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RESEARCH ARTICLE

Occupational Health Hazard Experiences of Doctors and Nurses at a Tertiary Hospital in Bangladesh

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ABSTRACT

Objective: **This study aimed to explore the workplace safety experiences of health workers (doctors and nurses) at a tertiary hospital in Bangladesh.**

Materials and Methods: **This was a descriptive cross-sectional study among conveniently selected 305 registered physicians and nurses working in the designated tertiary hospital. After obtaining the written informed consent, data was collected using face-to-face interviews with a pre-tested, semi-structured, interviewer-administered questionnaire from December 2021 to January 2022. Frequency and proportion described the variables.**

Result: **The mean age of the participants was 28.8 years. Female individuals constituted the majority, accounting for 69.2% of the total. Approximately 69.8% of individuals reported experiencing occupational health hazards. Psychological hazards were the most frequently reported (56.1%), followed by workplace-acquired health hazards (15.7%) and physical hazards (13.8%) among all participants. While 79.0% of the participants were aware of workplace health and safety, only 7.9% received safety training, and only 7.5% reported any occupational hazard to the hospital management.**

Conclusion: **Healthcare personnel adjust to several professional hazards in a complicated series of events, as the study shows. The complexity of the healthcare environment poses considerable psychological and health hazards. Although there is good preparedness and procedure awareness, the analysis shows some crucial resources and training still need to be improved. Therefore, some strategic actions are needed to improve healthcare professionals' safety and well-being in the modern healthcare environment through crucial resources and training.**

Keywords: Bangladesh, Doctors and Nurses, Health workers, Occupational Health Hazard.

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1. Introduction

Safety is defined as the capacity of a system, including individuals, teams, and organizations, to effectively respond and adjust to evolving circumstances, such as risks, hazards, opportunities, and a dynamic work environment, in order to achieve success in their activities and tasks [1]. Healthcare institutions, being complex organizations, have used modification methodologies and enhanced the caliber of their offerings throughout time [2]. The patient's safety culture is a reflection of the shared beliefs of processes, standards, and attitudes among health workers regarding preventable errors in treatment delivery [3]. However, for an institution to ensure the safety of patients, it is imperative that it also guarantees the safety of its staff [4]. An environment with a strong emphasis on safety should be prioritized for both the well-being of patients and the protection of healthcare professionals [5], [6].

Healthcare workers (HCWs) have a higher rate of incidence of injuries than workers in other industries due to a multifaceted interplay of factors, including the worker, patient, and facility, which is similar to how diseases can occur from a mix of genetic and environmental factors [7]. Unfortunately, the most apparent consequences of a workplace accident are the ones that can be quantified, such as explicit and implicit healthcare expenses, elevated

employee turnover, and shortages in people [7]. Therefore, studies have discovered that HCWs who interact with patients face numerous occupational health hazards, such as infections and psychological or physical hazards [8], [9]. In recent years, research has also revealed a variety of links between psychological working conditions, occupational safety, and patient safety culture [10]. Healthcare workers perceived their personal health and safety to be of worse quality compared to other workforce members, and qualitative interviews revealed that this perception negatively impacts their quality of life and overall job satisfaction [11].

This is considered a significant issue that adverse incidents have the potential to impact HCWs, patients, their families, and healthcare organizations [12]. Depending on the country, the incident report system may or may not be utilized as frequently for HCW accidents as it is for patient occurrences; despite the high prevalence of work-related injuries, there is still a need for organizational learning and enhanced safety [13]. Because of the ever-changing character of modern hospitals, healthcare staff encounter substantial shifts in psycho-social working conditions, such as shortages or imbalances in skills, heightened workload, and increasing task complexity [10], [14], [15]. Consequently, there is an increase in staff sickness and absenteeism over time, a decline in motivation, and a rise in patient complaints and dissatisfaction with the service [16].

World Health Organization reported that 2.1% of global mortality and 2.7% of the overall disease burden could be directly linked to specific occupational hazards that could be prevented by implementing healthier and safer work environments [17]. In 2018, the U.S. Bureau of Labor Statistics reported that 73% of injuries related to violence were suffered by HCWs; in China, 70% of HCWs were injured, and in Indian hospitals, approximately 18% of pre-hospital providers, including emergency medical technicians, paramedics, emergency doctors, and nurses, experienced physical injuries [18]. Considering this burden, Bangladesh also has similar experiences concerning its HCWs.

This calls for a rising need to address the workplace safety issues of the HCWs to facilitate its solution and make the best use of the healthcare organization. The study is aimed to explore the workplace safety experiences of health workers (doctors and nurses) at a tertiary hospital in Bangladesh.

2. Materials and Methods

This was a descriptive cross-sectional study. The study was conducted among conveniently selected 305 registered physicians and nurses currently on duty in the designated tertiary hospitals from December 2021 to January 2022. For this study, data collection was done through face-to-face interviews using a pre-tested, semi-structured, interviewer-administered questionnaire. Confidentiality and privacy were maintained with priority throughout the data collection procedure. Variables were descriptively expressed by frequency and percentages.

For the variable of age in years, the closest integer value was used. Occupational hazards were categorized as physical, psychological, and health hazards. Firstly, physical hazards included needle stick injury or being exposed to any type of body fluids of the patient, whereas the second one was the psychological hazard. It was any verbal or non-verbal approach by which the participant felt threatened, unethically and unusually burdened, or discriminated by any patient, patient's relative, colleagues, or hospital authorities. The final one was the workplace-acquired health hazard that consisted of any disease that might have been caused because of the exposure at the time of hospital duties at the study site due to a lack of safety measures. For statistical analyses, version 25 of the Statistical Package for Social Science (SPSS) was used.

This study was conducted after getting approval from the Institutional Review Board, National Institute of Preventive and Social Medicine. Written informed consent was obtained after a proper explanation of the purpose, procedure, and use of the study. Moreover, they were informed that they had the freedom to refuse to participate or withdraw at any point from the study.

3. Results

This study was conducted among 305 registered physicians and nurses. As the participants were enthusiastic, the response rate was 100%, and there was no missing data.

Table I shows that the mean age of the participants was 28.8 years. The majority (69.2%) were female. Among the participants, the proportion of doctors was higher (67.2%). Most (91.5%) of them were working in the hospital's indoor unit.

Fig. 1 shows the proportion who experienced any type of occupational health hazard. The majority (69.8%) have

TABLE I: Demographic Characteristics of the Participants

Variables		
	Mean ± SD	
Age (Years)	28.8 ± 3.7	
	Frequency	**Percentage**
Sex		
Male	94	30.8
Female	211	69.2
Marital status		
Married	123	40.3
Unmarried	182	59.7
Religion		
Islam	245	80.3
Hindu	55	18
Buddhism	1	0.3
Christian	4	1.3
Profession		
Doctor	205	67.2
Nurse	100	32.8
Unit of working		
Indoor	279	91.5
Outdoor	20	6.6
Emergency	6	2

Fig. 1. Occupational health hazard experience among the participants.

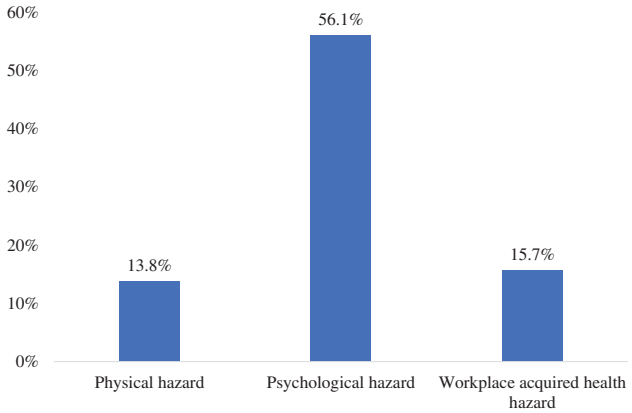

Fig. 2. Type of occupational health hazard experienced by the participants (Multiple responses).

reported that they have faced health hazards in the occupational setting.

Fig. 2 depicts the nature of occupational health hazards that the participants mentioned they had experienced. Many (56.1%) reported experiencing psychological hazards in their workplace., followed by workplace-acquired health hazards (15.7%) and 13.8% experienced physical hazards.

Table II shows that among those who experienced physical occupational hazards, most (81%) experienced needle prick injury during work. Regarding psychological hazards, most (84.2%) were exposed to increased workload and demand and, to a lesser extent, to frustration due to limited resources (5.8%) and frustration due to harassment by the patients (4.1%).

Table III describes that most of the participants had access to available logistics (94.1%) and security measures in case any violence occurred by the patient (91.8%). The majority confessed that their hospital management contributed to reducing hazardous incidents (93.4), and they were prepared for any unusual disastrous event (93.1%). Even after that, if an incident occurred, 93.4% expressed that they knew the procedure of reporting. However, nearly 40% felt the lack of personal protective equipment supply, and around half of the participants did not get any benefit from any type of compensation package. Lack of safe water supply (50.2%) and improper toilet facility (43.0%) were also reported. On the brighter side, waste disposal (93.1), electricity supply (97.0%), and lighting source (93.4) were adequate, according to the majority of the participants. The knowledge of workplace safety was primarily obtained through mass media (60.6%). Although 79.0% of the participants knew about workplace health and safety, only 7.9% ever got safety training, and a mere 7.5% ever reported any type of occupational hazard to the hospital management.

4. Discussion

This descriptive cross-sectional was conducted among 305 doctors and nurses of tertiary healthcare facilities concerning their workplace safety experiences. The participant had a mean age of 28.8 years. A previous study in Bangladesh reported a similar mean age of 30.8 years [19]. A similar age pattern was also observed in a study in Pakistan, where the mean age was found to be 32.6 years [20]. Another study in China found an age range of 30–39 years to be in the highest proportion [21]. This depicts the majority of the healthcare professionals working in a tertiary hospital are of similar age patterns in different countries. This current study found that the majority (69.2%) of the participants were female. The study in China also reported female dominance (60.9%) in the workplace in tertiary hospitals [21]. This fact spotlights that extra effort and concern need to be addressed to make the workplace a safe place.

In this study, it was reported that 69.8% of the participant experienced some sort of occupational health hazard or incident during their work time at the facility. A similarly high prevalence was reported in the neighbouring country of India, where workplace violence was reported by 67.9% of the study participants [22]. Such a higher rate was also observed in Turkey, where the prevalence was 78.1% [23]. A study in north Chinese territory found

TABLE II: Different Hazards Experienced by the Participants

Variables	Frequency	Percentage
Type of physical hazard (n = 42)		
Needle prick	34	81
Exposure to patient's body fluid (blood, sputum, urine, saliva, feces, etc.)	8	19
Type of psychological hazard (n = 171)		
Workload and demand	144	84.2
Frustration due to limited resource	10	5.8
Frustration due to emotional harassment by a colleague	2	1.2
Frustration due to emotional harassment by patient	3	1.8
Frustration due to emotional harassment by the patient's relative	7	4.1
Others	5	2.9

TABLE III: Working Environment and Safety Measures in the Workplace

Variables	Frequency	Percentage
Availability of logistics and materials resources	287	94.1
Viability of emergency exit points in the hospital	263	86.2
Security measures against patient attacks	280	91.8
Procedures for reporting	285	93.4
Contribution of hospital management toward reducing occupational health hazards	285	93.4
Preparedness for any unforeseen disaster	284	93.1
PPE supply	184	60.3
Compensation packages	152	49.8
Proper ventilation	237	77.7
Waste disposal	284	93.1
Adequate electricity supply	296	97.0
Adequate light supply	285	93.4
Safe water supply	152	49.8
Proper toilet facility	174	57.0
Knowledge about workplace hazard and safety	241	79.0
Source of knowledge:		
Mass media	146	60.6
Education	47	19.4
Orientation	31	12.9
Seminar	17	7.1
Safety training exposure	24	7.9
Reporting to hospital management	23	7.5

that a total of 83.3% of respondents reported exposure to workplace violence [21]. However, a lower prevalence rate was observed in a previous study in Bangladesh that found 43% experienced some form of workplace violence among the participants [20], and in southwestern China, it was 49.2% [24]. The differences in the prevalence rate might be due to some factors like study population, study settings, and geographical and cultural discrepancies. The different working definitions of occupational hazard or workplace violence can also be a contributing factor as this study looked more at the safety experiences due to working environment and conditions rather than exploring any violence like the other above-mentioned studies.

The present study found that 56.1% experienced psychological hazards, and the physical hazard was reported by 13.8% among the total participants. Similar results were also evident in a study in China, where 68.9% experienced non-physical violence, and 14.4% reported exposure to physical violence [21]. However, a lower rate was found in earlier studies in Bangladesh, one of which reported that the prevalence of violence among HCWs was 14.1% [18]. Another study in Bangladesh also reported a similar physical violence rate of 12.3 [25]. In southwest China, the prevalence of psychological violence was 43.7%, and the physical hazard was reported by 5.5% among the participants [24]. In the year 2017, in four Indian states (Gujarat, Karnataka, Tamil Nadu, and Telangana), a study concerning workplace violence reported the prevalence of verbal assault experienced by 59.8%, and physical assault was 58% among prehospital care providers [22]. A study in Ghana found that psychosocial were experienced by 17% and physical health hazards were experienced by 53% among the total participants [26]. The variations in the prevalence rate resulted from several factors, including the population being studied, the study places, geographical disparities, and cultural differences. The distinct working terms for physical and psychological hazards and tools used for assessing these can also be contributing elements. This study did not include any form of physical harm or violence as a workplace safety issue, which was mostly considered and reported by others. This study was only concerned with the working environment and its related impacts as an occupational hazard.

This study noted the safety concerns among the participants and found a high percentage (>90% in all aspects) were satisfied with the working logistics, security measures, preparedness to combat any disastrous event, procedure of incident reporting, waste disposal, electricity supply, reliable and proper lighting source. This implies that the Government of Bangladesh, as well as the hospital authorities, are very concerned about the working conditions and are improving to provide full support and care for the healthcare professionals. However, this concern wasn't the same in the cases of safe water supply and toilet facility as a result showing a poorer percentage in these two factors. The authorities have to ensure all those as well as provide adequate training at regular intervals to the HCWs to provide a better environment. Currently, only 7.9% reported that they got any safety training, which reflected the lower incident reporting (7.5%), though the prevalence of workplace health hazards was much higher.

As this was a descriptive cross-sectional study conducted among conveniently selected HCWs, there are some limitations. The results are not generalizable. This study cannot establish a causal relation or correlation between health hazards and other variables. Workplace violence caused by duty time could have given a wider perspective of health hazards. As a retrospective study, there are chances of recall bias. Despite the limitation, this study gives an overall expression of the experience of HCWs about their workplace safety and concerns, which can be used as a base for further in-depth research.

5. Conclusion

The study sheds light on the convoluted chain of experiences that healthcare workers have while adjusting to a wide range of professional hazards. One of the most noticeable patterns is the presence of high psychological and physical hazards in the complex nature of healthcare responsibilities. Even though there is a commendable level of preparedness and awareness of procedures, the study reveals that there are discernible gaps in providing some essential resources and training. This highlights the necessity of strategic interventions to strengthen the safety and well-being of healthcare professionals within the contemporary healthcare environment.

Funding

The study was performed without financial support from any organization.

Data Availability

Data will be made available upon reasonable request.

Ethical Approval

This study commenced after getting the approval of the Institutional Review Board, National Institute of Preventive and Social Medicine (Reference no: NIPSOM/IRB/2021/18). After a proper explanation of the purpose, procedure, use, publication of the study, written informed consent was taken. Confidentiality and privacy were maintained, giving maximum priority. This study does not contain any information that may lead to identification of any participant.

Conflict of Interest

Authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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