

A study on the knowledge, attitude and practice of medical students of a tertiary care teaching hospital on occupational hazards faced by the health care professionals

Pradumna Pathak*, Raktim Borgohain

Department of Pharmacology,
Fakhruddin Ali Ahmed Medical
College, Barpeta, Assam, India

Received: 04 October 2017

Revised: 19 October 2017

Accepted: 27 October 2017

***Correspondence to:**

Dr. Pradumna Pathak,
Email: drpradumnapathak@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Health care sector is clearly a high-risk sector for acquiring occupational hazards and have given rise to a debate on the need for a specific approach in order to improve the protection of the health and safety of hospital personnel. Many health care professionals in hospitals are exposed to significant occupational health hazards and consequently are at high risk of work-related diseases. This study aims to assess the knowledge, attitude, practice of medical students on occupational hazards faced by health care professionals.

Methods: A cross-sectional study involving 235 undergraduate medical students was conducted using a semi-structured questionnaire.

Results: All the respondents stated that they were aware of occupational hazard in their profession. 60% responded that biological hazards have maximum chance to occur at their working environment. 66.8% feared that occupational hazard can hamper their performance and 63.4% were of the view that animal simulation methods/manikins can minimize the risk of occupational hazard. 72.8% stated that clinical wards are the most likely place for occupational hazard and air-borne infection is the commonest source. Most respondents (97.4%) would like this topic to be included in the Undergraduate curriculum and 98.3% respondents were willing to attend a training programme about occupational health and safety.

Conclusions: Hospital should provide personal protective equipment's and look after adequate waste disposal systems to prevent the occurrence of health hazards in hospitals.

Keywords: Medical students, Occupational hazard, Questionnaire

INTRODUCTION

Occupational health has been defined as “a multidisciplinary activity aimed at the protection and promotion of health of workers by preventing and controlling occupational diseases and accidents and by eliminating the occupational factors and conditions hazardous to health and safety at work; the development and promotion of healthy and safe work, work environments and work organizations; the enhancement of the physical, mental and social well-being of workers and support for the development and maintenance of their

working capacity, as well as professional and social development at work; enabling workers to conduct socially and economically productive lives and to contribute positively to sustainable development”.¹

Health care sector is clearly a high-risk sector and have given rise to a debate on the need for a specific approach in order to improve the protection of the health and safety of hospital personnel.² Many health care professionals in hospitals are exposed to significant occupational health hazards and consequently are at high risk of work-related diseases. They are exposed to hazards like ionizing

radiation, noxious chemicals and electromagnetic fields. Psychosocial factors like stress and accidents and injuries like cuts, laceration is not uncommon among health care professionals.^{1,3-5} Many of the hazards can be prevented by simple measures like universal precaution and immunization.^{6,7}

Biological hazards exist on exposures to bacteria, viruses, fungi and other living organisms that can cause acute and chronic infections by entering the body, either directly or through breach in the skin.

Laboratory and medical personnel are in higher risk of exposure to biological hazards. Any occupations that result in contact with bodily fluids expose workers to biological hazards.

Though work-related diseases are amenable to prevention ideally through recognition, evaluation and adequate control measures, effective practice of occupational health and safety and its promotion in the workplaces has yet to be fully adopted in the developing countries.⁸⁻¹⁰

KAP study measures the Knowledge, Attitude and Practices of a community. It serves as an educational diagnosis of the community.¹¹⁻¹³

The present study was undertaken to access the knowledge of the undergraduate medical students of a tertiary care teaching hospital on Occupational hazards faced by health care professionals and their attitude and practice towards prevention and control of occupational hazards among the health care providers.

METHODS

This was a cross-sectional study conducted on undergraduate medical students of 1st, 3rd and 5th semesters of a tertiary care teaching hospital.

The information was gathered using a semi-structured questionnaire, which included questions related to occupational hazards and the perceptions of the medical students about occupational hazards faced by them during their learning process. 300 questionnaires were sent out, which were to be filled by the participants and returned.

A Pilot study was carried out on 50 students before conducting the final study to estimate the time required to complete the questionnaire and to determine the comprehensiveness of the questions by the participants so as to find out any deficit which can be corrected accordingly. Questionnaires filled during pilot studies were excluded from the final analysis.

An information sheet was attached to each questionnaire with a short description of the aim of the study and instructions on how to complete the questionnaire. The questionnaire consisted of 10 questions aimed at collecting

information regarding the knowledge, attitude and practice of medical students on occupational health and also to highlight the important obstacles for practicing ideal safety measures for preventing occupational hazard in health care facilities.

The questions and responses of the questionnaire is given in Annexure 1. All the returned questionnaires were analyzed by Version 10 of the SPSS software. Numerical variables were presented as percentage.

RESULTS

A total of 300 questionnaires were sent out and only 235 questionnaires were returned giving a response rate of 78.3%. Maximum respondents were from 1st semester (90/235) followed by 5th semester (88/235) and least response were obtained from 3rd semester (57/235).

Out of 235 total respondents, all of 235 (100%) were aware that occupational hazards can occur in their profession. A total of 141 (41 of 1st Semester+ 38 of 3rd Semester + 62 of 5th Semester) out of 235 which is 60% responded that biological hazards have maximum chance to occur at their working environment. 157 subjects out of 235 (66.8 %) feared that occupational hazard can hamper their performance of duty.

But 78 subjects responded negatively which comes as 33.2% of the total. Regarding the use of animal simulation methods and use of manikins to minimize the risk of occupational hazard, 63.4% (149) participants responded passively while rest 36.6% (86) responded adversely.

A major proportion, 72.8% (171) stated that clinical wards are the most likely place for occupational hazard for health care professionals, and the commonest source being airborne infections, 46.4% (109) followed by contact with patients 23%, exposure to blood and blood products 10%, exposure to biomedical waste 10%, needle stick injury 5%, exposure to laboratory chemicals 4% and fomites 1%.

Majority (93.6%) agreed that mandatory compensation should be provided to the victims of occupational hazard in medical profession. 55.7% (131) responded that they were adequately instructed regarding the risk of exposure of occupational hazard before doing any procedure.

It was also observed that 97.4% (229) were in favour of introducing the topic of "occupational hazards among health care professionals" in the undergraduate curriculum along with elaborate descriptions of the steps for minimizing it. In addition, 98.3% (231) respondents wanted a training programme about occupational health and safety.

Table 1 shows the knowledge, attitude and practice of UG medical students on Occupational hazards faced by medical professionals.

Table 1: Results of the responses.

Knowledge, attitude and Practice	1 st Sem. (n=90)		3 rd sem. (n=57)		5 th Sem. (n=88)	
	Positive response	Negative response	Positive response	Negative response	Positive response	Negative response
Aware of occupational hazard in their profession	90 (100%)	0	57 (100%)	0	88 (100%)	0
Biological Hazards have maximum chance to occur at their working environment	41 (45.6%)	-	38 (66.7%)	-	62 (70.5%)	-
Fear of occupational hazard can hamper their performance of duty	51 (56.7%)	39 (43.3%)	37 (64.9%)	20 (35.1%)	69 (78.4%)	19 (21.6%)
Animal simulation methods and use of manikins can minimize the risk of occupational hazard	55 (61.1%)	35 (38.9%)	34 (59.6%)	23 (40.4%)	60 (68.2%)	28 (31.8%)
Clinical wards are most likely place for occupational hazard for health care professionals	57 (63.3%)	-	46 (80.7%)	-	68 (77.3%)	-
Airborne infections are the most common source of exposure	45 (50%)	-	28 (49.1%)	-	36 (40.9%)	-
Mandatory compensation for medical occupational hazard victim	82 (91.1%)	8 (8.9%)	54 (94.7%)	3 (5.3%)	84 (95.5%)	4 (4.5%)
Adequately instructed regarding the risk of exposure to occupational hazard before doing a procedure	72 (80%)	18 (20%)	17 (29.8%)	40 (70.2%)	42 (47.7%)	46 (52.3%)
Topic of occupational hazards in health care professionals and steps to minimize it should be elaborately included in their curriculum	86 (95.6)	4 (4.4%)	57 (100%)	0	86 (97.7%)	2 (2.3%)
Want to join training programme about occupational health and safety	87 (96.7%)	4 (4.4%)	57 (100%)	0	87 (98.9%)	1 (1.1%)

DISCUSSION

From this study it has been seen that all the students were aware of occupational hazards being faced by the health care professionals. We included three different semesters in our study as our intention was also to examine whether the magnitude or profile of responses change with advancement of the academic career. Airborne infections being one of the commonest sources of biological hazards, hospitals should provide proper ventilation facilities and face masks to prevent and control diseases among the health care professionals.

Moreover, proper waste disposal systems, use of proper personal protective equipment's like gloves, gowns, etc., practicing proper hygiene measures like hand washing and reducing the use of animals by simulation methods or manikins for teaching undergraduate (MBBS) students can reduce the chances of occurrence of occupational hazards among the health care professionals. Occurrence of occupational hazards in health care professionals can have professional ramifications, including damaging effects on empathy, ethical conduct, and professionalism, as well as personal consequences such as burnouts, depression. Therefore, it is the responsibility of the society in general and health institutions in particular, to acknowledge the

risk of hazards among future doctors and health care professionals and to undertake alleviatory measures.

There is widespread consensus that limited resources, knowledge, and training pose barriers to optimizing occupational health and safety in hospitals. The findings of this study can be utilized by the hospital managers about the occupational risks as well as the benefits of investing in preventive measures, noting that preventing occupational diseases reduces morbidity and mortality in health care workers, decreases absenteeism, and reduces workers' compensation costs. The findings also suggest that occupational hazard safety measures services to protect the health of patients, other health care workers, and the general public.

CONCLUSION

A common conclusion of the above-mentioned findings is that many of these hazards can be prevented by simple measures like immunization, universal precautions. There is a dearth of data addressing the potential risk posed to health care professionals in tertiary care hospital. Hospital should provide personal protective equipment's and look after adequate waste disposal systems to prevent the occurrence of health hazards in hospitals. Health care

professionals would be benefitted by furthermore elaborate fact-finding research to identify and minimize the risk they face on their job.

ACKNOWLEDGEMENTS

Authors would like to thank all the students for their participation in the study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee (No: 128/2012/5686)

REFERENCES

1. Park K. Occupational health. In: Park's textbook of preventive and social medicine. 22nd ed. Jabalpur (M.P), India: M/s Banarsidas Bhanot publisher; 2013:746-763.
2. Social Affairs and Inclusion. Occupational health and safety risks in the health care sector. Guide to prevention and good practice: Directorate-General for Employment, European commission, 2011. Available at <http://www.bookshop.europa.eu/en/occupational-health-and-safety-risks-in-the-healthcare-sector> pbKE3111047. Accessed 8 April 2016.
3. Occupational hazards in hospitals. Reports on a WHO meeting. WHO: The Hague, 1981. Available at http://www.who.int/euro/r&s/EURO_R&S_80.pdf
4. Gestal JJ. Occupational hazards in hospitals: accidents, radiation, exposure to noxious chemicals, drug addiction and psychic problems, and assault. British J of Industrial Medicine. 1987;44:510-20.
5. Stress is occupational hazard for physician: Finding work life balance; 2016. Available at: http://www.doctorsdigest.net/pdf/0106_01.pdf. Accessed 12 April 2016.
6. Dorevitch S, Forst L. The occupational hazards of emergency physician. American J of emergency medicine. 2000;18(3):300-11.
7. Gorman T, Dropkin J, Kamen J, Nimbalkar S, Zuckerman N, Lowe T, et al. Controlling health hazards to hospital workers: A reference guide. NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy. 2014;23(1):1-69.
8. Lavoie MC, Yassi A, Bryce E, Fujii R, Logronio M, Tennessee M, et al. International collaboration to protect health workers from infectious diseases in Ecuador. Rev Panam Salud Publica. 2010;27(5):396-402.
9. Occupational Health and Safety Risk in Public Hospital: Victorian Auditor-General's Report; 2013. Available at: <https://www.audit.vic.gov.au/sites/default/files/20131128-OHS-in-Hospitals.pdf>. Accessed November 2013.
10. Niosh C. Exposure to Stress: Occupational Hazards in Hospitals. Department of Health and Human Services centers for Disease Control and Prevention National Institute. DHHS Publication. 2008;136.
11. Kaliyaperumal KI. Guideline for conducting a knowledge, attitude and practice (KAP) study. AECS illumination. 2004;4(1):7-9.
12. Aluko OO, Adebayo AE, Adebisi TF, Ewegbemi MK, Abidoye AT, Popoola BF. Knowledge, attitudes and perceptions of occupational hazards and safety practices in Nigerian healthcare workers. BMC Res Notes. 2016;9(71):1-14.
13. A physician's guide to occupational health and safety responsibility. Government of Alberta, Employment and Immigration. College of physicians and surgeons of Alberta. 2008. Available at: http://cpsa.ca/wp-content/uploads/2015/04/WHSPUB_physicians_guide.pdf?890ee8. Accessed 12 April 2013.

Cite this article as: Pathak P, Borgohain R. A study on the knowledge, attitude and practice of medical students of a tertiary care teaching hospital on occupational hazards faced by the health care professionals. Int J Basic Clin Pharmacol 2017;6:2931-5.

Annexure 1: Questions and responses of the questionnaire.

S. No.	Questions and Responses of the Questionnaire
1	Are you aware that occupational hazard can occur in your profession? Yes/No
2	According to you which type of hazard has maximum chance to occur at your working environment? a) Biological hazards (like HIV, Hepatitis B, Hepatitis C, Viral Fever, Conjunctivitis, Herpes infection) b) Radiation hazards (like ionizing radiation) c) Chemical hazards (like anaesthetic gases, formalin, mercury from broken Sphygmomanometer or thermometer, anti-neoplastic drugs) a) Exposures to biomedical wastes b) Other (please specify _____)
3	Do you think that fear of occupational hazard can hamper your performance of duty? Yes/No
4	Do you think that animal simulation methods and use of manikins can minimize the risk of occupational hazard? Yes/No
5	According to you which is the most likely place for occupational hazard for health care professionals? a) Practical in laboratory (like pharmacology animal experiments, microbiology culture media) b) Dissection hall (like formalin exposure) c) Clinical ward (like viral infection, scabies, herpes infection, TB) d) Blood bank (like blood and blood products) e) Radio-diagnostic room (like ionizing radiation) f) Forensic Mortuary g) Other (if any please specify)
6	What can be the most common source of exposure according to you? a) Needle stick injury b) Fomites c) Air borne infections d) Contact with the patients during medical procedure/ examinations e) Exposure to blood and blood products f) Exposures to laboratory chemicals/animals g) Exposure to biomedical waste h) Other (please specify)
7	Do you think that compensation should be mandatory for medical occupational hazard victim? Yes/ No
8	Do you think that you are adequately instructed regarding the risk of exposure of occupational hazard before doing a procedure? Yes/No
9	Do you think that the topic of occupational hazards in health care professionals and steps to minimize it should be should be more elaborately included in your curriculum? Yes/No
10	Would you like to attend a training programme about occupational health and safety? Yes/No