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The Level of Knowledge Regarding Occupational Hazards among Nurses in Abeokuta, Ogun State, Nigeria

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Abstract: This descriptive survey was carried out to investigate the level of knowledge on the predisposing factors to occupational hazards, among nurses in health facilities in Abeokuta, Ogun state, Nigeria. The study population consisted of nurses of varying categories working in ten public and two privately owned health facilities in five local government areas of the state. The simple random sampling technique was employed in selecting 1,200 respondents across the health facilities. A validated structured questionnaire developed with reliability of 0.79 was used to collect information. Data collected were analysed using the SPSS package version 12.0. The results revealed that 5.7% of the respondents were males, 94.3% were females, and 37.1% were single while 62.9% were married. Among the respondents, 44.8% were between 21-30 years of age, 15.2% between 31-40 years and 23.8% between 41-50 years while the remaining 16.2% were aged 51 years and above. Four hundred and sixty-nine (39.1%) respondents have 1-10 years working experience while 60.9% have spent 11 years and above in the nursing profession. It was found that 96.2% of the respondents knew that the profession is prone to occupational hazards, and as expressed by 88.6% of the respondents, back injury is the commonest hazard, followed by neck and back pain as attested to by 84.8% of the nurses. The most prominent predisposing factor is prolonged standing as viewed by 84.5% of the sample. Avoidance of lifting of patients and heavy equipment, among others, is the most notable way of avoiding occupational hazards as attested to by 90.5% respondents. Nursing professionals should therefore make conscious and concerted efforts to minimize avoidable occupational hazards in the course of discharging their duties, so that their health would not be jeopardised.

Key words: Back injury, heavy equipment, occupational hazards, protective gadgets

INTRODUCTION

Nursing is an enviable and life saving profession in the Nigerian setting, but as applicable to other areas of human endeavour, the practitioners are exposed to many occupational hazards, some of which produce physical disabilities while others if care is not taken, may lead to life threatening diseases like HIV/AIDS. Nursing and other related healthcare occupations are demanding professions. Men and women in these jobs are responsible for providing high-quality health care, though their working environments such as hospitals, clinics and laboratories, are increasingly recognized as hazardous workplaces (Stonerock, 2004). In particular, inhalation exposures and their potential respiratory health effects are of growing concern among workers in healthcare settings.

Findings that describe the asthmagenic and allergenic properties of specific products such as Natural Rubber Latex (NRL) gloves provided the basis for efforts to reduce such exposures in many healthcare settings. However, repeated exposures to cleaning agents and latex products in the workplace remain important, yet unavoidable risk factors for nurses.

The roles and responsibilities of nurses and other healthcare workers vary widely, as do the specific occupational tasks and products used. Nonetheless, certain aspects of medical workplaces are ubiquitous. For example, alkaline glutaraldehyde, a disinfectant used to sterilise medical instruments has been associated with respiratory symptoms among nurses, hospital technicians and respiratory therapists. Surveillance data for cases of work-related asthma indicate that healthcare workers are the most commonly reported industry group (16%), among which cleaning products (e.g., ammonia, bleach, disinfectants and other cleaning agents) (24%), latex (20%), glutaraldehyde (9%) and formaldehyde (5%) appear as common work related hazards (Myers and Jackson, 1993).

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The frequency, with which latex was reported as one of the contributing exposures to hazard among workers in nursing occupations, provides further evidence that latex is still a major concern for workers in healthcare settings, where dermal and respiratory latex exposures have been associated with symptoms among hospital personnel. Nursing is associated with a lot of hazards, especially in hospitals, nursing care facilities, and clinics, where nurses may care for individuals with infectious diseases. In view of this, nurses must observe rigid standardised guidelines to prevent diseases and other dangers such as those posed by radiation, accidental needle sticks, chemicals used to sterilize instruments, and anaesthetics. In addition, they are vulnerable to back injury when moving patients, shocks from electrical equipment, and hazards posed by compressed gases. Nurses who work with critically ill patients also may suffer emotional strain from observing patients in agony and from close personal contact with patients' families.

Findings of some researches conducted in the field of nursing point to the direction that nurses are very much exposed to a lot of hazards. However, some measures have been taken to arrest the situation but to no avail. For instance, the Natural Rubber Latex (NRL) glove was designed for nurses in order to avoid direct contact with the patients. Unfortunately, the use of these gloves has been found to have its own adverse effects on the users.

An apparent rise in incidence of latex-related symptoms has been associated with widespread use of NRL gloves, to protect against blood-transmitted infections. High degree of exposure has been recognized as a factor predisposing to latex sensitization in healthcare workers. In many hospitals, latex-free routes have been adopted to avoid the possible occurrence of severe reactions in workers and patients.

Allergic sensitization to NRL has become an important occupational health problem among nurses and other healthcare workers. Proteins of NRL (hexamine, hevein, and rubber elongation factor) can be absorbed through the skin or inhaled, while corn starch glove powder can act as a carrier for these allergenic proteins. Skin manifestations may include allergic contact dermatitis or delayed hypersensitivity, urticaria, and angio-oedema. Immediate hypersensitivity reaction to latex are rhinitis, conjunctivitis, asthma, and in rare cases, anaphylaxis. Data from several epidemiological studies show that sensitization varies among countries and regions of the same country. It is therefore necessary to gather information about the frequency, determinants and factors predisposing nurses to various occupational hazards, so that preventive measures and health surveillance can be implemented effectively.

In addition to all the aforementioned occupational hazards experienced by nurses, all healthcare workers who lift and move patients are at high risk of back injury and other musculoskeletal disorders (Owen *et al*., 1999; Orr, 1997). A work-related musculoskeletal disorder is an injury of the muscles, tendons, ligaments, nerves, joints, cartilage, bones, or blood vessels in the extremities or back that is caused or aggravated by work tasks such as lifting, pushing, and pulling (Moens *et al*., 1994). Symptoms of musculoskeletal disorders include pain, stiffness, swelling, numbness, and tingling.

Patient-handling tasks often involve motions that challenge a nurse's body such as twisting, bending, stretching, reaching, and other awkward postures. The most frequent causes of back pain and other injuries among nursing staff (in healthcare centres and in hospitals) are lifting and moving patients ("patient transfers"), bathing, dressing, and feeding patients (Myers and Jackson, 1993; Moens *et al*., 1994).

According to National Institute for Occupational Safety and Health (NIOSH), nurses can develop musculoskeletal disorders from a number of common work activities including the followings:

- Forceful exertions (activities that require a person to apply high levels of force, such as during lifting, pushing, or pulling heavy loads)
- Awkward postures when lifting
- Repeated activities without adequate recovery time

Healthcare workers who spend the most time transferring, bathing, and dressing patients have the highest rates of musculoskeletal injuries (Zelenka, 1996; Nelson and Steyner, 1997; Delive *et al*., 2003). In an NIOSH survey study of healthcare workers, these tasks were identified as significant predictors of pain in the back, neck, shoulders, legs and feet, after adjusting for other factors such as the worker's age, weight, and physical activities outside of work (Orr, 1997)]. It has been observed that frequent heavy lifting, lifting in awkward postures, and lifting without assistance were significant predictors of permanent work disability in nurses (Houle, 2001).

The term musculoskeletal disorders encompass a gamut of inflammatory and degenerative conditions that affect the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels with consequent ache, pain or discomfort. Musculoskeletal disorders are reported to occur in certain industries and occupations with rates up to three or four times higher than the average rate across all industries; an example of such is the hospital setting. Work-related Musculoskeletal Disorders (WMSDs) are defined as musculoskeletal disorders that result from work-related activities. WMSDs are common among health care workers, with the nursing population that constitutes about 33% of the hospital

workforce at particularly high risk, and accounting for 60% of the reported occupational injuries (Scott, 2006). WMSDs are reported to significantly impact on quality of life, cause loss of work time or absenteeism, increase work restriction, transfer to another job, or disability than any other group of diseases with a considerable economic toll on the individual, the organisation and the society as a whole (Henderson, 2003).

Studies have shown that musculoskeletal problems are particularly common in health care workers who are in direct contact with patients. Reports from other populations have shown that nurses, nursing aides, and orderlies have the highest rates of WMSDS in the medical industry (Jagger and Bentley, 1997). The high prevalence of musculoskeletal disorders among nurses is thought to be due to physical work demands, as well as organizational factors, of which scheduling is an important component (Smith and Roy, 2007).

A study from rural Japan reported a 12-month prevalence of 91.9% (Josephson, 2008). One study conducted in the US (Herber *et al*., 2005), reported a prevalence of 72.5% while another study (Hassmiller and Cozine, 2006), reported that 52% of nurses experienced work-related back pain within a 6-month period. Prevalence of musculoskeletal disorders has been noted to vary across occupational groups and over national boundaries. Subjectivity of terms, variations in instrument, organizational differences in work settings, and cultural differences in the perception and reporting of pain and disorders are adduced for the variation in rates of WMSDs in the different studies.

According to an Institute of Medicine report, nurses are the largest group of health care professionals providing direct patient care in hospitals, and that the quality of care for hospital patients is strongly linked to the performance of nursing staff (Tankha, 2006). In line with this, creating a healthy work environment for nurses is crucial to maintaining an adequate nursing workforce (Smith and Roy, 2007).

Burnout, which is associated with stress, has also become the most important factor influencing individual efficacy and satisfaction in modern day occupational settings like the nursing profession (Poncet *et al*., 2007). Four domains associated with severe burnout in critical care nursing staff have been presented. They include personal characteristics, organizational factors, quality of working relations, and end-of-life related factors (Bennett *et al*., 2005). Burnout and high levels of job stress are known as some of the major sources of occupational hazards for nurses (Lipscomb and Love, 1992).

Nurses in mental health facilities have, for a long time, been the subjects of patient violence. Other high risk settings include emergency departments, paediatric units, medical-surgical units, and long term care facilities (Myers and Jackson 1993). Weapon carrying is not uncommon in psychiatric and general medical emergency rooms. The environmental risk factors associated with assault of health care workers are inadequate training, staffing patterns, time of day, and containment practices. Studies have shown that inexperienced workers and nursing students are at increased risk of assault. The majority of the injuries are sustained in the process of containing patient violence and the rest are battery injuries.

This study was conducted to highlight the predisposing factors to occupational hazards in the nursing profession, and to determine the level of knowledge as regards these hazards, among nurses in healthcare facilities in Abeokuta, Ogun state, Nigeria.

METHODOLOGY

This descriptive cross-sectional study which adopted an ex-post facto survey research design was carried out to identify the level of knowledge of nurses on the types of, and the predisposing factors to occupational hazards the nursing personnel are exposed to, while carrying out their normal duties. It was conducted in twelve randomly selected healthcare facilities located in Abeokuta, Ogun state, Nigeria, in 2010. The study population consisted of varying categories of nurses working in ten public and two privately owned randomly selected health facilities in the study location. The simple random sampling technique was also employed in selecting 1,200 respondents across the health facilities with 100 subjects selected from each of them. A pretested structured questionnaire developed with a reliability coefficient of 0.79 was used to collect relevant information for the study. A consent form was provided for signature by each subject, and anyone who refused to sign the consent form after due explanation was excluded from the study. Research assistants were recruited and trained to help in administering the questionnaires which were thereafter collected, sorted out and analysed using the SPSS package.

RESULTS

Demographic characteristics of the respondents: The results reveal that 44.8% of the respondents were between 21- 30 years of age, 15.2% between 31-40 years, and 23.8% between 41-50 years while the remaining 16.2% were aged 51 years and above. Out of the respondents 62.9% were married, 37.1% were single; 94.3% were females while the remaining 5.7% were males. Also, 39.0% of the respondents have 1-10 years working experience while 61.0% have spent 11 years and above in the nursing profession.

Table 1: Response on the occupational hazards nurses are exposed to

Occupational Hazards	N	%
Back injuries.	1063	88.6
Latex allergy	434	36.2
Needle stick injury	583	48.6
Workplace violence	240	20.0
Toxic chemicals	560	46.7
Muscular disorder	480	40.0
Neck and back pain	1017	84.8
Exposure to radiation	811	67.6
Infections from the patients	995	82.9
Assault from patients	954	79.5

Virtually all the nursing personnel (96.2%) who participated in the study agreed that the nursing profession is associated with occupational hazards. Table 1 shows their knowledge as to what hazards they are exposed to as nurses in their respective working places.

The table reveals that 88.6% of the respondents said that back injury is the commonest occupational hazard, followed by neck and back pain as attested to by 84.8% of the nurses.

Table 2 shows that 84.8% of the respondents claimed that the most prominent causative factor is prolonged standing while on duty, 79.1% attributed the occurrence of hazards to carelessness and negligence on the part of the nursing personnel, 69.5% to lifting of patients and equipments, 65.7% to failure to observe simple safety rules in the wards, and 63.8% to shortage of staff while 66.9% said hazards result from excessive workload.

Respondents' suggestions on possible ways of preventing occupational hazards are presented in Table 3. It was observed that avoidance of lifting of patients and heavy equipment was suggested by 90.5% of the respondents as the most notable way of preventing occupational hazards, while 86.7% suggested proper training and retraining of nurses on safety measures.

DISCUSSION

The study was carried out to examine the knowledge of nurses on the factors that predispose them to occupational hazards in their chosen profession. It was confirmed that nursing professionals are exposed to occupational hazards as over 95% of the respondents attested to this. This finding corroborates the findings of earlier researchers who posited that nurses and other health personnel are prone to occupational hazards (Smith and Roy, 2007).

Among the factors suggested as being responsible for these hazards include negligence or carelessness on the part of the nurses, prolonged standing by the nurses while on duty, failure to observe simple safety rules, lifting of patients and other heavy equipments, excessive workload and lack of protective devices. The study also revealed the various kinds of hazards as observed by the nurses, some of which are back injury, infection from patients, assault by patients, neck and back pain, workplace violence, exposure to radiation and muscular disorder. These findings are in line with results of other studies which all reported these hazards as being common with the nursing profession (Orr, 1997; Moens *et al*., 1994; Smith and Roy, 2007).

In this study, respondents as a result of their various experiences were able to suggest ways of preventing or minimizing the rate at which nurses are exposed to occupational hazards in the discharge of their duties, some of which are the proper use of protective aids, strict

Table 2: Knowledge of nurses on the predisposing factors to occupational hazards

Factors	N	%
Negligence and carelessness on the part of the nurses	949	79.1
Lack of adequate protective aids and equipment	720	60.0
Shortage of staff	766	63.8
Excessive workload	732	61.0
Prolonged standing	1018	84.8
Lifting of heavy objects and equipment	834	69.5
Failure to observe simple safety and hygiene rules	788	65.7
Lack of knowledge of usage of modern facilities	594	49.5

Table 3: Response on the ways of preventing occupational hazards among nurses

Ways of preventing occupational hazards	N	%
Proper training and retraining on safety measures	1018	84.8
Provision of protective aids and equipments	743	61.9
Employment of more nurses and aids	937	78.1
Avoidance of prolonged standing	1040	86.7
Strict adherence to simple safety rules	709	59.1
Avoiding lifting of heavy equipments	1086	90.5
Observance of simple hygiene rules	662	55.2
Use of protective gadgets	766	63.8

adherence to simple safety rules and guidelines, avoiding the lifting of heavy equipments and prolonged standing.

CONCLUSION

It has been established that those in the nursing profession are susceptible to a number of occupational hazards, many of which are avoidable and preventable while others are inevitable, being parts of the everyday nursing duties. However, those hazards that are avoidable can be taken care of through adequate vigilance and carefulness on the part of the nurses, while concerted, conscious and frantic efforts should be made to minimize those hazards that are inevitable.

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