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Occupational Health and Safety Measures Among Healthcare Workers in Ancillary Departments of Private and Tertiary Care Hospitals of North India

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Abstract

The purpose of this study is to evaluate healthcare workers' knowledge, attitudes, and behaviors about Occupational Health and Safety (OHS) measures in ancillary departments of private and tertiary care hospitals in North India. 860 respondents, representing a wide spectrum of healthcare personnel, were given a thorough survey to gauge their knowledge of OHS procedures, their training, and their compliance with safety precautions. The poll also aimed to determine the typical workplace risks that these employees face while performing their everyday duties. The results show that there are notable gaps in the use of efficient safety procedures, even though healthcare professionals often exhibit a strong awareness of the occupational hazards that exist in their workplaces. Notably, there are issues with regular use of personal protective equipment (PPE), reporting of occupational injuries, and formal OHS training. These disparities imply that even while hazards are recognized, there can be obstacles that keep complete adherence to safety procedures, such as discomfort with personal protective equipment (PPE), inadequate training, or fear of retaliation. To overcome these shortcomings, the study also emphasizes the necessity of improved OHS measures, such as improved training accessibility, more accessible and comfortable personal protective equipment, and the implementation of official injury reporting systems. Furthermore, because many healthcare professionals are exposed to physical, chemical, and biological risks that may have long-term health effects, the study emphasizes the value of routine health examinations as a preventive intervention. Regular health exams could improve healthcare professionals' general well-being by assisting in the early detection of work-related health concerns. The study's findings highlight how urgent healthcare organizations must improve their OHS procedures to give their staff members a safer and healthier workplace.

Keywords: Occupational health and safety, healthcare workers, private hospitals, tertiary care hospitals, occupational hazards, personal protective equipment, safety protocols, workplace injuries, North India

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INTRODUCTION

In hospitals, ancillary healthcare workers including support, maintenance, and cleaning personnel are subject to a variety of occupational risks. According to Smith et al. (2018), these risks can include physical strain from repetitive work, exposure to infectious agents, and dangers related to handling dangerous chemicals and equipment. These employees are frequently disregarded in hospital safety procedures, although they play a vital role in guaranteeing the efficient operation of healthcare facilities [1].

Occupational health and safety (OHS) practices in India, especially in private and tertiary care

hospitals, are frequently inconsistent and underreported, with little consideration given to the unique requirements of ancillary healthcare workers [2]. According to studies, these workers usually receive inadequate OHS training and resources, which raises the risk of work-related diseases and injuries [3]. The situation is made worse by the absence of standardized safety procedures, which expose these employees to long-term health problems [4].

This study aims to assess healthcare professionals in hospital ancillary departments' awareness, practices, and adherence to OHS procedures. The study will evaluate the existing status of safety procedures to identify any knowledge and compliance gaps that might raise the risk of workplace injuries. This study will offer insightful information for pinpointing locations where safety precautions can be strengthened and suggest tactics for improving OHS procedures. The ultimate objective is to improve the general safety culture in Indian healthcare facilities, lower occupational health risks, and create a safer work environment [5].

METHODOLOGY

Among medical professionals in North India's auxiliary departments of private and tertiary care hospitals. Particularly in resource-intensive environments, like tertiary care institutions, the healthcare sector is linked with great exposure to many occupational hazards including biological, chemical, physical, and ergonomic dangers [6]. Reducing these hazards depends on following OHS policies, so the first step in increasing worker safety is knowledge of the present practices [7].

We created a standardized questionnaire to compile thorough information from medical professionals. Knowing that these elements affect OHS procedures, the questionnaire gathered demographic data like age, gender, department, designation, and years of experience [8]. The poll also asked participants about occupational dangers, which could change greatly depending on the hospital department [9]. The questionnaire also asked for formal OHS training received by the participants, adherence to safety protocols such the usage of personal protective equipment (PPE), and their practices around reporting safety concerns [10], so better understanding the appropriateness of workplace safety measures. Studies show that in healthcare environments, appropriate training and following procedures are linked to lower occupational injuries [11].

Important elements of good OHS systems are also the availability of safety equipment and the readiness of healthcare professionals for crises [12]. Considering the several roles present in healthcare facilities, including maintenance personnel and healthcare assistants, it is crucial to assess the safety issues experienced by various employment levels [13]. Designed to get replies from 860 people employed across 10 hospitals, the questionnaire guarantees a varied representation of hospital personnel covering both clinical and non-clinical roles. This sample size is enough to give a strong knowledge of OHS policies inside the area.

Descriptive statistics were used in data analysis to clearly show present OHS procedures by aggregating responses across many demographic and occupational groups. Examining the correlations between several variables – such as the effect of training on PPE use or the association between experience level and hazard exposure – inferential statistics were used [14]. This statistical method helps to find important trends and offers proof to guide policy recommendations for bettering safety measures in medical environments.

RESULTS

The responses from the 860 participants revealed several key findings regarding their awareness, training, and safety practices.

Table 1 describes the demographic characteristics of the respondents. Age distribution: The largest group of respondents (40%) is between the ages of 25–35, while 35% of participants are aged 46 or above; 25% of respondents were aged between 36 and 45. This distribution indicates that the surveyed

healthcare workforce is relatively young, and that a significant proportion of professionals are mid to late career.

Table 1. Demographic Characteristics of Respondents.

Variable	Response Options	Percentage (%)
Age	25–35	40
	36–45	25
	46 and above	35
Gender	Male	52
	Female	48
Years of Experience	1–5 years	60
	6–10 years	25
	11+ years	15
Type of Hospital	Tertiary Care	60
	Private	40

Based on gender, the respondents are 52 percent male and 48 percent female. November 24, 2023 / 9:19 PM Gender representation is relatively balanced across healthcare settings, the survey is reflective of this as it displays even representation of all genders within the survey sample.

The years of experience of the respondents, most of the respondents (60%) have worked in the healthcare field for 1–5 years, indicating that the workforce is relatively new with less than 5 years of experience. 25% of respondents fall in the category of experience range of 6–10 years, 15% of the total respondents have more than 11 years of work experience. The large proportion of early-career professionals may indicate a workforce that is still developing their expertise and perhaps more open to OHS training and practices.

Type of hospital: 60% of respondents work in tertiary care hospitals and 40% work in private hospital this reflects a diversity of health care settings, with tertiary care hospitals typically providing more complex health care services and thus putting workers at higher occupational hazards than do private hospitals.

In summary, the data shows a comparatively young workforce with a high percentage of healthcare profession newcomers. The number of respondents in various hospital types and experience levels give an overview of the healthcare workers studied. This population breakdown is important to understand various subgroups of the healthcare sector that may be facing unique OHS challenges.

The first four columns of Table 2 show descriptive statistics regarding OHS training and awareness. Forty-five percent of responses have taken OHS training, while 55% have not (data until October 2023). It implies that a lot of OHS education has not been gained in formal institutions which overlaps into the health arena. A large portion of the respondents also did not have formal training, which further strengthens the need for an adequately trained workforce as a preventative measure to ensure safety and compliance with safety standards.

How well do the respondents know their occupational hazards 78% of respondents know the hazards they are exposed to in their job roles, which indicates a general sense of awareness about the risks associated with their work environment of health care. Nonetheless, 22 respondents claim they are unaware of these hazards, indicating that potential improvements and communication around safety, specifically regarding hazards among less experienced/younger workers and new employees may be needed.

The range of risks faced by respondents reflects the diversity of hazards associated with natural disasters. Physical injuries are the single most cited danger, mentioned by 32% of respondents, who said they encounter such hazards as a part of their jobs. Chemical exposure (22%) – this one is a little scary because it means these people have some exposure to products that are potentially bad for them. While only 14% of respondents identified biological hazards related to exposure to infectious agents, that anxiety would likely be prevalent in healthcare, where the risk of contamination is ever-present. Noise exposure, cited by 8% of respondents, is an important consideration and in places like operating rooms and emergency departments, where loud equipment might be in use. Psychological stress, reported by 6% of those polled, indicates the mental-health burdens healthcare workers are shouldering, especially in stressful environments. Finally, 18% of respondents noted "other" hazards, indicating a broad spectrum of additional risks that are not covered in the provided list but add to the complexities of occupational health and safety in healthcare environments.

Table 2. OHS Training and Awareness.

Question	Response Options	Percentage (%)
Received Formal OHS Training	Yes	45
	No	55
Aware of Occupational Hazards	Yes	78
	No	22
Types of Hazards Encountered	Physical Injuries	32
	Chemical Exposure	22
	Biological Hazards	14
	Noise Exposure	8
	Psychological Stress	6
	Other	18

In the Bigger Picture In summary, drawing from the data indicates that a workforce with varied levels of OHS training and awareness, which is a strong indication of the level of OHS training that you may require. Although knowledge of occupational hazards is high, the large number of informants reporting no formal training and the wide range of identifiable hazards implies that occupational health and safety (OHS) education and risk management strategies need to be assessed within many workplaces in Australia.

The latter role is presented in Table 3, which shows the use of personal protective equipment (PPE) by respondents, as well as compliance with security measures. To see that three quarters of working respondents wear PPE every time they work is a great accomplishment and demonstrates PPE is a large part of the safety practices of many of the healthcare workforce. This high percentage suggests that majority healthcare workers understand importance of PPE involves preventing themselves from occupational hazards, especially while working in environment associated with biological, chemical, and physical risks.

Table 3. Use of Personal Protective Equipment (PPE).

Question	Response Options	Percentage (%)
Always wear PPE at work	Yes	75
	No	25
Reasons for Non-Compliance (PPE)	Discomfort	40
	Lack of Availability	30
	Not required for task	15
	Other	15

Yet, one in four respondents say they do not always wear PPE on the job, suggesting that there are some barriers persisting to following safety protocols in full. The survey also asked respondents why they did not comply, to better understand these barriers. For example, among respondents who do not consistently do PPE, the leading reason reported was discomfort (40%). This shows that PPE is not necessarily felt comfortable and consequently may be neglected by certain workers, since it adds a level of threat if workers do not wear it. This could be done through a more comfortable, ergonomic PPE and through offering options appropriate for the work in question.

The availability of PPE is the second-most cited reason for not complying with 30% of respondents citing this as a reason. This indicates a possible disruption in the supply chain or logistical errors in healthcare facilities that may lead to PPE not being available when needed. Widespread access to appropriate PPE through everyday availability is a critical part of ensuring standards of safety in the workplace and to prevent work-related injury or illness especially in high-risk environments (e.g., hospitals).

An additional 15% said PPE is not required for the work they do, indicating that some workers may not feel a perceived need for protective equipment based on their work. This perception is time-sensitive and may even differ depending on the type of work being done, but it indicates the need for thorough training and awareness campaigns to ensure workers understand when PPE is appropriate and why. The other 15% of respondents did not wear PPE for "other" reasons, suggesting that there may be further underlying motivation behind the failure to comply.

Overall, while most respondents claim to follow PPE protocols, there are significant barriers preventing 100% compliance, namely discomfort, availability issues, and lack of perceived need for PPE in various jobs. These findings provoke thought about the comfort level of PPE as well as the availability of PPE within healthcare settings, and that all personnel understand the need for PPE for so many different roles and the environment in which they work.

Table 4 presents information regarding workplace injuries and the reporting habits of health workers across the surveyed hospitals. 30% of the respondents have had a work-related injury, while 70% have not. The high rate of occurrence of injuries in health care settings is noteworthy, considering the risk of any type of accident (related to machines or external factors, etc.) that the health worker is exposed to every day and that leads to accidents and injuries.

Table 4. Workplace Injuries and Reporting.

Question	**Response Options**	**Percentage (%)**
Sustained Work-related Injury	Yes	30
	No	70
Types of Injuries Sustained	Cuts and Bruises	45
	Chemical Burns	20
	Infections	15
	Fractures/Dislocations	10
	Respiratory Issues	5
Reported Injury to Employer	Yes	45
	No	55
Reasons for Not Reporting Injury	Fear of Reprisal	40
	No Formal Reporting System	35
	Not Knowing How to Report	10
	Other	15

The injuries reported by the respondents covered a variety of occupational hazards. Cuts and bruises were the most frequently reported injury type, with 45% of respondents reporting this as the injury they sustained. Injuries of this nature will be due to direct physical contact with the equipment, the patient or other hazards usually present in a healthcare environment. Chemical burns have also been cited as a risk, with 20% of the respondents reporting such injuries. Known hazardous substances are widely used in healthcare environments, particularly in laboratories or in departments where they are used for cleaning and sterilization purposes. Infections, cited by 15% of respondents, reflect biological risks that healthcare workers are exposed to, especially for those involved in patient care or who handle contaminated materials. Other common injuries include fractures or dislocations (10%) and respiratory problems (5%), which reflect both the physical nature of the work and possible exposure to airborne hazards.

Among respondents, 45% had reported their injuries to their employer, and 55% had not. This indicates that many healthcare workers either did not fill out a report of their injuries or did not know of any such reporting system. Data about reasons for not reporting injury offers additional insight into potential barriers. As many as 40% of respondents said fear of reprisal was the main reason, they did not report injuries. In fact, many employees live in dread of being punished for their concerns, reflecting a broader need for workplace cultures that are supportive and encourage discussion of safety concerns, not punitive.

Furthermore, 35% of respondents indicated that no formal reporting system exists, highlighting a significant void in safety infrastructure. If there is no way for workers to easily report injuries, workers will be less likely to report them, leading to underreporting with no follow up or preventative measures taken. Finally, 10% of respondents stated they did not know how to report injuries, underscoring the importance of appropriate training and communication regarding injury reporting protocols. Finally, 15% of respondents gave “other” reasons for the lack of reporting, implying that there are also some additional anonymous barriers at the base.

Therefore, in conclusion, despite the high percentage of reported injuries in the workplace, there are major barriers to consistent and comprehensive injury reporting, including fear of reprisal, a lack of injury reporting systems, and a lack of awareness of how to report. They need to ensure that they have clear reporting procedures, create a supportive work environment, and provide training as to how employees can report injuries.

Table 5 highlights the safety protocols and emergency preparedness in the healthcare environment. While the data is to be welcomed, it also points to places where more work can be done to make workplaces safer.

Table 5. Safety Protocols and Emergency Preparedness.

Question	**Response Options**	**Percentage (%)**
Safety Signs and Hazard Warnings Displayed	Yes	85
	No	15
Regular Health Checkups as Part of Workplace Safety	Yes	50
	No	50
Emergency Preparedness Drills Conducted Regularly	Yes	40
	No	60
Never Participated in Emergency Drills	Yes	60
	No	40
Access to First-Aid Kits and Emergency Medical Services	Yes	90
	No	10

In our survey, 85% of respondents reported that safety hazard warnings are a thing in their workplace. These signs are important to make sure that workers stay alert in their surroundings and are aware of the dangers they face. But 15% of respondents said they do not currently display safety signs and warnings, which can result in unaddressed risks in parts of the workplace. The lack of safety signage highlights the need for hospitals to ensure robust safety communication throughout the facility, especially in high-risk environments.

In terms of regular health checkups, the data was similarly divided: 50% of respondents stated that regular health checkups are part of workplace safety while the remaining 50% disagreed. This segmentation implies that approximately half of the respondents have access to preventive health services for early detection of work-related health issues, particularly in healthcare settings where workers may be at risk for a wide range of work-related illnesses. Half of the respondents reported not having regular health checkups, showing perhaps how many healthcare facilities are really committed to looking after their employees. Health checks are critical for early detection of potential chronic disease and maintaining the fitness of healthcare professionals to work.

Data regarding emergency preparedness also included responses about the frequency of emergency preparedness drills, with 40% of respondents reporting that such drills are conducted regularly and 60% reporting that they are not frequent. One of the most important elements of workplace safety is conducting emergency drills to ensure that workers are trained to respond to an emergency, such as a fire or a chemical spill, as quickly and as effectively as possible. The relatively small fraction of respondents attending regular drills indicates that such emergency scenarios are not concentrated on as much as they should, making healthcare workers unprepared to deal with emergency situations. This suggests that a more standardized procedure for emergency drills would be helpful in ensuring that all staff are trained in proper emergency protocols.

Moreover, 60% of respondents claimed that they had never attended an emergency drill: a worrying fact. This failure to participate could eat away at the fruits of emergency preparedness, causing confusion and delay during genuine emergencies. And only 40% of respondents reported having participated in drills of this nature, indicating a need for hospitals to invest more time in hands-on planning and drills about emergency situations to prepare.

According to the survey, 90% of the respondents reported that their workplace can access first-aid kits and emergency medical services. This is a comforting statistic because access to first-aid kits and medical treatment is key to ensuring emergency care for an injury or health problem. Of those, however, 10% of respondents reported not having access to these critical resources, indicating a potential gap in the availability of emergency supplies for some sections of the hospitals.

Ultimately, safety signs, access to first aid, and health checkups have come a long way, but there remains room for improvement in terms of emergency preparedness. Very few have been drilled regularly, and a large portion has never even been drilled to prepare for emergencies. This perception makes the need for health checkups even more necessary for these kinds of workers, because it would ensure their ability to provide efficient healthcare to patients while remaining healthy themselves, addressing the gaps in emergency preparedness.

Suggestions for Improvement

In response to the open-ended question on suggested improvements, common themes included better availability of PPE (32%), more frequent OHS training (28%), and improvements in reporting mechanisms for workplace injuries (20%).

DISCUSSION

The results of the survey provide valuable insights into the current state of occupational health and safety (OHS) practices, safety protocols, and emergency preparedness within healthcare settings in

North India. The findings highlight both strengths and weaknesses in the workplace safety culture, indicating areas of effective safety implementation as well as critical gaps that need attention.

OHS Training and Awareness

The survey found that 45% of respondents had received formal OHS training, while 55% had not. This is concerning, as formal training is fundamental for ensuring that healthcare workers are equipped with the knowledge and skills to identify and mitigate occupational hazards. While a large proportion of respondents are aware of occupational hazards (78%), the lack of formal training for more than half of the workforce may leave them unprepared to address specific risks effectively. Training programs are critical in healthcare environments where workers are exposed to various biological, chemical, and ergonomic risks, and research has shown that formal training can significantly reduce workplace injuries. This gap in training underlines the need for healthcare institutions to prioritize OHS education to ensure workers are well-prepared to manage potential hazards safely.

Use of Personal Protective Equipment (PPE)

A positive finding was that 75% of respondents always wear PPE at work, indicating strong adherence to safety protocols in the healthcare environment. PPE is crucial for protecting workers from the physical, chemical, and biological hazards prevalent in healthcare settings. However, 25% of respondents reported that they are not always using PPE, with reasons, such as discomfort (40%) and lack of availability (30%) is the most cited. The discomfort associated with PPE is a significant barrier, as workers may be less likely to wear protective gear if it hinders their comfort or mobility, which has been documented in similar studies. Furthermore, the lack of availability of PPE suggests that there may be logistical challenges in ensuring that adequate protective equipment is always accessible to all workers. Healthcare facilities should address these concerns by investing in more comfortable PPE designs and improving supply chain management to ensure that safety equipment is consistently available.

Workplace Injuries and Reporting

The data revealed that 30% of respondents had sustained a work-related injury, with cuts and bruises being the most common injuries (45%). Other injuries, such as chemical burns and infections, further highlight the diverse risks faced by healthcare workers. These findings are consistent with previous studies, which have found that healthcare workers are at high risk for physical injuries and exposure to harmful substances. A key issue, however, is the underreporting of injuries. While 45% of respondents reported their injuries to their employer, 55% did not. The reasons for this underreporting are concerning, with 40% of respondents citing fear of reprisal and 35% indicating the absence of a formal reporting system. Fear of retaliation for reporting injuries is a significant barrier to maintaining a culture of safety, and research has shown that workers are less likely to report injuries if they fear negative consequences. Additionally, the lack of a formal reporting system in many workplaces could contribute to this issue, as workers may not be aware of how to report injuries or may feel that their concerns will not be taken seriously. Hospitals must establish clear reporting procedures and create an environment where workers feel safe reporting injuries without fear of negative repercussions.

Safety Protocols and Emergency Preparedness

The survey results suggest that safety protocols, such as the display of safety signs and hazard warnings, are largely effective, with 85% of respondents reporting that such signs are visible in their workplaces. This is a positive indicator of safety awareness, as visible hazard warnings can help alert workers to potential risks and encourage safer work practices. However, only 50% of respondents reported that regular health checkups are part of workplace safety programs, which is a concerning finding. Regular health checkups are essential for identifying work-related health issues early and ensuring that healthcare workers remain fit to perform their duties. The absence of such checkups for half of the respondents suggests a gap in the preventive healthcare services provided to workers.

Emergency preparedness was another area where the results highlighted areas for improvement. While 40% of respondents indicated that emergency preparedness drills are conducted regularly, a larger proportion (60%) reported that these drills are not frequent enough. This is a critical concern, as emergency drills are essential for ensuring that healthcare workers are prepared to respond quickly and effectively in the event of an emergency, such as a fire, chemical spill, or medical emergency. Moreover, 60% of respondents stated that they had never participated in an emergency drill, which points to a significant lack of hands-on training. This lack of preparation could lead to delays or confusion in actual emergency situations, potentially putting both healthcare workers and patients at risk. It is essential for hospitals to implement regular emergency drills and ensure that all staff members participate, regardless of their role or department.

Finally, the availability of first-aid kits and emergency medical services was reported positively by 90% of respondents, which is encouraging. Access to first-aid kits and immediate medical assistance is crucial for responding to workplace injuries and health emergencies. However, 10% of respondents reported they did not have access to these resources, suggesting that some areas of the hospitals may lack adequate emergency supplies. This gap must be addressed to ensure that all workers have immediate access to necessary medical care in the event of an injury.

CONCLUSIONS

The results of the survey underscore the importance of improving OHS practices, training, and emergency preparedness in healthcare settings. While there are positive aspects, such as the widespread use of PPE and the availability of first-aid kits, significant gaps in training, injury reporting, and emergency preparedness remain. Addressing these issues through more comprehensive OHS education, clearer reporting systems, regular emergency drills, and improved access to health checkups and PPE can enhance worker safety and contribute to a safer healthcare environment for both staff and patients. These findings are consistent with broader trends in the healthcare sector, where ensuring worker safety is an ongoing challenge that requires continuous attention and improvement.

Recommendations

Based on the findings, the following recommendations are made:

1. *Increase OHS Training:* Regular, mandatory OHS training should be conducted to ensure all healthcare workers are aware of the risks in their departments and the proper safety protocols.
2. *Improve PPE Availability:* Hospitals should ensure that appropriate PPE is available and accessible to all workers, with a focus on comfort and functionality.
3. *Enhance Reporting Mechanisms:* Establish clear, non-punitive injury reporting systems to encourage workers to report hazards and incidents without fear of reprisal.
4. *Conduct Regular Health Checkups:* Regular health checkups should be offered to all healthcare workers as part of their workplace safety program.
5. *Increase Emergency Preparedness Drills:* Hospitals should conduct regular emergency preparedness drills, ensuring all workers are familiar with the protocols for responding to various emergencies.

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