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PREVALENCE OF OCCUPATIONAL DISEASES AND PRACTICE OF SAFETY CONTROL MEASURES AMONG HEALTH WORKERS OF GENERAL HOSPITAL MINNA

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Idris M. Sheshi[1], Emmanuel B. Agbana[2]

[1]Ministry of Health, Minna, Niger State
[2]Department of Community Medicine, College of Health Sciences, Kogi State University

Abstract. *This study determines the prevalence of occupational diseases and safety practices among health workers of General Hospital, Minna. The study was Cross Sectional Descriptive. Stratified Sampling Technique was adopted. Semi structured questionnaire was used to collect data. Data were analyzed in frequency tables. The most common occupational disease among the respondents include: stress & exhaustion 61.2%, needle stick injury 52.8% and neck and low back pain 56.4%. Forty-two point eight percent (42.8%) of the respondents have received at least one dose of Hepatitis B vaccine. Majority (57.2%) have never received the vaccine. There was no association between socio-demographic characteristics and the receipt of vaccine. About 18.4% of the respondents have been exposed to fluids of HIV/AIDS patients through needle stick injury. Majority of them (60.9%) have gone for post exposure prophylaxis against HIV. More than half of the respondents, 58.8% have been using Personal Protective Equipment (PPE). The study concludes that there is poor knowledge, attitude and high level of practice of control of occupational hazards among health workers who were examined. Health education and training of health workers on occupational hazards and their control should be enhanced.*

Key words: *occupational illness, physiological mechanism, occupational safety, safety measure, health education*

JEL Classification: I10, I18, J24

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Corresponding author: Emmanuel Busayo Agbana
Kogi State University, Anyigba, Department of Community Medicine, College of Health Sciences, Nigeria
E-mail: modupenafiu@gmail.com

1. INTRODUCTION

Health care workers have direct or indirect contact with a patient.[1]These include physicians, nurses and allied health professionals working within healthcare system either in the community, in hospital or in clinic .[1]

Occupational illness is a condition that results from occupational exposure to a physical, chemical or biological agent to such an extent that normal physiological mechanism is affected and the health of the workers is impaired.[2]

Healthcare workers can be categorized into those that deal with patients directly or with their secretions and blood, and those whose work in the office. Those that deal directly with patients are more at risk of occupational hazard. Health care workers deal with a wide range of activities that pose threat to their health.[3] The risk is usually grouped according to the type of physical, chemical, biological, ergonomic and psychosocial hazards.[3] The most common physical hazards is ionizing radiation from x rays, while most common chemical hazard is from anti-cancer drugs exposure through skin contact or inhalation. Ergonomic hazards include physical work which affects joints and muscles. The psychosocial hazard is a result of a man to man interaction.[3]

Non-fatal occupational injuries and illnesses of healthcare workers are among the highest in all industrial sectors.[4] By contrast, two of the most hazardous industries, agriculture and construction, are nowadays safer than they were a decade ago.[4] Healthcare facilities around the world employ over 99 million staff who are exposed to different hazards in their workplaces.[5] Healthcare workers need protection from these hazards, since their job is to take care about infected people, thus making them constantly exposed to an injury or an illness. They are expected to sacrifice their own wellbeing for the sake of their patients.[5] The delivery of quality health services to the general populace begins with the planned protection of the healthcare workers.[5] Unsafe working conditions contribute to workers' attrition because of the fear of getting infected.[5]

Occupational safety among health care workers is often neglected in low income countries in spite of the greater risk associated with occupational exposure to blood, inadequate supply of personal protective equipment and limited organizational support for safe practice.[6]

WHO global burden of disease from sharps injuries to healthcare workers showed that 37% of the hepatitis B among health workers was the result of occupational exposure. Less than 10% of HIV among health workers is the result of an exposure at work.[5] Needle stick injuries are the cause of 95% of the HIV occupational seroconversions.[5]

In a study[7], the prevalence of hepatitis B surface antigen among surgeons in Lagos was found to be 25.7% as compared to 15% in the control group. The frequency of antibody to the surface antigen was 22.2% among the surgeons and 4.1% in the control group. On the other hand, the frequency of antibody to the core antigen was 61.7% among surgeons as compared to 53.4% in the control group.

The study[8] that aimed to determine the prevalence and the risk factors for low back pain among nurses revealed that 73.53% of nurses are in a 12-month period of low back pain. Low back pain was more prevalent among women (68%) than man (32%).

The role of health workers is to take care of patients. Occupational health services will lead to sound or healthy workforce. This study should raise the awareness of health workers to seek for health care when the situation demands or to take measure to protect them at the workplace.

Occupational disease experiences by the healthcare workers can lead to the reluctance of the health worker to take care of the patient when they are exposed. In addition, some health workers may decide to relinquish their work and find a job in another sector simply because of Ebola virus disease or in a case of death of medical personnel in General Hospital Minna. This study should inform the policymakers to put in place safety measures in the hospital for healthcare workers.

The aim of this study is to determine prevalence of occupational diseases and practice of safety measure among health workers in General Hospital Minna.

2. METHODOLOGY

2.1. Description of the study area

General Hospital Minna is one of the secondary health facilities established in 1926. It is located along old secretariat road around David Mark square. It has a 300-bed capacity. It offers both primary and secondary healthcare services. It has 805 employees as shown below.

Professional category	Numbers
Medical doctors	53
Nurses	471
Pharmacists	32
Laboratory scientist/technician	64
Dentists	10
Radiographers	6
Medical records	60
Sanitation workers	26
Security	31
Drivers	7
Accountant	28
Mortuary attendants	2
Administrative staff	3
Total	805

2.2. Advocacy

A letter of introduction was obtained from the Ministry of Health, Niger state and presented to the Head of Hospital Services. The letter requested for permission to carry out the research. It indicated the purpose and the benefit of the research.

2.3. Study population

The study population included all permanent staff working for at least 6 months.

2.4. Inclusion criteria

The study includes all health workers of the general hospital Minna that have direct contact with patients, blood and secretions.

2.5. Exclusion criteria

The following were excluded from the study:
1. Respondents acutely or chronically ill
2. Respondents who were temporary or contract staff
3. Respondents who were less than 6 months in the service
4. Respondents who travelled during the period of the research
5. Administrative staff

2.6. Study design

The study was Cross Sectional Descriptive.

2.7. Sample size

The minimum sample size for the study was determined using the Fischer's formula[9] for population less than 10,000:

$$n=\frac{z^2pq}{d^2}$$

n= minimum sample size when population >10,000
z=Standard normal deviate corresponding to 95% CI given as 1.96
p=63.8%% proportion of those who always use Personal Protective Equipment.[10]
q=1 – p (proportion of those who refused to always use Personal Protective Equipment.
d= degree of accuracy

$$n = \frac{(1.96)^2 \times 0.638 \times 0.362}{(0.05)^2}$$

=355
Since the population of the health workers of General hospital Minna is < 10,000

$$nf = \frac{n}{1 + \frac{n}{N}}$$

Where nf is the desired sample size when population is less than 10,000.
n =desired sample size when the population is greater than 10,000
N=Population of health workers of General Hospital Minna (target population)

$$= \frac{355}{1+ \frac{355}{774}}$$

= 243

$$\text{For non-response} = \frac{243}{0.9}$$

= 270
For this study 300 sample size will be used

2.8. Sampling technique

All the professional healthcare workers were chosen except those not working directly with patients. Stratified Sampling Technique was adopted for allocating questionnaires as shown

$$\frac{\text{Number of staff in each profession}}{\text{Total number of staff}} \times 300$$

Professionals	Number	No. of allocated questionaire
Clinicians	63	21
Nurses	471	190
Pharmacists	32	13
Laboratory Scientists/Technicians	64	26
Physiotherapy	2	
Radiographers	6	1
Sanitation workers	26	8
Mortuary attendants	2	1
Drivers	7	3
Security	31	11
Medical records	60	23
Total	774	300

In each profession, sampling frame was formed. This was divided by the allocated sample size to determine the sampling interval. The first respondent was chosen through random sampling technique by balloting. Subsequent respondent was obtained by adding the sampling interval continuously until the final respondent was chosen. The respondents were administered with semi-structured self-administered and interviewer administered questionnaire.

2.9. Data collection

Data were collected by the researcher and edited manually to detect the omission and to ensure uniform coding after they were entered into the computer. Data analysis was done using SPSS. Data were presented as frequency tables, charts and figures.

2.10. Ethical issue

1. Ethical approval was obtained from the General Hospital Ethical Committee, Niger State.
2. Informed written consent was obtained from the subject before conducting the research.

3. Result and Discussion

3.1. Data presentation and analysis

About 300 questionnaires were distributed and 250 were returned and analyzed.

Table 1A Respondents' socio demographic characteristics

Variables	Frequency (%)
Age groups	
≤ 27	34 (13.6)
28 – 37	70 (28.0)
38 – 47	84 (33.6)
48 – 57	60 (24.0)
≥ 58	2 (0.8)
Gender	
Male	81 (32.4)
Female	169 (67.6)
Marital status	
Single	55 (22.0)
Married	189 (75.6)
Widowed	6 (2.4)
Family type	
Monogamy	161 (64.4)
Polygamy	89 (35.6)
Number of dependants	
≤ 4	181 (72.4)
≥ 5	69 (27.6)
Tribe	
Nupe	104 (41.6)
Gwari	107 (42.8)
Hausa	20 (8.0)
Others	19 (7.6)

Majority of the respondents (33.6%) are within the age group 38-47 years. This is followed by 28-37 years (28%) The smallest number of respondents was in the age group over 58 years (0.8%). The majority of the respondents were female, 67.6% while the male constituted 32.4%. More than a half of the respondents (75.6%) were married, the least were widowed 2.4%.

More than half of the respondents (53.2%) had completed tertiary education. This was followed by postgraduate level (39.6%). More than half of the respondents were nurses, 58.8%. This was followed by laboratory workers 26.0%. The smallest number of respondents was other workers, 2.4%.

Less than half of the respondents had clinic as their point of service. This was followed by wards 36.8%. The majority of the respondents (54.4%) were exposed to hazards for more than 8 hours. This is followed by 7-8 hours (37.2%) The least was 1.2% in 3 – 4 hours

Table 1B Socio demographic characteristics of the respondents

Variables	Frequency (%)
Educational level	
No formal education	1 (0.4)
Primary	3 (1.2)
Secondary	14 (5.6)
Tertiary	133 (53.2)
Postgraduate	99 (39.6)
Religion	
Islam	143 (57.2)
Christianity	107 (42.8)
Occupation	
Clinician	24 (9.6)
Pharmacist	8 (3.2)
Nurse	147 (58.8)
Laboratory	65 (26.0)
Others	6 (2.4)
Point of service	
Clinic	112 (44.8)
Wards	92 (36.8)
Laboratory	38 (15.2)
Pharmacy	7 (2.8)
Others	1 (0.4)
Daily average hours of exposure	
3 – 4	3 (1.2)
5 – 6	18 (7.2)
7 – 8	93 (37.2)
> 8	136 (54.4)

Table 2 Prevalence of occupational diseases among the respondents

Which problem have you experienced since you started your work?	Frequency (%)
Needle Stick Injury	132 (52.8)
Latex Allergy	30 (12.0)
Back Injury	67 (26.8)
Workplace Violence	65 (26.0)
Toxic Chemical Exposure	23 (9.2)
Muscular disorders	43 (17.2)
Neck and Back pain	141 (56.4)
Exposure to Radiation	15 (6.0)
Infection From Patients	56 (22.4)
Assaults From Patients	72 (28.8)
Skin Irritation	38 (15.2)
Stress and Exhaustion	153 (61.2)
Accident	30 (12.0)
Eye Irritation	27 (10.8)
HIV/AIDS	11 (4.4)
Hepatitis	18 (7.2)
Malaria	90 (36.0)
Others	4 (1.6)

Multiple Response

The major occupational diseases among the respondents include the following; stress and exhaustion 61.2%, neck and back pain 56.4%, needle stick injury 52.8%. Communicable diseases have the least prevalence, Hepatitis 7.2% and HIV 4.4%.

Table 3 Respondents' treatment of occupational disease

What kind of treatment did you have?	Frequency (%)
No treatment	5 (2)
Went to chemist to buy drug	11 (4.4)
Medical professionals for treatment	188 (75.2)
Self-medication	44 (17.6)
Traditional medicine	2 (0.8)

Majority of the respondents (75.2%) claimed they asked for a help of medical professional for treatment, followed by 17.6% relied on self-medication. Only about 0.8% of the respondents went to a traditional medicine healer.

Table 4 Association between professional lineage & prevalence of occupational disease

Professional lineage	Needle Prick injury		Neck and Back Pain		HIV		Hepatitis	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Clinical	11 (45.8)	13 (54.2)	16 (66.7)	8 (33.3)	0 (0.0)	24 (100.0)	0 (0.0)	24 (100.0)
Pharmacy	3 (37.5)	5 (62.5)	8 (100.0)	0 (0.0)	0 (0.0)	8 (100.0)	0 (0.0)	8 (100.0)
Nursing	94 (63.9)	53 (36.1)	83 (56.5)	64 (43.5)	10 (6.8)	137 (93.2)	14 (9.5)	133 (90.5)
Laboratory	23 (35.4)	42 (64.6)	83 (56.5)	33 (51.6)	1 (1.5)	64 (98.5)	4 (6.2)	61 (93.8)
Others	1 (16.7)	5 (83.3)	3 (50.0)	3 (50.0)	0 (0.0)	6 (100.0)	0 (0.0)	6 (100.0)
p-value	0.001		0.062		0.284		0.374	

Among the respondents who developed needle stick injury, nursing has the highest rate (63.9%), followed by clinicians - 45.8%. Others include pharmacy (37.5%), laboratory staff (35.4%). There was statistical significant association between professional lineage and development of needle stick injury, P=0.001

Among the respondents who developed neck and back pain, pharmacy has the highest rate (100%) followed by clinicians - 66.7%. Others include nursing and laboratory staff - 56.5%. There was statistical significant association between the professional lineage and development of neck and back pain, P=0.062.

Table 5 Respondents' receipt of hepatitis B vaccine

Have you ever received Hepatitis B vaccines during your work?	Frequency (%)
Yes	107 (42.8)
No	143 (57.2)

Majority of the respondents (57.2%) have never received Hepatitis B vaccine during their work. About 42.8% of the respondents had received the vaccine.

Table 6 Respondents' reason for non-receipt of the vaccine

If 'No' to the above. Why?	Frequency (%) n=143
I don't want/ no Need	44 (30.8)
Thinking of cost	21 (14.7)
No enlightenment	11 (7.7)
No opportunity	15 (10.5)
No reason	20 (13.9)
Not available	23 (16.0)
Others	19 (13.3)

Among the respondents that had never received the Hepatitis B vaccines, 30.8% of them claimed that there was no need for the vaccine. About 16% of the respondents said it was due to unavailability. The smallest number of the respondents (7.7%) said there was no enlightenment about the need to receive the vaccine.

Table 7A Association between socio demographic characteristics & receipt of hepatitis B vaccine

Variable	Receipt of hepatitis B vaccine		χ^2	P
	Yes (%) N=107	No (%) N=143		
Age Groups				
≤ 27	12 (35.3)	22 (64.7)		
28 – 37	26 (37.1)	44 (62.9)		
38 – 47	38 (45.2)	46 (54.8)		
48 – 57	30 (50.0)	30 (50.0)		
≥ 58	1 (50.0)	1 (50.0)	3.214	0.523
Gender				
Male	39 (48.1)	42 (51.9)		
Female	68 (40.2)	101 (59.8)	1.400	0.237
Marital Status				
Single	23 (41.8)	32 (58.2)		
Married	79 (41.8)	110 (58.2)		
Widowed	5 (83.3)	1 (16.7)	4.126	0.127
Family Type				
Monogamy	74 (46.0)	87 (54.0)		
Polygamy	33 (37.1)	56 (62.9)	1.848	0.174
Level of Education				
Uneducated	0 (0.0)	1 (100.0)		
Primary	2 (66.7)	1 (33.3)		
Secondary	3 (21.4)	11 (78.6)		
Tertiary	61 (45.9)	72 (54.1)		
Post graduate	41 (41.4)	58 (58.6)	4.646	0.326

Among the respondents who had received hepatitis B vaccine, male constitute 48.1% and female 40.2%. There was no statistically significant association between gender and the receipt of hepatitis B vaccine, P=0.237.

Among the respondents who had received hepatitis B vaccine, majority had only primary certificate 66.7%. There is no significant association between the level of education and the receipt of hepatitis B vaccine, P=0.

Table 7B Association between socio demographic characteristic and the receipt of hepatitis B vaccine

Variable	Receipt of hepatitis B vaccine		χ^2	P
	Yes (%) N=107	No (%) N=143		
Professional league				
Clinical	15 (62.5)	9 (37.5)		
Pharmacy	3 (37.5)	5 (62.5)		
Nursing	64 (43.5)	83 (56.5)		
Laboratory	24 (36.9)	41 (63.1)		
Others	1 (16.7)	5 (83.3)	6.520	0.164
Point of service				
Clinic	50 (44.6)	62 (55.4)		
Wards	42 (45.7)	50 (54.3)		
Lab	13 (34.2)	25 (65.8)		
Pharmacy	2 (28.6)	5 (71.4)		
Others	0 (0.0)	1 (100.0)	2.933	0.569

Majority of the respondents who received hepatitis B vaccine are the clinicians (62.5%) followed by nursing (43.5%). The majority who refused to receive the vaccine are laboratory staff (63.1%) followed by pharmacy (62.5%). There is no statistical association between professional lineage and the receipt of hepatitis B vaccine, P=0.164

Table 8 Respondents' Exposure to Blood/Fluids of AIDS Patients

Exposure to blood or fluid of an AIDS patients through Needle Stick Injury	Frequency (%)
Yes	46 (18.4)
No	204 (81.6)

Only 18.4% of the respondents claimed they had been exposed to fluids of AIDS patients, while the majority of them (81.6%) said they had not been exposed.

Table 9A Association between socio demographic characteristics & exposure to blood/fluids of AIDS patient

Variable	Exposure to Blood/Fluids of AIDs Patient		χ^2	P
	Yes (%)	No (%)		
Age Groups				
≤ 27	6 (17.6)	28 (82.4)		
28 – 37	10 (14.3)	60 (85.7)		
38 – 47	14 (16.7)	70 (83.3)		
48 – 57	15 (25.0)	45 (75.0)		
≥ 58	1 (50.0)	1 (50.0)	4.041	0.400
Gender				
Male	21 (25.9)	60 (74.1)		
Female	25 (14.8)	144 (85.2)	4.520	**0.033**
Marital Status				
Single	8 (14.5)	47 (85.5)		
Married	37 (19.6)	152 (80.4)		
Widowed	1 (16.7)	5 (83.3)	0.731	0.694
Family type				
Monogamy	32 (19.9)	129 (80.1)		
Polygamy	14 (15.7)	75 (84.3)	0.656	0.418
Level of Education				
Uneducated	0 (0.0)	1 (100.0)		
Primary	1 (33.3)	2 (66.7)		
Secondary	3 (21.4)	11 (78.6)		
Tertiary	25 (18.8)	108 (81.2)		
Post graduate	17 (17.2)	82 (82.8)	0.870	0.929

Among the respondents who had been exposed to fluids of patients with AIDS/HIV, the highest percentage was males. There was a statistical significant association between the gender and exposure to fluids of AIDS/HIV patients, **P=0.033.**

Table 9B Association between socio demographic characteristics and exposure to fluids/blood of AIDS patients

Variable	Exposure to Blood/Fluids of AIDs Patient		χ^2	P
	Yes (%)	No (%)		
Professional league				
Clinical	4 (16.7)	20 (83.3)		
Pharmacy	2 (25.0)	6 (75.0)		
Nursing	22 (15.0)	125 (85.0)		
Laboratory	17 (26.2)	48 (73.8)		
Others	1 (16.7)	5 (83.3)	4.049	0.399
Point of service				
Clinic	26 (23.2)	86 (76.8)		
Wards	15 (16.3)	77 (83.7)		
Lab	4 (10.5)	34 (89.5)		
Pharmacy	1 (14.3)	6 (85.7)		
Others	0 (0.0)	1 (100.0)	3.871	0.424

Among the respondents who were exposed to fluids of AIDS/HIV patients, laboratory staff constitutes the majority, followed by pharmacists (25.0%). There is no association between professional lineage and the exposure to fluids of AIDS/HIV patients, P= 0.399.

Table 10 Respondents' receipt of post exposure prophylaxis

Did you receive post exposure prophylaxis against HIV?	Frequency (%) n=46
Yes	28 (60.9)
No	18 (39.1)

Among the respondents exposed to fluid of AIDS patients, majority of them (60.9%) have received post exposure prophylaxis (PEP). It is only 39.1% of the respondents who claimed they had not received it.

Table 11 Respondents' reason for non-receipt of post exposure prophylaxis against HIV

If 'No' why	Frequency (%) n=18
Not Positive	16 (89.0)
Accessibility	1 (5.5)
Others	1 (5.5)

Among the respondents who could not receive the PEP, majority of them (89.0%) said they were not positive cases hence it was not necessary. About 5.5% of them said it was not accessible.

Table 12 Respondents' use of glove in a workplace

How often do you use gloves in your workplace?	Frequency (%)
Always	140 (56.0)
Regularly	80 (32.0)
Occasionally	20 (8.0)
Never	10 (4.0)

Majority of the respondents always use gloves during the working period. Thirty two percent (32%) said they used them regularly. The least of the respondents (4.0%) never use gloves during the work.

Table 13 Respondents' use of face mask

How often do you use a face mask?	Frequency (%)
Always	33 (13.2)
Regularly	58 (23.2)
Occasionally	138 (55.2)
Never	21 (8.4)

Less than a half of the respondents (13.2%) always use face mask during the working period. Majority of the respondents (55.5%) use it occasionally, and the smallest number of the respondents (8.4%) never use it.

Table 14 Respondents' use of protective wears

How often do you use the overall?	Frequency (%)
Always	85 (34)
Regularly	34 (13.6)
Occasionally	106 (42.4)
Never	25 (10)

Less than half of the respondents (42.4%) use overall protective clothing occasionally. About 34.0% of the respondents use it always. The least of the respondents (10.0%) never use it**.**

Table 15 Respondents' use of safety booths

How often do you use safety booths?	Frequency (%)
Always	42 (16.8)
Regularly	33 (13.2)
Occasionally	72 (28.8)
Never	103 (41.2)

Less than half of the respondents (41.2%) never use safety booth. Only 16.8% of the respondents use it always. About 28.8% of the respondents use it occasionally.

Table 16 Respondents' reasons for non-use of any of the personal protective wears

If "never", please state the reasons	Frequency (%) n=103
Not necessary	75 (72.8)
Inconvenience	7 (6.8)
Often forget to use them	52 (50.5)
Lack of enforcement	5 (4.9)
Others	11 (10.7)

Among the respondents who do not use any of the PPE, majority of them (72.8%) said it was not necessary, followed by 50.5% who said they often forgot to use them. The least of those respondents said it was due to the lack of enforcement.

Majority of females (68.0%) received post exposure prophylaxis, unlike males. There is no significant association between gender and receipt of post exposure prophylaxis, **P=0.203**

Majority of the respondents who attained primary school and secondary school are those that received post exposure prophylaxis (100% each). There is no significant association between the level of education and the receipt of post exposure prophylaxis, **P=0.369**

Nurses are the majority of the respondents that received post exposure prophylaxis. No significant association exists between professional lineage and receipt of PEP**, P=0.848.**

Table 17A Association between socio demographic characteristics & receipt of post exposure prophylaxis against HIV

Variable	Receipt of prophylaxis		χ^2	P
	Yes (%) n=28	No (%) n=18		
Age Groups				
≤ 27	4 (66.7)	2 (33.3)		
28 – 37	6 (60.0)	4 (40.0)		
38 – 47	8 (57.1)	7 (42.9)		
48 – 57	10 (66.7)	5 (33.3)		
≥ 58	0 (0.0)	1 (100.0)	0.269	0.992[y]
Gender				
Male	11 (52.4)	10 (47.6)		
Female	17 (68.0)	7 (32.0)	1.622	0.203
Marital Status				
Single	7 (87.5)	1 (12.5)		
Married	20 (54.1)	17 (45.9)		
Widowed	1 (100.0)	0 (0.0)	1.908	0.385[y]
Family type				
Monogamy	17 (53.1)	15 (46.9)		
Polygamy	11 (78.6)	3 (21.4)	2.648	0.104
Level of Education				
Uneducated	0 (0.0)	0 (0.0)		
Primary	0 (0.0)	1 (100.0)		
Secondary	0 (0.0)	3 (100.0)		
Tertiary	17 (68.0)	7 (32.0)		
Post graduate	11 (64.7)	6 (35.3)	3.149	0.369[y]

Table 17B Association between Socio Demographic Characteristics & Receipt of Post Exposure Prophylaxis against HIV

Variable	Receipt of prophylaxis		χ^2	P
	Yes (%) n=28	No (%) n=18		
Professional lineage				
Clinical	2 (50.0)	2 (50.0)		
Pharmacy	0 (0.0)	2 (100.0)		
Nursing	15 (68.2)	7 (31.8)		
Laboratory	10 (58.8)	7 (41.2)		
Others	1 (100.0)	0 (0.0)	1.375	0.848[y]
Point of service				
Clinic	14 (53.8)	12 (46.2)		
Wards	9 (60.0)	6 (40.0)		
Lab	4 (100.0)	0 (0.0)		
Pharmacy	1 (100.0)	0 (0.0)		
Others	0 (0.0)	0 (0.0)	1.563	0.667[y]

Table 18 Reasons for non-use of personal protective clothing

Reasons/Material	Not necessary	Inconvenient	Often forget	Lack of enforcement	Others	p-value
Gloves	6 (60.0)	1 (10.0)	1 (10.0)	2 (20.0)	0 (0.0)	**0.004**
Face mask	10 (47.6)	0 (0.0)	11 (52.4)	0 (0.0)	0 (0.0)	< **0.001**
Overall	5 (20.0)	2 (8.0)	18 (72.0)	0 (0.0)	0 (0.0)	< **0.001**
Safety booths	59 (57.3)	1 (1.0)	37 (35.9)	0 (0.0)	6 (5.8)	< **0.001**

Among the respondents who never use gloves, the major reason given was that it was not necessary to put on gloves while working (60.0%), followed by the lack of enforcement (20.0%). In this case, it is statistically significant, P=0.004.

Among the respondents who never use face mask at work, majority said they often forgot to use them 52.4%, followed by those who thought it was not necessary (47.6%). It is statistically significant, P<0.001

Among the respondent who never use overall, majority said they often forgot to use them (72.0%), followed by those who claimed it was not necessary (20.0%). It is statistically significant, P<0.001.

Among the respondents who never use safety booths, majority said it was not necessary (57.3%), followed by those who often forgot to use them (35.9%). In this case, statistical significance is P<0.001.

3.2. Discussion

The mean age of the respondents is .39.58 ± 9.861. The modal age group is 38-47 years. This is in contrast to a study conducted in Osun State[11], Nigeria which reported modal age group of 20-39 years (80.7%) and with mean age of 33.4± 7.4 years. This may be due to the fact that, at the time of the study, the Hospital Management Board (HMB) had not conducted recruitment process for long time. Therefore, the respondents are those that have been in service for a long time.

Majority of the respondents were female - 67.6%. This is in consistency with a similar study carried out in Osun State[11] which showed high number of respondents to be females (55.5%). It is also consistent with a similar study[12] conducted in Tanzania 71%. This is because nursing profession is the most frequent among the respondents and has a large proportion of women as their workforce.

More than half of the respondents in this study are nurses (58.8%). This is consistent with a similar study conducted in Osun State[11], which showed nurses to be a majority of the respondents (52.4%). This is also in conformity with a similar study carried out in Malaysia[13] which showed nurses to make 48.2%, due to the fact that nurses constitute the majority of working force. The implication is that nurses must be involved in any Safety Committee that may be instituted in the hospital. For any occupational disease that may occur in the hospital, one or two nurses may be affected. For this reason, any planning initiative that may be carried out in the hospital considering occupational disease control and employee safety, nurses must be involved.

The common occupational disease among the respondents is stress and exhaustion (61.2%), neck & back pain (56.4%) and needle prick injury (52.8%). This is similar to a study conducted in Ondo State[14] where stress (77.7%) took the lead in terms of common occupational disease among health workers. This is similar to a study conducted in

Uganda[15] which reported the common occupational disease to be stress (21.5%), and needle stick injury (21.5%). In a similar study conducted in Bida[16] the following common occupational diseases reported among clinical departments include; Needle sticks injury 23.2%, stress 13.2%, Hepatitis B & C 13.9%, Back pain 4.2% and violence 3.2%. Needle prick injury is more common among nurses in this study (63.9%). It is statistically significant, **P=0.001.** This is in consistency with a study conducted in Ethiopia[17] which shows that it is more common among nurses (66%). However, it is contrary to the study conducted in Bida[16] where needle prick injury is more common among doctors. It may be that there is a task shifting of some procedure which is usually conducted by the doctors to the nurses. So there is a lot of work to be done by reduced number of nursing staff. This increases the probability of exposing them more to needle prick injury. If they continue to be exposed to needle stick injury, their likelihood of acquiring HIV and Hepatitis is high which will not augur well for the hospital because of their role in taking care of the patients. At the end, it leads to high morbidity among the patients.

Low back pain is one of the most common occupational diseases among the healthcare workers. It is found to be more common among the pharmacist - 100%. This is contrary to a study carried out in Bida[16] in which more than a half of the respondents had back pain. It is also contrary to a study conducted in south-south, Nigeria[18] where the same prevalence is 33.3% each among the subcategories of the staff. It may be due to the fact that the majority of pharmacists sit down and stand up for a long time dispensing drugs without moving from one place to another, without exercising their bodies.

Less than half of the respondents (42.8%) had received at least one dose of Hepatitis B vaccine, while 57.2% of the respondents had not received the vaccine at time of the study. This is in contrast to a study carried out in Osun State[11] and in Jos/Yenagoa[19] where 64.2% and 64.5% received hepatitis B vaccine, respectively. It is also in contrast to a study conducted in Ethiopia and India which reported 28.7% and 19.6%, respectively. The value may be the proportion of the respondents who have completed the three doses of hepatitis regimen. Among the respondents who failed to receive the vaccine, the majority (30%) said they did not want it, probably because of the fear of side effects. Some respondents may insinuate that the hepatitis B vaccine may seroconvert to a live infection if one should receive the vaccine. This is followed by unavailability (16%), no opportunity (10.5%) and no enlightenment (7.7%). This is in contrast to study carried out in Ethiopia[20] where the major reason for non-receipt of Hepatitis B vaccine was its unavailability (58.2%) followed by its cost (18.5%). The reason is that the respondents who claimed that 'they did not want it' may not even go to the immunization section to determine whether it was available or not. There is no significant association between socio demographic characteristic of the respondents and up/take of the vaccines in this study. This is in contrast to a study conducted in Jos/Yenagoa[19] where occupational subcategories of the respondents are associated with uptake of the vaccine. It is also in contrast to a study conducted in Ethiopia[20] where age, marital status, level of education and type of profession are statistically significant in association with the vaccine uptake.

Less than $1/10^{th}$ of the respondents (18.4%) were exposed to the fluid of HIV/AIDS through needle stick injury. This is in contrast to a study conducted in Ethiopia[17] and Northern Uganda[21] which shows that prevalence of exposure to fluids of HIV/AIDS patient through needle stick injury was 31.5% and 27.7% respectively. Among the respondents exposed to fluids of HIV/AIDS patients, male constitute 25.9%. This is in consistence with a study carried out in tertiary hospital in Nigeria[22]. It may be because

males are those who carried out some procedures with high probability of exposure to fluids of HIV patients. The implication of this is that males may be more at risk of contracting HIV than females. There is statistical significant association between gender and exposure to fluids of HIV/AIDS patients, **P=0.033.**

Among the respondents that are exposed to fluids of HIV/AIDS patients, majority of the respondents 60.9% had received post exposure prophylaxis drugs against HIV. This is in contrast to a study conducted in Mbeya Tanzania[23] which shows that 22.5% of the respondents who were exposed to fluids of HIV through needle stick injury received post exposure prophylaxis. In that study it was observed that females received it more than males. In this study, females also received it more than males, although it was not statistically significant, P>0.05. Among the respondents who failed to receive it, majority said it was because they assumed to be negative (89.0%) whereas 5.5% said it was not accessible. This is in contrast to a study carried out in Ethiopia[17] which shows that majority of respondents who refused to receive the PPE, said it was due to unavailability (55.6%).

Majority of the respondents (58.8%) use all personal protective equipment, while 41.2% never wear all personal protective equipment. This is in contrast to a study conducted in Kampala, Uganda[15] whereby about 30.4% wear all personal protective equipment, whereas 45.1% never wear all PPE. This could be due to Hospital Policy where it has being mandatory for the workers to use PPE. It is a good control practice and prevents occupational hazards. Among the respondents who never wear PPE, majority of them (72.8%) said it was not necessary and 50.5% said they forgot to use them. This is in contrast to a study carried out in Ethiopia,[17] where the majority of the respondents (55.6%) who never use PPE said they were not available, followed by those who forgot to use them (22.2%) and those who doubt in their preventive capacity (22.2%). In this study, it may be because of their perception, and they will wear PPE to avoid negative health condition (Health Belief Model). These group need to be educated before they can think of using PPE. Majority of the respondents (96.0%) wear gloves in any procedure. This is similar to a study conducted in [24] where majority of the respondents (92.0%) use gloves. The majority of those who never use gloves said it was not necessary (60.0%) followed by the lack of enforcement (20.0%). It is statistically significant, **P=0.004.**

Majority of the respondents 91.6% uses face mask. This is similar to a study carried out in China[25], where majority of the respondents (70.0%) use face mask. Among the respondents who never use a face mask, the majority (52.4%) said they often forgot to wear it and 47.6% said it was not necessary. In this case, t is statistically significant, **P<0.001.**

Majority of the respondents (90%) wears overall dress and 10% of the respondents do not wear the overall dress. Among the respondents who never use overall dress, majority (72.0%) said they often forget to use it. While 20.0% of the respondents said it was not necessary (significance is **P<0.001**). Majority of the respondents (58.8%) uses safety booths while 41.2% never use safety booths. Among the respondents who that never use safety booths, majority of them (57.3%) said it was not necessary and 35.9% said they often forgot to use it. It is statistically significant, **P<0.001.**

4. CONCLUSION

The most common occupational disease among the respondents includes the following: stress exhaustion, needle stick injuries, neck and low back pain. Less than half of the respondents have received at least one dose of Hepatitis B Vaccine. "Do not want it/No need, non-availability and cost" are the main reasons for the non-receipt of the vaccine. No socio demographic characteristic is associated with the receipt of the vaccine.

Less than $1/10^{th}$ of the respondents were exposed to fluid from HIV/AIDS patients. Among these respondents, high number received post exposure prophylaxis (PEP). The reasons for the non-receipt of PEP are the fact they were negative and the vaccine was not accessible. There is high rate of use of personal protective equipment (PPE) among the respondents. The reason for non-use of any of the PPE is 'not necessary' and the fact is that they often forget to use them.

Recommendations

i. There should be training on safe injection procedure to guide against needle stick injury, especially among the nurses.
ii. The Hospital Management Board should increase the number of staff to reduce stress.
iii. Some staff should be allowed break during their work to exercise their body in order to reduce musculoskeletal problem, especially the pharmacists.
iv. Sensitization of some health workers against flimsy excuses since some of them refused to take some prevention and control measures.

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PREVALENCIJA PROFESIONALNIH OBOLJENJA I MERE ZAŠTITE ZDRAVSTVENIH RADNIKA U OPŠTOJ BOLNICI MINNA, NIGERIJA

U radu je prikazan stepen učestalosti profesionalnih bolesti i mere zaštite koje se primenjuju u praksi na primeru zdravstvenih radnika Opšte bolnice u gradu Mina. Istraživanje je sprovedeno kao studija preseka, na reprezentativnom uzorku. Za prikupljanje podataka je korišćen polu-strukturirani upitnik. Podaci su analizirani u tabelama u kojima su date frekvencije. Najčešće profesionalne bolest među ispitanicima su: stres i iscrpljenost (61,2%), ubod iglom (52,8%) i bol u vratu i donjem delu leđa (56,4%). 42,8% ispitanika je primilo najmanje jednu doza vakcine protiv hepatitisa B. Većina (57,2%) nikada nije primila vakcinu. Ne postoji značajna veza između socio-demografskih karakteristika i primanja vakcine. Oko 18,4% ispitanika je izloženo telesnim tečnostima pacijenata sa HIV/AIDS-om usled uboda iglom. Većina njih (60,9%) je primila profilaksu protiv HIV-a. Više od polovine ispitanika (58,8%) koristi ličnu zaštitnu opremu. Zaključak je da među zdravstvenim radnicima koji su učestvovali u studiji ne postoji dovoljno znanja, kao ni dovoljan nivo kontrole profesionalnih bolesti u praksi. Iz tog razloga potrebno je poboljšati zdravstveno obrazovanje i obuku zdravstvenih radnika o opasnostima na radu i mogućnostima njihove kontrole.

Ključne reči: *profesionalne bolesti, psihološki mehanizam, zaštita na radu, mere zaštite, zdravstveno obrazovanje*