incident reports etc. to find out the occupational safety and health among health workers for improvement of safety practices. A sample size of 120 health care workers were subjected with a pre-tested questionnaire and interviewed. Different health care workers included doctors, nurses, lab workers, radiographer, technicians, attendants and cleaning staff. A risk assessment checklist was given to all health worker for checking potential occupational hazards. The risk assessment checklist was prepared from various national and international guidelines like occupational safety and health administration (OSHA), WHO, ILO etc. The questionnaire was customized according to the different areas of the hospital. A self-administered questionnaire for infrastructure facilities and knowledge of safety practices were used to collect data. After the data collection the data were analysed using simple statistical methods like percentage, mean etc. dietary, laundry, pharmacy medical record etc. were not included. Stress was studied only by using risk assessment checklist and no stress reporting tool was used. As the study was a survey study only and no intervention on human or animal was there in this study. The consent had been taken from each participant and the study followed the ethical standards as per the Helsinki declaration as revised in 2000.

RESULTS

120-study population included doctors (9%), nurses (29%), staff of central sterile supply department (CSSD) (4%), attenders/cleanings staff (18%), radiographers (8%), lab staff 921%), officers in lab (7%) and anesthetic technicians (4%). Majority were having 2-5 years of experiences (49%) and 28% below 5 years of experiences and 23% having more than 5 years of experiences. Physical hazards identified by respondents and musculoskeletal disorder showed highest (Figure 1).

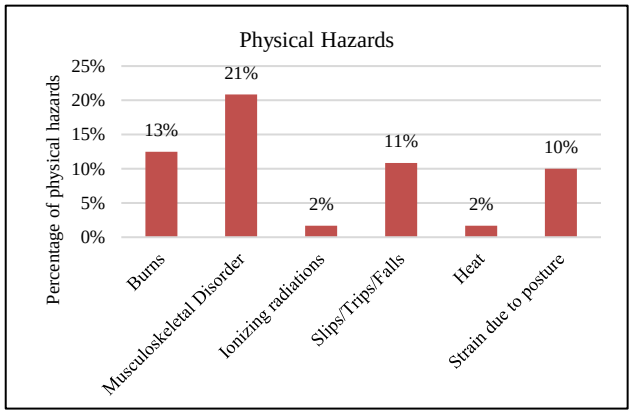

Figure 1: Different types of physical hazards.

Out of different chemical hazards, chemical inhalation was marked by the most respondents. But majority (43%) were not responded about the chemical hazards. Biological hazards found more on needle stick injury and splash (Figure 2).

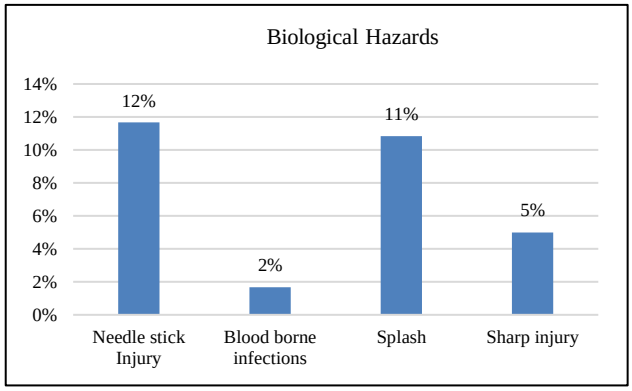

Figure 2: Types of biological hazards.

Mechanical hazards included equipment hazards and misses/accidents. Equipment hazards were found more among nurses (12%) followed by radiographer (5%). Only 14% health workers had the opinion that misses/accidents happened during their routine work in hospital. Psychological hazards were found to be more among nurses and stress from shift duty is the most common psychological hazard (Figure 3).

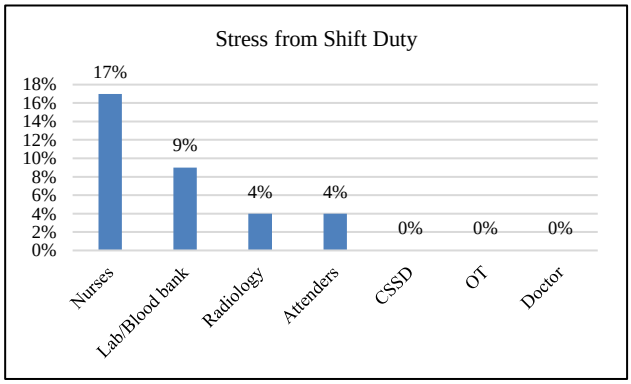

Figure 3: Stress from shift duty.

A total of 32 incident reports were registered on incident register. The details of hazards were scrutinized thoroughly and found that Needle stick injury (19%) under broad heading of biological hazards and slip (19%) under mechanical hazards were the most frequent hazards followed by heat (16%) under mechanical hazards. Infrastructure facilities questionnaire consisted of 30 different questions with five-point Likert scale. Result showed 75% were highly satisfied regarding transportation of biomedical waste, 50% were satisfied with collection of biomedical waste. 48% were satisfied with general cleanliness of the building premises, 91% were highly satisfied with availability of sterile gloves and 75% were highly satisfied with disposal of sharps, 20% were satisfied with housekeeping and 46% were satisfied with the working of hospital infection committee. The highly dissatisfied scale was training in safety, fire emergency drills, display of safety document and motivational schemes for safe awards. Considering the compliance of safety practices as per OSHA/CDC, WHO standard guideline, 25 questions were framed with a five-point Likert scale. It showed that there was excellent compliance (100%) of safety practices like gloves checked for holes before use, gloves discarded after use etc. Use of PPE is only satisfactory, which should be promoted by employers as it reduces all types of hazards. 33% were aware of first aid after exposure and post exposure prophylaxis. Material safety data sheet (MSDS) data were not available. Overall, the arithmetic mean was 2.88, which means that the compliance of safety practices was satisfactory in the study setting.

DISCUSSION

It was found that majority of the study population were from nursing followed by lab staff. Nearly half of them were having 2-5 years of experience. In physical hazards, musculoskeletal disorder was the prominent one. In chemical hazards, chemical inhalation was the major issue noted. For biological hazards, needle stick and splash were major reporting issues. Needle stick injuries are 63% in USA, 52.9% in Tanzania, 85.1% in at Rawalpindi, 45% in Mumbai, 85% in UK and in this study setup it is only 12%.[2,3,9-11] Sharp injury, cuts, scraps is 73% in UK, 21% in USA and in the study setting it was found 5% only.[2,3] Compared to UK (19%) anaesthetic gas hazards were very less in the study setup (6%).[1] Accidents was also less in the study setting (14%) as compared to UK (73%) and Tanzania (52.9%). In Tanzania, burn injury from chemical were 10.6% but, in this study, it was 13%.[4,11] In UK stress is the main health hazard in hospital. OSHA says many occupational hazards were due to stress among healthcare workers. Here in this study 17% nurses, 9% lab technician and 4% radiographer have stress due to shift duty.[4] Nursing is a hazardous occupation in the USA.[2] In Philippines, 40% nurses had experienced at least one injury or illness in the recent past year and 80% experienced backpain.[7] Many of them were highly dissatisfied with risk assessment and suggested that there should be risk assessment in the hospital and they need training in safety and occupational hazards. Overall, the percentage of occupational hazards in this study setting is less compared to national and international reference.

Under reporting, small organisation and sample size are some limitations of this study.

CONCLUSION

The study shows that incident report and other source wise major risks were splash, equipment hazard and needle stick injury. Major psychological hazard was stress from shift duty. The study setup requires more improvement in infrastructure facilities. Backache was the most common occupational hazard encountered among the staff. Under reporting of the incident could not be excluded in the study setting. Awareness programmes can be conducted to increase awareness of the importance of incident reporting in every hospital setup.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Stranks J. Health and Safety at work. 10th edn. New Delhi: Kogan Page India Pvt. Ltd; 2016.
2. American Hospital Association (AHA). Housekeeping Manual for Health Care Facilities. AHA: Chicago. 1966.
3. DC Joshi, Mamata Joshi. Hospital Administration. 1st edn. New Delhi: Jaypee Brothers Medical Publishers; 2009.

4. Gestal JJ. Occupational hazards in hospitals: accidents, radiation, exposure to noxious chemicals, drug addiction and psychic problems, and assault. Occupat Environ Med. 1987;44(8):510-20.
5. WHO. Occupational Health. A manual for primary health care workers. Cairo: World Health Organization, Regional office for eastern Mediterranean, 2001. Available from: https://www.who.int/publications/i/item/occupational-health---a-manual-for-primary-health-care-workers. Accessed on 2 December 2021.
6. Chopra A, Rao NC, Gupta N. Occupational Hazards in Dentistry: LAP LAMBERT Academic Publishing; 2014.
7. De Castro AB, Cabrera SL, Gee GC, Fujishiro K, Tagalog EA. Occupational health and safety issues among nurses in the Philippines. AAOHN J. 2009;57(4):149-57.
8. Toraman AR, Battal F, Ozturk K, Akcin B. Sharps injury prevention for hospital workers. Int J Occup Saf Ergon. 2011;17(4):455-61.
9. Khurram M, Ijaz K, Bushra HT, Khan NY, Bushra H, Hussain W. Needlestick injuries: a survey of doctors working at tertiary care hospitals of Rawalpindi. J Pak Med Assoc. 2011;61(1):63-5.
10. Mehta A, Rodrigues C, Ghag S, Bavi P, Shenai S, Dastur F. Needlestick injuries in a tertiary care centre in Mumbai, India. J Hosp Infect. 2005;60(4):368-73.
11. Manyele SV, Ngonyani HA, Eliakimu E. The status of occupational safety among health service providers in hospitals in Tanzania. Tanzan J Health Res. 2008;10(3):159-65.
Pai JY. A study in hospital noise- a case from Taiwan. Int J Occup Saf Ergon. 2007;13(1):83-90.

Cite this article as: Minikumary CK, Pillai JSK, Mondal R. A study on occupational safety and health among workers at a tertiary care hospital at south India. Int J Community Med Public Health 2023;10:254-7.