

Prevalence and Knowledge of Preventive Practices for Work-Related Hazards Among Nurses in Enugu State

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Abstract

Prevention of work-related hazards has been a difficult practice among nurses who work in hospitals and other various organizations in the world. This study investigated the prevalence and knowledge of preventive practices for work-related hazards among nurses in tertiary hospitals in Enugu State, Nigeria. Three research questions were formulated for the study. One null hypothesis was also tested at 0.05 level of significance. The study utilized the descriptive survey design. The population for the study was 1,509 nurses who worked in the four tertiary hospitals in Enugu state. A sample of 316 nurses was selected for the study using the proportionate sample technique. The instrument used for the study was the researcher designed Prevalence and Knowledge of Preventive Practices for Work-related Hazards (PKPPWrH) questionnaire. The instrument was validated by five experts and it yielded reliability coefficient of 0.79. Frequencies, percentages and Pearson's Chi-square were used for data analysis. The result showed that nurses were exposed to work-related hazards, indicating highest exposure to ergonomic hazards and lowest exposure to chemical hazards. The finding equally revealed very high knowledge of preventive practices, showing highest knowledge on physical hazards and lowest knowledge on ergonomic hazards. The study further indicated that both the experienced and inexperienced nurses had high knowledge of preventive practices. However, the Chi-square result showed significant difference, revealing that the experienced workers possessed more knowledge than the inexperienced workers on preventive practices. The authors therefore recommended, among others, that the management should try and enforce laws, rules and regulations guiding adoption of preventive practices among the nurses to reduce the prevalence and protect nurses from the hazards of their jobs.

Keywords: Prevalence, Knowledge, Work-related hazard, Preventive practices and Nurses.

Introduction

Addressing the issues of workers' exposure to hazards and their knowledge on measures required for preventing hazards of their job are very crucial in protecting and promoting the health and well-being of the workers and the entire organizational environment. The International Labour Organization – ILO (2013) submitted that workers inadequate adoption of preventive practices for averting work-related hazards has great health implications on not only the workers' health but also on the health of their family members and the entire society. Ugwu, Enwereuzor, Fimber and Ugwu (2017) affirmed that inadequate adoption of preventive practices constitutes tremendous costs in terms of reducing productivity and increasing the burden of social security systems. World Health Organization (WHO) in 2010, estimated 45,696,000 work-related injuries and 142, 000 fatalities that occurred across the world (Hsiao & Stout, 2010). This high estimated work-related injuries and fatalities according to Hsiao and Stout, provoked an increased intervention on matters related to workplace safety among organizations in different nations of the world. Different safety programmes meant to address and minimize worker's exposure to hazards and to protect workers from hazardous situations also emerged (Adbelhamid, Narong & Schafer, 2011). Many countries in an attempt to improve workplace safety employed full time safety officers or consultants to ensure that legal requirements were met and hazards reduced in the workplace (Eyayo, 2014). Efforts were also made by many countries to provide, improve and orient workers towards the adoption of Standard Operation Procedure Guide (SOPG), meant for protecting them from the hazards of their job (WHO, 2019).

Irrespective of all these efforts and the programmes in place, recent report has shown that workers across the world still encounter work-related hazards (ILO, 2019). The ILO report estimated that up to 2.3 million workers in the world fall victims to work-related hazards every year, and this result to over 6000 deaths that occur in every single day in the world. The estimate further indicates that there are about 340 million victims of work-related accidents and about 160 million victims of work-related illnesses annually across the globe. Addressing the issue of hazard prevention in the workplace, WHO (2019) submitted that the dynamic and transient nature of workforce in the recent time, makes the prevention of work-related hazards difficult among workers across the world especially among workers who work in the developing countries.

Several studies from the Nigerian sample have reported work-related hazards experienced among Nigerian workers (Agu, Ogbo, Ezugwu, Okeke & Aniebue, 2015; Oyewusi, Okanlawon & Ndikom, 2015; Udogwu, 2016; Ugwu et al, 2017). Eyayo (2014) had submitted that the issue of work safety had not been taken seriously in Nigerian industries as in other developed countries like Europe. The WHO (2019) also has recently reported an increase in the number of victims of work-related accidents and illnesses among Nigerian workers, and has called for studies and increased intervention on issues related to safety precautions at work in Nigerian organisations.

Work-related hazards are conditions and circumstances that could result to diseases, accidents and disorders in a particular occupation. Works Comp Lawyers (WCL) (2019) defined work-related hazards as injuries or diseases caused, contributed or significantly aggravated by events or exposures to adverse conditions in the work environment. The WCL noted that the hazards occur on the job and as a direct result of the tasks allotted to the specific job. Hazards in the workplace can be caused by physical factors, biological agents, mechanical hazards, ergonomically poor working conditions, chemical hazards, reproductive hazards, allergenic agents, social factors and psychological stress (WHO, 1997). Carrao, Mazzotta, Latorre and Giusti (2012) indicated that some of these work-related hazards could occur as a result of structural factors, incorrect procedures or manoeuvres. Ugwu et al. (2017) reported that workers in Nigerian industries encounter work-related hazards especially, psychological stress and burnout and that the most affected are workers in the nursing profession.

Nursing profession is a profession within the healthcare sector. The nursing job is centred on care of individuals, families and communities (Dunphy & Winland-Brown, 2011). Nurses are those who have satisfactorily completed a prescribed programme of nursing education in an institution approved by a nursing council and licensed by that council to provide nursing services (Nurses and midwives professional Ethics and Practice regulation, 2011). Khamisa, Paltzer, Ilic and Oldenburg (2017) described nursing profession as the most stressful profession. This, the authors, adduced to their exposure to emotional demands, which arises from attending to their patients, prolonged working hours, conflicts with people from related professions such as doctors and health technicians, and from their interpersonal conflicts.

Predominantly, nurses are exposed to hazards of blood-borne infections such as Human Immunodeficiency Virus (HIV) and Hepatitis B and C Virus (Lee, Yen, Fetzer & Chien, 2015). They also encounter back and neck pains, burnout stress and allergic reactions (Bazeyo et al., 2015); spills from chemicals, assaults from patients, accident and radiation (Zaghini, Fida, Carruso, Kangasmemi & Sili, 2017). Carrao, Mazzotta, Latorre and Giusti (2012) had classified the hazards of nursing job into biological, physical, ergonomics, chemical and psychosocial hazards.

This study looked at the prevalence of the above classified work-related hazards among nurses. This becomes necessary since according to Agu et al. (2015), the gross underreporting of work-related hazards in Nigeria is giving a false picture of the scope of problem or level at which workers especially nurses are being exposed to hazards in the course of performing their jobs. Corrao et al. (2012) had also observed that the international bodies such as ILO and WHO give worldwide estimate of work-related hazards and that the exact prevalence of the problem as it relates to individual nations is not being provided by the international bodies.

Prevalence is the fact or condition of something being present. It is a statistical concept referring to the number of cases, old and new cases, that are present in a particular population (WHO, 2015). This study investigated the work-related hazards encountered by nurses in their workplace. Ogoina et al. (2014) and Tesfay and Habtewold (2014) observed respectively, high prevalence of HIV and Hepatitis B among nurses, which according to the authors, were as a result of nurses exposure to blood borne infections while attending to patients. Eljedi (2015) found that 56.6% of nurses were

exposed to psychological hazards; 44% were exposed to physical hazards; 43% were exposed to biological hazards in the course of performing their job. Amosun et al. (2011) reported high prevalence of ergonomic hazards among nurses. On the contrary, Sabra and Morsy (2016) reported high prevalence of physical hazards associated with nursing job. Corrao et al. (2012) had submitted that nurses in the developing countries were exposed to biological risks more than they did to other hazards. The authors suggested that training intervention and increase in the knowledge of hazards and the preventive practices are the most reliable ways of reducing the prevalence of nurses' exposure to work-related hazards. The present study determined also nurse's knowledge of preventive practices for work-related hazards.

Knowledge is awareness or familiarity gained by experience. It is the facts, information and skills acquired through experience or education (Hornby, 2010). Knowledge helps workers in adapting to their environments and it creates awareness of issues and facts as they exist in a given environment (Hecht, 2011). This means that when nurses are knowledgeable of their workplace hazards, they will be able to adopt appropriate preventive practices that will help protect them from such hazards as they perform their nursing job.

Preventive practices refer to measures adopted by workers to avert hazards of their job (Ugwu, 2007). The centre for Disease Control and Prevention identified Protocols and Standard Operation Procedure Guide (SOPG), required for all nurses to observe in the course of performing their duties (Clarke, Sloane & Aiken, 2015). The prevention guide is meant to reduce the risk of workplace hazards and this is achieved when the nurses adhere to the guide. The components include, among others, regular hand washing before and after contact with patients; use of personal protective equipment such as hand gloves and plastic aprons; appropriate handling of sharp objects; proper disinfection of hospital equipment; and proper disposal of hospital wastes.

Studies on nurses' knowledge of preventive practices have revealed conflicting findings. Abdulraheem et al. (2012) and Aluko et al. (2016) have found respectively that nurses were aware of the safety precautions required for averting hazards of their job. Agu et al. (2015) compared nurses and other health care workers on their adoption of safety precautions and the result revealed that nurses adapted preventive practices more than the CHOs and the CHEWs. On the contrary, Wang (2013) and Udogwu (2016) observed respectively that nurses are not knowledgeable of the laid down rules and regulations guiding safety precautions in their workplaces. Corrao et al. (2012) had submitted that nurses are not knowledgeable and as such require to be trained, to improve their knowledge of preventive practices as they perform risky job of caring for sick persons. The author also suggested orientation programme for new workers on the use of SOPG.

Studies have also proved that some socio-demographic variables such as nurses' work experience play a role in their knowledge of preventive practices for averting work-related hazards (Wang, 2013; Agu et al., 2015). This study determined the role of work experience on the knowledge of preventive practices adopted by nurses against their workplace hazards. The study classified the experienced nurses as those who have worked in the nursing profession for the period of 10 years and above while the inexperienced nurses are those who have worked for less than 10 years in the nursing profession. Massrouje (2011) and Abdulraheem et al. (2012) reported from their various studies, significant differences, indicating that the experienced nurses had more knowledge of safety precautions guide than the inexperienced nurses. Anozie et al. (2016) also found significant differences. However, Anozie's finding showed that the inexperienced nurses had more knowledge of preventive practices than the experienced nurses. Contradictorily, Takele and Abera (2017) found no significant difference in the knowledge of preventive practices among the experienced and inexperienced nurses.

The reviewed studies showed dearth of literature on the prevalence and knowledge of preventive practices for work-related hazards among nurses in Nigerian industries. The studies reviewed from other parts of the world equally revealed conflicting findings. This study therefore helps in revalidating the earlier findings. Considering the fact that the understanding of the prevalence and level of knowledge of preventive practices nurses possess, will lead to the arousal of safety consciousness, at work, among the management and proper adoption of safety practices among the nurses; reduce absenteeism and turnover outcome, improve productivity and the optimal health of the nurses; considering also that when the nurses enjoy safety work climate, they will be better disposed

to attend to their patients which would enhance optimal health of the general population, it becomes expedient that study be conducted in this area, drawing sample from Nigerian nurses.

Purpose for the study

The purpose of the study was to investigate prevalence and preventive practices for work-related hazards among nurses in Enugu State, Nigeria. Specifically, the study sought to determine;

1. Prevalence of work-related hazards among nurses.
2. Level of knowledge of preventive practices for work-related hazards possessed by nurses;
3. Level of knowledge of preventive practices for work-related hazards possessed by nurses based on work experience.

Research Questions

The following questions were posed to guide the study

1. What is the prevalence of work-related hazards among nurses?
2. What is the level of knowledge of preventive practices for work-related hazards possessed by nurses?
3. What is the level of knowledge of preventive practices for work-related hazards possessed by nurses based on years of work experience?

Hypothesis

The following null hypothesis was postulated and tested at .05 level of significance:

1. There is no significant difference in the level of knowledge of preventive practices for work-related hazards possessed by nurses based on work experience.

Method

The descriptive survey research design was adopted for the study. The study was carried out in tertiary hospitals in Enugu State, Nigeria. Enugu state is one of the 36 states in Nigeria. The state has four tertiary and many secondary and primary health facilities. The study was conducted in the four tertiary health facilities comprising of the University of Nigeria teaching Hospital (UNTH) located at Ituku Ozalla; Enugu state University Teaching Hospital Parklane, situated within Enugu Metropolis; National Orthopaedic Hospital, situated along Abakiliki road and Federal Neuropsychiatric Hospital Enugu, located in New Haven Enugu. The choice of the tertiary health facilities for this study was because they offer specialized consultative healthcare services and employed many nursing staff. These nurses are being exposed to hazards in performing their daily duties.

The population for the study comprised all the 1,509 nurses who worked in the four tertiary hospitals in Enugu State. The UNTH has 623 nursing staff, Parklane has 454 nursing Staff; Orthopaedic has 293 nursing staff and the Neuropsychiatric Hospital has 139 nursing staff (Hospital Management Board Enugu Chapter, 2018).

A sample size of 316 nurses was drawn for the study. The Taro Yamane's for finite population was used to draw the sample. Two-stage sampling procedure was used in drawing the sample. The first stage involved the use of purposive sampling technique to select all the four tertiary hospitals in Enugu State. The second stage involved the use of proportionate sampling technique to select 41 percent of nurses in UNTH; 30 per cent of nurses in Parklane; 20 per cent of nurses in Orthopaedic and 9 percent of nurses in Neuropsychiatric hospital. With this, the total numbers of 130, 95, 63 and 28 nurses were selected respectively from the four tertiary hospitals in Enugu state.

The instrument used for data collection was the adapted questionnaire from Ndejjo (2015). The questionnaire was modified by the researcher to suit the present study in terms of the required information generated for this study. The instrument is known as the Prevalence and Knowledge of Preventive Practices for Work-related Hazards (PKPPWrH) questionnaire. It had three sections (A – C). Section A sought information on the bio-data of the respondents. Section B had 23 items on the prevalence of work-related hazards. Section C consisted of 22 items on knowledge of preventive practices for work-related hazards. The response options for sections B and C was Yes or No.

The face validity of the instrument was established by five experts drawn from the Department of Human Kinetics and Health Education, University of Nigeria, Nsukka. The reliability of the instrument was determined using the Cronbach's Alpha formula. Thirty copies of the questionnaire were given to nurses in Nnamdi Azikiwe Teaching Hospital in Anambra state. The reliability coefficient of 0.79 was obtained and this was adjudged reliable for the study according to Cohen, Manion and Morrison (2011).

To gain access to the health facilities, the researcher raised a letter of introduction which was given to each Director in charge of the health facilities under study. The administration and collection of the instrument was facilitated by the help of the respective Chief Nursing Officers (CNOs) in charge of the various units within each health facility. Following from the nurse's busy schedule, the respondents were allowed 2 days to respond to the instrument. A total number of 316 instruments were distributed to the nurses in the various health facilities under study and a total number of 311 copies were collected back and correctly filled. The return rate was therefore 98.5%.

The Statistical Package for Social Sciences (SPSS) version 20 was used for analysing the data. Frequencies and percentages were used to answer the research questions. The knowledge level was determined using Okafor (1997) scale. By this criterion, scores that fall within 0 – 9 percent were considered very low level of knowledge; 10 – 39 percent were considered low level of knowledge; 40 – 59 were considered moderate level of knowledge, 60 – 79 were considered high level while 80 and above percent were considered very high level of knowledge. The null hypothesis was tested using Pearson's Chi-square statistics at .05 level of significance.

Results

Research question one.

What is the prevalence of work-related hazards among nurses?

Table 1: Prevalence of Work-related Hazards among Nurses (n=311)

Work-related hazards	Exposed		Unexposed	
	f	(%)	f	(%)
Have you been exposed to any of these related hazards?				
Biological hazards				
1. Airborne diseases e.g. tuberculosis	129	41.5	182	58.5
2. Exposure to blood-borne pathogens	192	61.7	119	38.3
3. Direct contact with contaminated specimen/biohazard materials	182	58.5	129	41.5
4. Vector-borne e.g. malaria	260	83.6	51	16.4
Cluster%		61.3		38.7
Physical hazards				
5. Exposure to noise from hospital machine	195	62.7	116	37.3
6. Exposure to ionizing radiation e.g. x-rays	148	47.6	163	52.4
7. Exposure to sharp-related radiation e.g. x-ray	247	79.4	64	20.6
8. Exposure to burns	78	25.1	233	74.9
Cluster %		53.7		46.3
Ergonomic hazards				
9. Involved in carrying, lifting or moving heavy materials	204	65.6	107	34.4
10. Working in the same position for a long time e.g. standing, bend over, sitting, kneeling	275	88.4	36	11.6
11. Slips, trips and falls	135	43.4	176	56.6
12. Lifting or transferring dependent patients	232	74.6	79	25.4
13. Exposed to cuts and wounds injuries	244	78.5	67	21.5
Clusters %		70.1		29.9
Chemical hazards				
14. Experienced irritation of the eyes, nose and throat due to contacts with droplets of washing and cleaning liquids	160	51.4	151	48.9
15. Experienced latex allergy caused by exposure to natural latex gloves and other medical devices containing latex	61	19.6	250	88.4
16. Exposure to chemical pill	58	18.6	253	81.4
17. Experienced chronic poisoning because of long exposure to medications and sterilizing fluid	64	20.6	247	79.4
Cluster %		27.6		72.4
Psychological hazards				
18. Experienced physical assault	89	28.6	222	71.4
19. Experienced verbal abuse	244	78.5	67	21.5
20. Experienced loss of self-confidence	155	49.8	156	50.2
21. Experienced violence and aggression	197	63.3	114	36.7
22. Experienced extreme stress	240	77.2	71	22.8
23. Experience of role conflicts	190	61.1	121	38.9
Cluster %		59.8		40.2
Overall percentage		54.5		45.5

Table 1 showed that overall, 54.5 per cent of nurses were exposed to work-related hazards. Specifically, the table showed that the highest proportion of nurses (70.1%) was exposed to ergonomic hazards. This was followed by 61.3 per cent that was exposed to biological hazards and 59.8 per cent exposed to psychological hazards. The result also showed that 53.7 per cent was exposed to physical hazards while 27.6 per cent was exposed to chemical hazards. This implies that nurses reported being exposed to hazards in their workplace.

Research question two

What is the level of knowledge of preventive practices for work-related hazards possessed by nurses?

Table 2

Level of Knowledge of Preventive Practices against Work-related Hazards Possessed by Nurses (n=311)

Preventive practices for work-related hazards	f	(%)
Biological hazards		
1. Washing hands when coming into contact with blood or body fluid is important in the workplace	284	91.3
2. Wearing personal protective equipment such as gloves, laboratory coats, face shield or mask and eye protection when potentially exposed to blood borne pathogen can reduce the risk of infection	307	98.7
3. Nurses should remove personal protective equipment before leaving the work area	296	95.2
4. Complying with all safety instructions can prevent biological exposure	303	97.4
Cluster%		95.7
Physical hazards		
5. Wearing radiation protective dosimeter when exposed to radiation can reduce the effect of radiation on body	307	98.7
6. Periodic inspection of electrical medical equipment reduce exposure to burns	306	98.4
7. Syringes or needles should be safely disposed using sharps containers	305	98.1
8. Proper training and retraining about safety measures is necessary to reduce the risk of exposure to occupational health hazards	293	94.2
Cluster %		97.3
Ergonomic hazards		
9. Avoidance of prolonged standing in an upright or bent posture may prevent chronic circulatory disorder	250	80.4
10. Consulting an occupational safety specialist for the safe handling of heavy	274	88.1
11. Nurses should wear shoes designed for nurses, with non-slip soles to prevent fall accidents	299	96.1
12. Use of safe lifting techniques and engineering control devices is necessary during patient transfers and handling	303	97.4
13. Frequent changes of body positions, taking/rest breaks and stretching help to avoid musculoskeletal disorders such as low-back injuries	296	95.2
Clusters %		91.4
Chemical hazards		
14. Usage of gloves resistant to blood borne pathogens, mask and apron are necessary for handling antineoplastic drugs and chemicals	291	93.6
15. Using non-latex or powder-free latex gloves reduce the risk of latex allergy when there is little contact with infectious materials	280	90.0
16. Washing hands immediately after removing gloves protects the hand	303	97.4
17. Prompt medication evaluation for workers with early symptoms of latex allergy or irritant contact dermatitis	303	97.4
Cluster %		94.6
Psychological hazards		
18. Counselling services should be available to nurses exposed to post traumatic stress syndrome (PTSD)	305	98.1
19. Use of legal action against the assaultive party can reduce physical assault in the workplace	286	92.0
20. Regularly scheduled staff meetings can alleviate the difficulties and frustrations facing nurses	306	98.4
21. Recognition and proper acting on legitimate complaints helps in coping with stress	305	98.1
22. Provide frequent, quality supervision and institutional staff support for nurses	301	96.4
Cluster %		96.7
Overall percentage		95.1

Research question three.

What is the level of knowledge of preventive practices for work-related hazards possessed by nurses based on work experience?

Table 3

Level of knowledge of Preventive Practices against Work-related Hazards Possessed by Nurses Based on Work Experience

Preventive practices for work-related hazards	Experienced f	(n=132) (%)	Inexperienced f	(n=179) (%)
Biological hazards				
1. Washing hands when coming into contact with blood or body fluid is important in the workplace	118	89.4	166	92.7
2. Wearing personal protective equipment such as gloves, laboratory coat, face shields or mask and eye protection when potentially exposed to blood born pathogen can reduce the risk of infection	132	100.0	175	97.8
3. Nurses should remove personal protective equipment before leaving the work area	122	92.4	174	97.2
4. Complying with all safety instructions can prevent biological exposure	131	99.2	172	96.1
Cluster%		95.3		96.0
Physical hazards				
5. Wearing radiation protective dosimeter when exposed to radiation can reduce the effect of radiation on body	131	99.2	176	98.3
6. Periodic inspection of electrical medical equipment reduce exposure to burns	131	99.2	175	97.8
7. Syringes or needles should be safely disposed using sharps containers	132	100.0	173	96.6
8. Proper training and retraining about safety measures is necessary to reduce the risk of exposure to occupational health hazards	129	97.7	164	91.6
Cluster %		99.0		96.1
Ergonomic hazards				
9. Avoidance of prolonged standing in an upright or bent posture may prevent chronic circulatory disorder	101	76.5	149	83.2
10. Consulting an occupational safety specialist for the safe handling of heavy	113	85.6	161	89.9
11. Nurses should wear shoes designed for nurses, with non-slip soles to prevent fall accidents	132	100.0	167	93.3
12. Use of safe lifting techniques and engineering control devices is necessary during patient transfers and handling	132	100.0	171	95.5
13. Frequent changes of body positions, taking/rest breaks and stretching help to avoid musculoskeletal disorders such as low-back injuries	123	93.2	173	96.6
Clusters %		91.1		91.7
Chemical hazards				
14. Usage of gloves resistant to blood borne pathogens, mask and apron are necessary for handling antineoplastic drugs and chemicals	121	91.7	170	95.0
15. Using non-latex or powder-free latex gloves reduce the risk of latex allergy when there is little contact with infectious materials	119	90.2	161	89.9
16. Washing hands immediately after removing gloves protects the hand	129	97.7	174	97.2
17. Prompt medication evaluation for workers with early symptoms of latex allergy or irritant contact dermatitis	132	100.0	171	95.5
Cluster %		94.9		94.4
Psychological hazards				
18. Counselling services should be available to nurses exposed to post traumatic stress syndrome (PTSD)	131	99.2	174	97.2
19. Use of legal action against the assaultive party can reduce	115	87.1	171	95.5

physical assault in the workplace				
20. Regularly scheduled staff meetings can alleviate the difficulties and frustrations facing nurses	130	98.5	176	98.3
21. Recognition and proper action on legitimate complaints helps in coping with stress	131	99.2	174	97.2
22. Provide frequent, quality supervision and institutional staff support for nurses	129	97.7	172	96.1
Cluster %		96.3		96.9
Overall percentage		95.3		95.0

Data in Table 2 showed that in overall, nurses at tertiary hospital in Enugu state had very high knowledge (95.1%) of preventive practices for work-related hazards. The Table also showed that nurses had very high knowledge of preventive practices required to avert all the hazard items under study. The nurses showed very high knowledge of preventive practices on biological hazards (95.7%), physical hazards (97.3%), ergonomic hazards (91.4%), chemical hazards (94.6%) and psychosocial hazards (96.7%)

Data in Table 3 indicated in overall, very high level of knowledge of preventive practices for both the experienced and inexperienced nurses. The overall result also reported higher knowledge for the experienced nurses (95.3%) than the inexperienced nurses (95.0%). Specifically, the cluster percentages of the various hazard's items studied revealed that the experienced nurses possessed very high knowledge of preventive practices needed for protecting workers against all the hazard items investigated. The experienced nurses showed very high knowledge on biological hazards (95.3%); physical hazards (99.0%); ergonomic hazards (91.1%); chemical hazards (94.9%) and psychosocial hazards (96.3%). Regarding the inexperienced nurses, they also showed very high knowledge of preventive practices on biological hazards (96.0%); physical hazards (96.1%); ergonomic hazards (91.7%); chemical hazards (94.4%) and psychosocial hazards (96.9%).

Hypothesis one.

There is no significant difference in the level of knowledge of preventive practices for work-related possessed by nurses based on work experience.

Table 4

Summary of Pearson's Chi-square Analysis on Knowledge of Preventive Practices for work-related hazards Possessed by Nurses based on Work Experience

Variable	N	Knowledge of PPs of OHHs		χ^2	df	p-Value
		YES O(E)	NO O(E)			
Work experience						
1 – 10 years	179	144 (136.4)	35(42.6)	4.184	1	.041
≥ 11 years	132	93(100.6)	39(31.4)			
Total	311	237(237.0)	74(74.0)			

P<.05= Significant

Table 4 showed that there was a significant difference in the knowledge of preventive practices for work-related hazards possessed by nurses according to work experience ($\chi^2 = 4.184$, df = 1, p = .041<.05). Since the p-value is less than 0.05, the null hypothesis was therefore rejected. This means that knowledge of preventive practices for occupational health hazards differ according to work experience.

Discussion

Result in Table 1 revealed the prevalence of occupational health hazards. The finding showed that the highest prevalence of occupational health hazard was exposure to ergonomic hazards followed by biological hazards, psychosocial hazards, physical hazards, while the lowest prevalence was exposure to chemical hazards. This implies that nurses are rarely exposed to chemical hazards compared to other workplace hazards. This result is in line with the findings of Amosun et al. (2011) who reported

high prevalence of ergonomic hazards among nurses in Abeokuta, Ogun state, Nigeria. This finding also corroborates the earlier findings of Corrae et al. (2012) who posited that nurses are prone to occupational hazards in the course of performing their job. In contrast, Ogoina et al. (2014) and Tesfay and Habtewold (2014) observed from their various studies that nurses are exposed to biological hazards more than they do to other hazards. Eljedi (2015) and Ugwu et al. (2017) reported respectively, higher exposure to psychological hazards among nurses. The present finding could be as a result of negligence, carelessness and non-compliance to standard precautions especially as it regards to the use of instrument among the nurses. It could also be explained in line with Eyayo (2014) submission, which states that the issue of work safety had not been taken seriously in Nigerian industries. Hence the nurses might not be familiar with the instruments they used in performing their job and as such, they report higher prevalence of ergonomic hazards than other hazards.

Regarding the knowledge of preventive practices for work-related hazards among nurses, Table 2 showed that nurses working in tertiary hospitals have high knowledge of preventive practices for their workplace hazards (95.1%). The result conforms to that of Abdulraheem et al. (2012); Agu et al. (2015) and Aluko et al. (2016) who reported respectively that nurses were aware of the safety precautions required in averting hazards of their job. Conversely, the study was not in agreement with the finding of Corrao et al. (2012); Wang (2013) and Udogwu (2016) who found from their different studies that nurses are not knowledgeable of the preventive measures required for protecting them from the hazards of their job. The high level of knowledge of preventive practices for workplace hazards found in this study could be as a result of information gained through seminars or workshops, radio programmes and television programmes. It could also be as a result of past experiences gained by the nurses. They may have experienced their colleagues who have encountered hazards in the course of performing their jobs without proper use of protective devices. Thus, they became aware of the dangers associated with their job.

Regarding the influence of work experience on knowledge of work-related hazards, data in Table 3 showed that the experienced and the inexperienced nurses reported high knowledge of preventive practices for work-related hazards. However, the study indicated that the experienced nurses had higher knowledge than the inexperienced nurses. Similarly, the Chi-square result in Table 4 reveals that there was a significant difference in the levels of knowledge of preventive practices for work-related hazards possessed by nurses based on work experience. The finding is consistent with the respective studies by Massrouje (2011); Abulraheem et al. (2012); Wang (2013); Beseler (2014) and Anozie et al. (2016). The researchers reported significant differences, showing higher knowledge of preventive practices for work-related hazards among experienced nurses than the inexperienced nurses. Contradictorily, Takele and Abera (2017) found no significant difference in the knowledge of preventive practices for work-related hazards among nurses. The finding in the present study may be related to the experience and information gained over the years which may offer more advantage for those who have worked for a long period of time in the job than those who were younger on the job. The experienced workers may have encountered hazards in the course of performing their jobs and may have also seen their colleagues encounter hazards, which made them to become more informed about preventive measures needed to avert hazards of their job than their inexperienced counterparts.

Conclusion

The study determined the prevalence and knowledge of preventive practices for work-related hazards among nurses who worked in tertiary hospitals in Enugu State, Nigeria. The finding revealed that nurses were exposed to work-related hazards. The least prevalence of work-related hazard was exposure to chemical hazards, while the highest prevalence was ergonomic hazards. The result further showed very high knowledge of preventive practices, indicating highest knowledge on prevention of physical hazards and the lowest was on ergonomic hazards. Both the experienced and inexperienced nurses possessed high knowledge of preventive practices. However, the experienced nurses showed significantly higher knowledge than the inexperienced nurses. This means that the nurses still encounter work-related hazards in the course of performing their jobs, irrespective of their knowledge of the guiding rules and regulations for hazards prevention in their workplace. It also implies that inexperienced nurses are finding it more difficult in adopting preventive practices required for averting hazards of their job than the experienced nurses.

Recommendations

- The researchers therefore recommended that management should organize seminars and workshops which will enhance nurses' knowledge of preventive practices and reduce prevalence of work-related hazards among the nurses.
- There is need for increased intervention and training measures for nurses especially the inexperienced nurses to improve their knowledge of the guiding rules and regulations meant for hazard prevention in their workplace.
- Furthermore, proper orientation should be given to new workers, using the Standard Operation Procedure Guide meant for protecting workers and reducing the risk of work-related hazards encountered among the nurses as they perform their nursing jobs.
- There is also need for enforcement of rules, regulations and policies guiding the adoption of preventive practices in the workplace by the management. This should be made to involve severe penalties for the defaulters. This will help the nurses in adopting the stipulated preventive practices and help protect them from the hazards of their jobs and improve productivity, job satisfaction, optimum health and total life satisfaction for the nurses.

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