Research Paper

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STUDY ON AWARENESS OF OCCUPATIONAL HEALTH HAZARDS AMONG NURSES

Management

KEYWORDS : Occupational Hazards, Staff Nurses, Needle-stick injuries, Physical Injuries.

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ABSTRACT

Nursing is a uniquely hazardous occupation. Nurses are exposed to a wide array of chemicals and drugs at work. Needle stick injuries are a common event in the healthcare environment. Data Collection Tool: A pre-designed, structured & close-ended questionnaire was used to collect data. Sampling Technique used was Random sampling, with a sample size of 365 nurses, with study duration of 6 months. More than 90% of the nurses strongly agreed that there was high level of awareness among nurses in relation to Biological, Chemical & Radiation hazards.

INTRODUCTION:

Healthcare is diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in humans. Health care is delivered by practitioners in medicine, optometry, dentistry, nursing, pharmacy, allied health, and other care providers.

Nursing care is directed towards meeting the comprehensive needs of patients and their families across the continuum of care. Nursing is a uniquely hazardous occupation. Some potential hazards include biological hazards, heat, noise, physical hazards, radiation, toxic chemicals, needle stick injuries, dust and stress. Establishing and following patient safety procedures ultimately minimizes errors. As nurses, it is important to understand risks from occupational radiation exposure and follow guidelines to reduce the exposure to ionizing radiation. 1

Hazardous chemicals include anesthetic gases, disinfectants, latex, cleaners, medications like anti-retroviral and chemotherapeutic drugs, devices that contains mercury, and sterilization chemicals. Chemical exposures occur from leaking chemotherapy drugs from faulty equipment, fumes from bleach wipes. Pregnant nurses, when exposed to any of these substances were more likely to have kids with birth defects. Those who constantly come in contact with anesthetic gases were 7-9 times more likely to give birth to babies with musculo-skeletal problems. 2

Latex gloves have been used to prevent transmission of many infectious diseases to healthcare workers. However, latex is hazardous to some healthcare workers, resulting in a range of health effects from minor dermatitis to asthma, life-threatening anaphylaxis and respiratory arrest, similar to a bee-sting allergic reaction.

Needle stick injuries are a common event in the healthcare environment. When drawing blood, administering an intramuscular or intravenous drug, or performing other procedures involving sharps, the needle can slip and injure the healthcare worker. This sets the stage to transmit viruses from the source person to the recipient. These injuries also commonly occur during needle recapping and as a result of failure to place used needles in approved sharps containers. During surgery, a surgical needle may inadvertently penetrate the glove and skin of the nurse. Penetrating accidents with the scalpel or other sharp instruments are also handled as a needle stick injury. Generally needle stick injuries cause only minor bleeding or visible trauma, however, even in the absence of bleeding the risk of viral infection remains. Scalpel injuries tend to be larger than a needle stick. In turn, a needle stick injury may also pose a risk for a patient if the injured health professional carries HBV, HCV or HIV. 3

Low back injuries are the leading occupational health problems affecting healthcare workers and are increasing among nurses and nurses' assistants. The primary risk factor for low back disorders among nursing personnel is lifting and transferring of patients. The NIOSH lifting equation indicates that average worker can routinely lift no more than 51 pounds. 4

AIM: To study the awareness of occupational health risks among nursing personnel in a teaching hospital.

OBJECTIVES:

1) To study the awareness of occupational health hazards among nurses.

2) To study the most frequent physical hazard among nurses.

METHODOLOGY:

Study Setting & Population - Study was conducted on the Nurses working in all Departments, Wards, ICU's & Operation theatres of a medical college teaching hospital. All Staff nurses, Senior Staff nurses & Ward sisters were included.

Study design - Descriptive Cross sectional study, Sampling Technique used was Random sampling, with a sample size of 365 nurses, with study duration of 6 months.

Data Collection Tool: A pre-designed, structured & close-ended questionnaire was used to collect data.

Data Collection Methodology: A structured questionnaire was used which helped to study the awareness levels among nurses regarding needle stick injuries, radiological and physical health hazards. To analyze the collected data, Statistical Package for Social Sciences (SPSS) version 16 was used. Descriptive statistics was used for categorical variables.

RESULTS:

Table 1: Showing Knowledge about handling of used Disposable Syringe:

Questions	Strongly Disagree	Agree	Strongly Agree
Needles should never be re-sheathed or recapped	1	21	343
Needles should not be broken or bent before use or disposal	1	41	323
Syringes or needles should be safely disposed of directly into a sharps container for disposal	3	118	244

Nurses have to be fully immunized against Hepatitis B	1	126	238
Nurses should receive training in the prevention of needle stick injury.	1	219	145
Aware of Quality Policy regarding safety	5	24	336

More than 90% of the nurses agreed and strongly agreed to the questions which clearly showed that there was high level of awareness among nurses in relation to Biological hazards. There were 4 training sessions conducted on reducing occupational injuries during the preceding year, 357 attended all the sessions.

Reasons for the needle-prick injury: Poor disposal of needles / syringes – 3 people mentioned this as reason, 5 people mentioned individual carelessness / accident as the reasons, whereas rest of the 357 people answered as incident not happened.

Questionnaire on Radiological Hazards:

(1) Radiation hazards among nurses may arise by four means:-

- •External irradiation due to radionuclide or radiation sources in the patient.
- •Contamination of the skin in the course of patient care
- •Ingestion of radioactive material (probably from hands contaminated from radionuclide)
- •Inhalation of volatile radioactive materials

(2) Pregnant Nurses must not be assigned to radiotherapy patients.
(3) Radiation exposure drops off with distance increasing.
(4) Wearing lead aprons by nurses during prolonged procedures reduces exposure by 15%.
(5) Nurses should wear disposable gloves and mask whenever they come in contact with radiotherapy patients.
(6) Personal monitoring badges and pocket dosimeters should be used by nurses working in Radiology and Nuclear medicine departments.
(7) Guidelines to reduce the exposure to ionizing radiation should be followed in the hospital premises.
(8) A copy of the hospital's health & safety policy on existing radiological safety practices should be read by the nurses.

Table 2: Showing responses on Radiological Hazards & Safety policies:

Questions	D	D/ A	A	S.A.
Causes of Radiation hazards among nurses	1	2	195	167
Nurses who are pregnant must not be assigned to radiotherapy patients.	1	3	147	214
Radiation exposure drops off drastically with increasing distance from source	2	7	250	106
Wearing lead aprons by nurses during prolonged procedures can help reduce exposure by about 15 %	1	6	162	196
Nurses should wear disposable gloves and mask whenever they come in contact with radiotherapy patients.	5	0	40	320
Usage of Personal monitoring badges and pocket dosimeters	1	0	92	272
Guidelines to reduce the exposure to ionizing radiation should be followed in the hospital premises.	1	1	65	298
Nurses should read manual on radiological safety	1	0	26	338

*D – Disagree, A – Agree, S.A – Strongly Agree

Awareness regarding Physical Hazards:

Table 3: Responses of nursing staff on Physical Hazards:

Questions	D	D/ A	A	S.A
Patient-handling tasks like twisting, bending, stretching involves motions that are challenging to the body	1	1	290	73
Frequent cause of back pain and musculoskeletal injuries are lifting, moving,bathing and dressing patients	1	3	319	42
Prolonged time in an upright posture may causechronic circulatory disorders	0	6	231	128
Water and other fluid spillages should be notified to the committee immediately	1	2	221	141

Interpretation: 95% of nurses agree to strongly agree that frequent causes of back aches and musculoskeletal disorders are patient-handling tasks and prolonged standing time. When an openquestion was asked to list as per their experience the ranking of injuries to the body, they had arranged them in the below descending order: Varicose Veins (Most common disorder), Low back pain, Knee joint problems, Plantar Fasciitis, Swollen or Painful feet, Tendinitis, Poor posture, Neck & shoulder stiffness, muscle soreness and fatigue and Pre-term delivery & Reduced birth weight (Least common).

DISCUSSION: A survey was conducted over 1500 nurses and they were asked about exposure to 11 common chemicals, including hand sanitizers, latex, chemotherapy and antiretroviral drugs, medical devices containing mercury, gases for anesthesia, and even personal care products such as shampoo and soap. The results of the survey showed that nurses exposed at least once a week to the chemicals had increased rates of cancer, asthma, and miscarriages. There was also evidence that nurses who were pregnant when exposed to the chemicals had children with higher rates of musculoskeletal defects. The study found that there were few regulations that limit nurses' exposure to harmful chemicals, and that most nurses were not aware of the dangers they face. 5

Percutaneous injuries caused by needle sticks, posed a significant risk of occupational transmission of blood borne pathogens. Their incidence was considerably higher than current estimates, and hence a lower injury rate cannot be interpreted as a non-existent problem. The present study was carried out to determine the occurrence of NSI among various categories of nurses and the causal factors, the circumstances under which these occur and to explore the possibilities of measures to prevent these through improvements in knowledge, attitude and practice. 6

It was observed that there were about 4 training sessions conducted in the last 12 months. These were carried out to make the nurses aware of the occupational health risks at workplace. Also more emphasis was given to these training programs to improve the knowledge, attitude and practice of the nurses while delivering patient care. Thus, the main reasons for the low exposure to occupational hazards were high awareness among nurses, efficient training programs conducted throughout the year and also strict adherence to the policies and safety guidelines of the hospital, as demonstrated by this study.

CONCLUSION: This study showed that there was high degree of awareness regarding occupational health hazards among Nurses. Only 2.19 % of the nurses were exposed to needle prick injury among 365 nurses in last 12 months. The main reason for the injury was individual carelessness. Also there was high participation of the nurses in the training programs (about 98.9%).

There were no incidents of radiation and chemical hazards reported among these nurses and above 90 % of the nursing staff

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were aware about the occupational risks and safety measures that should be taken while working.

More than 95 % of the nurses were aware about the physical hazards and musculoskeletal disorders that usually occurred because of poor ergonomic posture while patient transfers and long periods of standing and walking.

In this study, it was found that the most frequent physical hazard among nurses was Varicose veins followed by Low back pain.

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