

Occupational Health Hazards and Safety Practices among Auxiliary Health Workers in Green Life Medical College and Hospital

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Abstract

Introduction: Healthcare workers are prone to occupational hazard. The study was aimed to find out the occupational health hazards and safety practices among the auxiliary health workers of the Green Life Medical College and Hospital.

Methods: A descriptive type of cross sectional study was carried on auxiliary health workers of Green Life Medical College and Hospital who were nurses and technologists. The study was conducted from October 2022 to December 2022 by face to face interviewing of nurses and technologist by pretested semi-structured questionnaires. The study was conducted among 207 respondents. Convenient type of non-probability sampling was done to collect the required information. The data was analyzed both manually as well as by computer based software name MS Excel.

Results: According to the study, majority (75.8%) of the respondents had their official post as nurse while about 24.1% of them were technologist. Majority of the respondents (68.1%) were within the age group of 17 to 27 years. Among the respondents majority (51.6%) had diploma degree and 4.3% had master's degree. Regarding the monthly income, majority (42.5%) had monthly income within range from 16,000 to 20,000 taka. Majority (90.8%) of the respondents heard about occupational health hazards. A majority (96.1%) had perception that Hepatitis B and C infection is caused by sharp cutting injury, about 88.4% of the respondents told yes about Tetanus. Furthermore, majority (82.3%) had Perception on acute Radiation sickness and about 98% heard about personal protective equipment. About 81.7% had perception that lead apron can prevent excessive radiation exposure. About 96.4% had perception that long working hours cause mental illness. Most of the respondents (71.4%) had work experience of less than 5 years but only 12.5% of them had work experience of 11 to 15 years. Most (91.7%) of the respondents' daily working hours was 6 to 11 hours. About 63% had exposure to needle or sharp cutting injury. A vast majority (93.5%) of respondents sterilized their wounds by antiseptic. According to the respondents, 86.5% had stress for long working hours. About 90% wore disposable gloves while working with sharp instruments. Majority (83.5%) of the respondents used PPE when working in the laboratory. But about half (51.8%) of them did not use any lead apron during work with X ray machine. Among them majority (87%) did not use dosimeters on aprons during work with X ray machine. More than half (55.6%) of the respondents had received training on safety practices from hospital. About 75.1% agreed about supervision of wearing personal protective equipment. About 98.5% respondents told they used separate colored containers to dispose of medical waste. According to the respondents, about 68.5% had taken full dose of hepatitis B vaccine and about 74% had taken full dose of tetanus vaccine. According to the respondents about 10.6% had hypertension, 7.7% had drug allergy, 5.5% had skin disease as well as asthma and 3.3% had diabetes.

Conclusion: The survey showed that most of the auxiliary health workers were generally well aware of occupational hazards and safety practices but still there are some unsafe practices. Strengthening the implementation of safety standards and proper supervision can cope with this situation.

Keywords: Occupational Health Hazards, Auxiliary health worker, Safety practices in hospital

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Introduction:

Hospitals are a breeding ground for pathogens and those who are the most susceptible to acquiring these pathogens are the staff who have to spend hours after hours working in hospitals around the world. The health and well-being of employees in the workplace are important concerns that should continue to receive attention in any organization.¹

Health is a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity so that each citizen can lead a socially and economically productive life.² Those who are burdened with the responsibilities to help maintain our health are themselves affected by a non-supportive working environment. This non-supportive working environment is termed an occupational health hazard.³ Occupational hazards exist almost in every occupational group. The severity of occupational hazards depends on the nature and type of occupation.⁴ Nursing is uniquely a hazardous occupation. Some potential hazards include biological hazards, physical hazards, toxic chemicals and needle stick injuries. The key safety issues impacting this work include needle stick injuries, workplace violence and musculoskeletal injuries related to patient handling and workload. The vast majority of nurses experience persistent job-related pain.⁵

Among the health care workers, paramedical employees are an integral part of hospital staff. Their nature of the job is to investigate body fluids such as blood, serum, urine, sputum, and muscle tissues so as to find bacteria and other diseases that existed in them. They handle various electrical and electronic equipment and instruments such as the analyzer, microscope, centrifuge and various chemicals in their day-to-day work life to investigate body fluids and other tissues.³

The aim of the study was to identify health hazards of auxiliary health workers of Green Life Medical College & Hospital and will take initiative to mitigate those hazards thereby preventing potential accidents from occurring.

Methods:

It was a cross sectional type of descriptive study conducted from October 2022 to December 2022 among the auxiliary health workers of the Green Life Medical College and Hospital. About 207 auxiliary workers were selected for data collection by convenient type of non-probability sampling. Data were collected by face to face interviewing of auxiliary workers of Green Life Medical College and Hospital using semi-structured questionnaire which was pretested before data collection. Data were collected on socio-demographic details of the respondents,

perception of the health hazards and safety practices of the respondents, patterns of health hazards exposed by the respondents, safety practices among auxiliary workers, safety management system status existing in hospital, medical and immunization status of the respondents. After collection of the data each questionnaire was checked for inconsistency. The data was analyzed both manually and on a computer based software Microsoft Excel.

Results:

In table I shown, more than half (68%) of the respondent's age was between 17 to 27 years and female students (73.9%), about 51.6% respondents' had diploma degree and about 42.5% had income from 16000 to 20000 taka.

Table-I
Distribution of respondents by socio-demographic characteristics (n= 207)

Variables	Frequency (n)	Percentage (%)
A. Age of respondents in year		
17 to 27	141	68.1
28 to 38	41	19.8
39 to 49	16	7.7
>50	09	4.3
B. Gender		
Male	54	26.1
Female	153	73.9
C. Religion		
Islam	133	64.2
Hinduism	65	31.4
Christianity	09	4.3
D. Level of education		
Up to SSC level	14	6.7
Up to HSC level	41	19.8
Diploma	107	51.6
Bachelor	36	17.3
Masters	9	4.3
E. Monthly income in taka		
5000 to 10000	51	24.6
11000 to 15000	24	11.6
16000 to 20000	88	42.5
>20000	44	21.2

In fig-1 shown, Majority of the respondents (75.8%) had their official post as being nurses while about 24.1% of them are technologists.

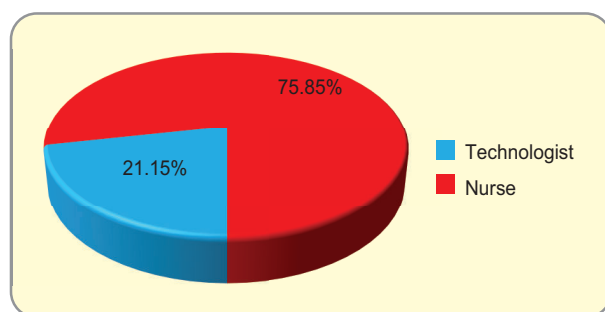


Fig-1: Distribution of respondents according to profession

In table II shown, more than half (95.28%) of the respondents' had perception of needle stick or sharp cutting injury can cause blood-borne disease, 81.73% had perception about lead apron can prevent excessive radiation exposure, 98% heard about personal protective device.

Table- II

Perception of health hazards and safety practices of respondents

Variables	Frequency (n)	Percentage (%)
A. Perception of needle stick or sharp cutting injury can cause blood-borne disease (n=191)		
Yes	182	95.28
No	9	4.71
B. Perception about direct contact with harmful chemical agents can cause skin cancer (n=167)		
Yes	144	86.22
No	23	13.77
C. Perception about lead apron can prevent excessive radiation exposure (n=115)		
Yes	94	81.73
No	21	18.26
D. Perception of hearing about PPE (Personal Protective Device)(n=207)		
Yes	203	98
No	04	02
E. perception of long working hours causing mental illness (197)		
Yes	190	96
No	07	04

In table III shown, more than half (71.49%) of the respondents work experience duration was <5 years, 92% respondents work duration daily for 6 to 11 hours, 63.7% exposed to needle injury, 93.50% sterilized their wound by antiseptic, 86.50% being stressed for long working hours.

Table- III

Health hazards exposed by the respondents

Variables	Frequency (n)	Percentages (%)
A. Duration of their work experience at Green Life Medical College and Hospital (n=207)		
< 5 years	148	71.49
5 to 10 years	28	13.53
11 to 15 years	26	12.56
>15 years	05	2.42
B. Duration of work daily at Green Life Medical College and Hospital (207)		
Less than 6 hours	5	2.42
6 to 11 hours	190	92
11 to 15 hours	10	05
More than 15 hours	2	01
C. Exposure to needle or sharp cutting injury (n=195)		
Yes	123	63.07
No	72	36.92
D. How they sterilize their wounds after getting injured (207)		
By soap and water only	03	2.44
Did not sterilize	00	0
By antiseptic	115	93.50
By Others	05	4.06
E. being stressed for long working hours (n=207)		
Yes	179	86.50
No	28	13.50
F. Whether they have been a victim of violence (physical/ verbal/ sexual) at their workplace (n=207)		
Yes	22	10.60
No	185	89.40

In table IV shown, majority (90.87%) of the respondents wore disposable gloves while working with sharp instruments, 83.58% used personal protective equipment while working in the laboratory, 51.80% did not use lead apron and 87.02% did not use dosimeter during working with x-ray machine.

Table-IV
Safety practices among auxiliary workers

Variables	Frequency (n)	Percentages (%)
A. Wearing disposable gloves while working with sharp instruments (n=197)		
Yes	179	90.87
No	18	9.13
B. Material they used to sterilize their hands after attending patients (n=207)		
By soap and water only	25	12
By sanitizer	181	87.50
Others	01	0.50
C. Usage of personal protective equipment when working in the laboratory (n=134)		
Yes	112	83.58
No	22	16.41
D. Usage of lead apron during working with X-ray/CT scan machine (n= 83)		
Yes	40	48.19
No	43	51.80
E. Wearing dosimeters on aprons during working with x-ray/CT scan machine (n= 77)		
Yes	10	12.98
No	67	87.02

In table-V shown, 55.56% received training from hospital regarding safety practices, 75.2% told yes about supervision of wearing personal protective equipment, 98.55% used separate colored containers to dispose medical waste.

Table-V
Safety management system status in hospitals

Variables	Frequency (n)	Percentages (%)
A. Receiving any training from the hospital regarding safety practices (n=207)		
Yes	115	55.56
No	92	44.44
B. Supervision of wearing personal protective equipment (n=189)		
Yes	156	75.2
No	51	24.8
C. Usage of separate-colored containers to dispose of the medical waste (n=207)		
Yes	204	98.55
No	3	1.45

In figure 2 shown, 96.15% and 88.46% respondents had perception about sharp cutting injury can cause hepatitis B and C furthermore tetanus infection respectively.

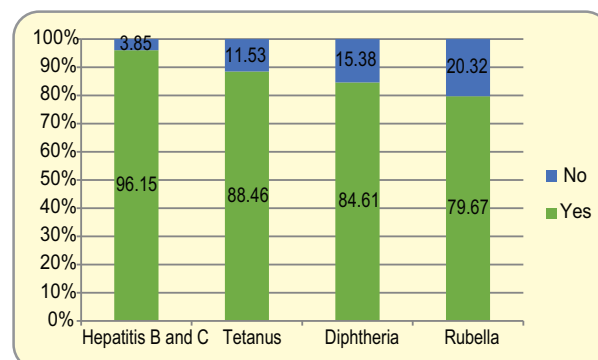


Figure 2: Distribution of the respondents according to perception about sharp cutting injury can cause infections (n=207)

In figure 3 shown, 68.59% and 74.39% respondents took full dose of hepatitis B and tetanus vaccine respectively.

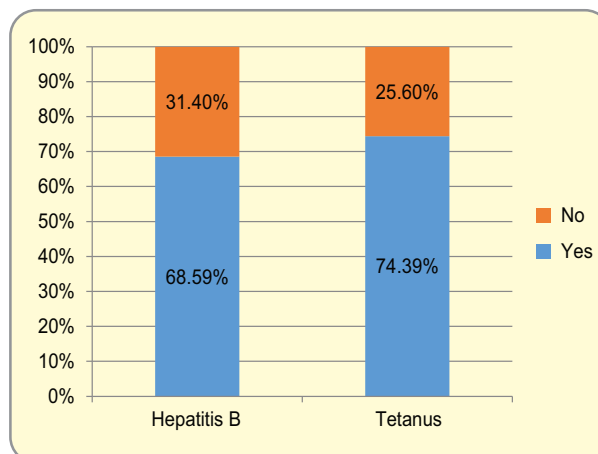


Fig-3: Distribution of respondents according to taking the full dose of Hepatitis B and Tetanus vaccine (n=207)

Discussion:

In this study, majority of the respondents were female (73.9%) followed by male respondents (26.1%), which was comparative to a study conducted in India that showed 73.3% female and 26.7% male.⁴ Among the respondents 68.1% were between 17 and 27 years. In another study in India, 28% were between 26 and 30 years and 22% were above 30 years of age.³

Our study showed, 51.7% respondents had diploma degree and only 4% had master's degree. In a study in Khulna 54.28% respondents in the private sector were educated at the secondary level and only 8.57% of them

had basic diploma in nursing, whereas in a govt. hospitals all of them had (100%) diplomas in nursing.⁶ Monthly income of our respondents was between 16000 to 20000 taka bears 42.5%, more than 20000 taka bears only 20%. In a study in Khulna in 2021, all (100%) nurses working in the private hospital had income between 1000 and 5000.⁶

In our study, most of the respondents (71.4%) had work experience less than 5 years but only 12.5% of them had work experience of 11 to 15 years. Another study in Khulna, 30% had experience about 5 to 10 years and above for both government and private sectors.⁶

As per our study, 93.5% used antiseptic to sterilize wounds after getting injured. A study in Nepal showed that 64.6% washed site of injury with soap and water.⁷ Majority (87%) of respondents did not use dosimeters on aprons during work with X-ray machines. In a study in Kansas City USA, 94.4% of technologists did not use dosimeter.⁸

In our study 55.6% had received training from the hospital. During field survey in Khulna, it was found that most of the respondents (69%) in the govt. hospitals have received training.⁶

Through our survey, we found that 98.5% of respondents used separate-colored containers to dispose medical waste. Another study in Bangladesh, while 90% disposed their waste in NGOs covered vans.⁶ In our study, majority (74.3%) had taken the full dose of vaccine for Tetanus while about 68.5% had taken the full dose of vaccine for Hepatitis B. In a study in Tripoli, Libya, 78.2% of healthcare workers were vaccinated.⁹

Conclusion:

Majority of the respondents had perception of needle stick or sharp cutting injury can cause blood borne disease and most of them also knew about Hepatitis B and C infection and also tetanus being caused by sharp cutting injury.

Most of them had perception of direct contact with harmful chemical agents can cause skin cancer. They were acknowledged about using personal protective equipment like- using gloves while attending patients and working with sharp instruments; lead apron can prevent excessive radiation exposure. But unfortunately, few of them used lead apron and dosimeter during work with x- ray machine.

Few people had working experience for many years beside the respondents who had less years of working experience, both of them faced stress for long working hours daily. More than half of the respondents had received training about safety management from the hospital and

acknowledged about wearing personal protective equipment; using separate colored containers to dispose medical waste. Majority of respondents were immunized against Hepatitis B infection and Tetanus. The consequences of occupational health hazards could be reduced by ensuring their educational qualification and knowledge about occupational health hazards and safety practices before recruit, by ensuring adequate supply of protective devices in their work place, by ensure pre-placement medical examinations before they are recruited such as any drug allergy, immunization status, by Practicing proper hand washing before and after each procedure, by Ensure their immunization against infectious diseases. In case of x-ray technologist ensure about wearing lead apron and dosimeter, periodic examination of workers should be done every 6 months, by arrange periodic health education program about health hazards and safety practices for them.

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