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Research Article

A Study to Evaluate the Effectiveness of Self-Instructional Module on Knowledge Regarding Occupational Hazards of a Nurse Among 3rd Year B.Sc. Nursing Students in Selected Colleges of Nursing at Vijayapur, Karnataka

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Abstract: Background: Occupational hazards encountered by a nursing staff have increased massively in the recent years and are mostly related to the job pressure and lack of work facilities. The healthcare workers are prone for occupational hazards including biological, physical, ergonomic, environmental and psychosocial. It is seen that nurses physical and mental health problem with higher occupational stressors are crucial factors in reducing the quality and quantity of their work life. Nursing professions deals with health and most importantly life of the people in the society, hence their protection, promotion and prevention of illnesses is at most important. Various national and international health organizations also provided some interventions and preventive measures are required to reduce occupational hazards among nurses. **Objectives:** 1) To assess the knowledge regarding occupational hazards of a nurse among 3rd year B.Sc. nursing students. 2) To evaluate the effectiveness of Self-instructional module on knowledge regarding occupational hazards of a nurse among 3rd year B.Sc. nursing students. 3) To find the association between knowledge scores with selected socio- demographic variables. **Methodology:** The pre-experimental one group pre-test and post-test design was used for the study. The study was conducted in selected college of Nursing Vijayapur, Karnataka. The sample size 60 was selected by non-probability purposive sampling technique based on inclusion criteria. **Result:** The finding showed that the mean post-test knowledge score of the subject is higher than the mean pre-test score of 25.73. The calculated t value obtained from the paired 't' test value was 26.74* at the level of P 0.05. Since P value is less than 0.05 (P value = <0.0001) difference in scores is statistically significant. Researcher concluded at 0.05% level of significance and 59 degrees of freedom that the above data gives sufficient evidence to conclude that self-instructional module on occupational hazards of nurse is effective in improving the knowledge level of 3rd year B.Sc. Nursing students. The Chi-square test was applied to cheek the association between pre-test knowledge score and socio-demographic variable and the value was observed with 0.05% significance level. Thereby suggesting that, there is no association between the selected socio-demographic variables with pre-test knowledge score of 3rd year B.Sc. Nursing students. **Conclusion:** The results were shown that there was significant improvement obtained following self-instructional module regarding occupational hazards of a nurse. Therefore, a similar study can be replicated on a large sample to generalize the findings and further more studies are required to provide awareness about prevention of occupational hazards.

Keywords: Assess, Effectiveness, Self-instructional module, Knowledge, Occupational hazard.

Introduction

"Happiness is when what you think, what you say, and what you do are in harmony."

Mahatma Gandhi

Health is the level of functional or metabolic efficiency of a living being. In humans, it is the general condition of a person's mind, body and spirit, usually meaning to be free from illness, injury or pain. The World Health Organization defined health in its broader sense in 1946 as "A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.[1] Disease is an objective term which implies a malfunctioning of the body or part of the body. Disease is pathological and is diagnosed on the basis of recognizable signs and symptoms. Illness is the subjective experience of pain and discomfort. Although it is mostly safe to say that illness is the subjective experience of disease, it is possible to experience illness without having a disease and it is possible to have a disease and not feel ill.[2]

Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. The health of the workers has several determinants, including risk factors at the workplace leading to cancers, accidents, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress-related disorders and communicable diseases and others. Occupational health is a field of health care made up of multiple disciplines dedicated to the well-being and safety of employees in the workplace. It includes employee wellness, pre-placement testing, ergonomics, occupational therapy, occupational medicine, and more.[3] Occupational hazards are defined as workplace issues that have likely to raise the hazard of our health, which can be categorized as biological and non-biological. Occupational hazards can encompass many types of hazards, including physical hazards, chemical hazards, biological hazards and psychosocial hazards. Occupational hazard as a term signifies both long-term and short-term risks associated with the workplace environment. Short term risks may include physical injury (e.g., eye, back, head, etc.), while long-term risks may be an increased risk of developing occupational disease, such as cancer or heart disease. In general, adverse health effects caused by short term risks are reversible while those caused by long term risks are irreversible.[4]

Health professionals are challenges with physical, chemical, and psychological hazards. For example, moving the immobilized patients exposes workers to back injury and back pain. Moreover, during high workload and insufficient resources and equipment, healthcare professionals are faced with psychological hazards such as stress and depression. One of the commonest occupational hazards is a needle stick and sharp injury that occurs commonly during nursing procedures like administering medications, administering or receiving blood, and performing other nursing activities containing sharp materials.[5] Occupational hazards encountered by a nursing staff have increased massively in the recent years and are mostly related to the job pressure and lack of work facilities. The healthcare workers are prone for occupational hazards including biological, physical, ergonomic, environmental and psychosocial. It is seen that nurses physical and mental health problem with higher occupational stressors are crucial factors in reducing the quality and quantity of their work life.[6] Physical hazards are commonly found in hospitals include slippery floors, electrical hazards, noise, poor lighting, and inadequate ventilation and work-related musculoskeletal pain i.e., upper extremity pain, shoulder pain, back pain etc. and injuries are common among nurses all over the world. Most of these pain and injuries are due to lifting and moving patients manually, nurses continue to report high levels of job-related injury and illness.[7]

Material and methods

Research Approach: Evaluative research approach.
Research Design: Pre experimental, one group pre-test and post-test design and evaluative research approach adopted in this study.
Setting: Selected nursing colleges at Vijayapur.
Population: The 3rd year B.Sc. nursing students in selected colleges at Vijayapur.

Sample: The 3rd year B.Sc. nursing students in selected nursing colleges at Vijayapur, who fulfill the inclusion criteria.
Sample size: The sample size is 60.
Sampling Technique: Purposive sampling technique.

Criteria for the sample selection
Inclusion criteria: The students who are
- ✓ belongs to age group of 19-23 years.
- ✓ belongs to 3rd year B.Sc. nursing.
- ✓ able to read and write Kannada and English.
- ✓ available during the study.

Exclusion criteria: The students who are
- ✓ not available during the study.
- ✓ belongs to 24 years and above age group.
- ✓ other than nursing course.

Development of the study tool
Development of the tool was done based on the objectives of the study. After discussion with experts and the review of the related literature the self-administered knowledge questionnaire is found appropriate to assess the knowledge of 3rd year B.Sc. Nursing students regarding occupational hazards of a nurse. The developed tool was refined and validated by the guide and subject experts.

Description of tool: The tool consists of the following sections:

Section A
Socio-demographic variables: The first part of the tool consists of 7 items for obtaining information of the selected socio demographic factors such as age in years, gender, religion, type of family, family income, place of residency, and source of information.

Section B
Self-administered structured knowledge questionnaire: Self-administered structured knowledge questionnaire was prepared in the form of multiple-choice questions. It consists of 30 items regarding occupational hazards of nurse. The total maximum score is 30.

Development of SIM (Self-Instructional Module): Based on the objectives, the SIM was prepared. Content validity was taken from seven experts and necessary modifications were done. The SIM was pertaining to domains of learning i.e., knowledge.

The following steps were adopted to develop the SIM.
- ✓ Development of content blue print.
- ✓ Preparation of SIM.
- ✓ Establishment of content validity of SIM.

Self-instructional module: The script of Self-instructional module was designed and developed by the investigator with the help of review of literature and suggestion of guide and experts. Self-instructional module was based on following aspects: Introduction, definition, occupational hazards and its prevention.

Results and Discussion
Maximum of the study subjects 51(85%) were belongs to age group of (18-21 years), 9(15%) belongs to age group of (22-25years) and none of the study participants belongs to the age group of 26 years and above. Maximum of the study subjects 36(60%) were male whereas 24(40%) were

female. Maximum of the study subjects 45(75%) were belongs to Hindu religion, 9(15%) were Muslim, and whereas only 6(10%) were belongs to the Christian religion. Majority of study subjects 47(78.33%) were belongs to the nuclear family and 8(13.33%) were belongs to joint family and only 5(8.33%) belongs to the extended family.

Most of the study subjects 35(58.33%) were belongs to the family income of above 25000 whereas 13(21.67%) were belongs to the family income of 20001-25000, 10(16.67%) were belongs the family income of 15001– 20000 and only 2(3.33%) were belongs to the family income of 10000-15000. Maximum of the study subjects 44(73.33%) were belongs to urban area 9(15%) whereas only 16(26.67%) were belongs to the rural area. Maximum of the study subjects 38(63.33%) were informed the source of information as health personnel/social worker and 8(13.33%) were informed friends and relatives, 7(11.67%) were Television and 3(5%) were magazines/newspapers and only 4(6.67%) were did not received any information.

Table 1. Frequency and percentage distribution of pre-test knowledge score regarding occupational hazards of nurse among 3rd year B.Sc. Nursing students (N=60)

Pretest knowledge score	Score	Frequency	Percentage	Mean	SD
Inadequate	0-15	45	75	11.92	4.05
Moderate	16-24	15	25		
Adequate	25-30	0	0		

The data in the above table revealed in pretest majority of the study participants 45(75%) have inadequate level of knowledge, 15(25%) have moderate level of knowledge and none of the sample had adequate knowledge regarding occupational health hazards of nurse among 3rd year B.Sc. Nursing students and also it depicted that the mean knowledge score was 11.92 with Standard deviation 4.05.

Table 2. Frequency and percentage distribution of post-test knowledge score regarding occupational hazards of nurse among 3rd year B.Sc. Nursing students

Posttest knowledge score	Score	Frequency	Percentage	Mean	SD
Inadequate	0-15	0	0	25.73	2.60
Moderate	16-24	8	13.33		
Adequate	25-30	52	86.67		

The data presented in the above table revealed that majority of the study participants 52(86.67%) were adequate knowledge score whereas only 8(13.33.0%) had moderate knowledge regarding occupational hazards.

Table 3. Paired 't' test showing the significance of mean difference between pre-test and post-test knowledge score of subjects who received Self-instructional model (N = 60)

S/N	Test	Mean	SD	SEM	t	df	P-value
1	Pre-test	11.91	4.05	0.52	26.74	59	p<0.0001
2	Post-test	25.73	2.60	0.33			

The data presented in the above table revealed the paired 't' test was applied to compare the difference between average scoring of before and after administration of intervention. It was found that, the paired 't' test value was 26.74* at the level of P 0.05. Since P value is less than 0.05 (P value = <0.0001) difference in scores is statistically significant. Researcher concluded at 0.05% level of significance and 59 degrees of freedom that the above data gives sufficient evidence to conclude that self-instructional module on occupational hazards of nurse is effective in improving the knowledge level of 3rd year B.Sc. Nursing students.

Testing of hypotheses

H_1: There is significant difference between mean pre-test and post-test knowledge scores of 3rd year B.Sc. Nursing students before and after receiving self-instructional module on occupational hazards of nurse.

Table 1 showed that enhancement in knowledge score on occupational hazards of nurse among 3rd year B.Sc. Nursing students after self-instructional module was significant. So, research hypothesis H_1 was accepted. This indicates the gain in the knowledge score is statistically significant at P value 0.05 level. The result indicates that self-instructional module on occupational hazards of nurse is effective in improving the knowledge level of 3rd year B.Sc. Nursing students.

H_1: There is significant difference between pre-test and post-test knowledge score regarding occupational hazards of nurse among 3rd year B.sc nursing students

The association between knowledge score of 3rd year B.Sc. Nursing students and the selected socio-demographic variables

In order to compute the association chi-square was applied and the value was observed with 0.05% significance level. There was no any association with level of knowledge with selected socio-demographic variables. Thereby suggesting that, there is no association between the selected socio-demographic variables with pre-test knowledge score of 3rd year B.Sc. Nursing students. Hence reject research hypothesis and accept null hypothesis.

Association between the pre-test level of knowledge among 3rd year B.Sc. Nursing students with their selected demographic variables

This section deals with the findings of the association between pre-test knowledge score and selected socio-demographic characteristics. The number of respondents who were above and below the median are identified and grouped according to their age, gender, religion, type of family, family income, area of residency and source of information. To find the association between the pre-test knowledge score and demographic variables, the following null hypothesis is formulated:

H_2: There is no significant association between level of knowledge and selected Socio-demographical variables of the 3rd year B.Sc. nursing students at 0.05 level of significance.

The findings of the study were supported through a study conducted by Vedhavathi and Swetha[8] where the researcher found majority of the subjects were more exposed to biological hazards like blood borne pathogens and body fluids (31.6%), exposure to chemical hazards like disinfectants was 42.3%. Majority of the (48.5%) healthcare workers had work related stress. House-keeping staff was the highest to experience Ergonomic (52.5%) and Chemical Hazards (25.4%), Biological hazards were more experienced by nurses (34.4%) and paramedics (33.3%), doctors were the highest to experience psychological hazards (19.7%). Healthcare workers also suffered from health problems like indigestion (40.2%), 16.5% PCOS.

With regards to course of study, findings were supported by Sreekumaran and Balachandran[9] who observed that the Mean knowledge scores of nursing personnel in critical care area (19.97) was higher than in non-critical care area (19.56) with 't' value of 0.49, and was found to be statistically non-significant at 0.05 level of significance. Mean Practice scores of nursing personnel in critical care area (29.29) was higher than in non-critical care area (28.89) with 't' value of 0.54, was found to be statistically non-significant at 0.05 level of significance. With regards to knowledge scores, findings were supported by a study conducted by Awan et al.[10] who observed that the 67.5% nurses were with high knowledge about occupational hazards. Overall positive attitude was 56.91% and overall practice level was 57.72% which is insufficient. The practical implication of the study is to improve the practices and reduce the exposure of occupational hazards.

Conclusion

On the basis of the findings, the investigator concluded that the intervention using Self Instructional Module regarding Occupational Hazards of Nurse was effective in enhancing the knowledge of 3rd Year B.Sc. Nursing Students. The improved knowledge regarding Occupational Hazards of Nurse will enable them to make informed choices in decision making and adopting a healthy lifestyle, which will, in turn, help the 3rd Year B.Sc. Nursing Students to improve the education and Practice.

Implications of the Study

The findings of the study have implications for Nursing, Practice, Research and administration. Based on the study results, the nurses can organize awareness campaign through different media to increase the awareness regarding Occupational Hazards of Nurse. Nursing professionals can make significant contribution to health promotion among 3rd Year B.Sc. Nursing Students.

Recommendations

On the basis of the findings of the study, the following recommendations have been made for further study:

1) The study can be conducted on a larger sample.
2) A comparative study can be conducted to find out the effectiveness of self-instructional module between urban and rural community.
3) An evaluatory study can be conducted to find out the effectiveness of self-instructional module among two different groups of health professionals.

Declarations

Acknowledgement: Not applicable.

Conflict of interest: The authors declare that they have no competing interest.

Ethical Approval: The proposal for the study was approved by the Institutional Review Board of the Tulza Bhavani College of Nursing, Vijayapur-586101 (Karnataka), India.

Informed Consent: The authors have obtained student consent and were asked to sign the consent form. All data collected were kept strictly confidential.

Author Contributions: Both authors contributed to the conception and design of the work, drafted the manuscript, revised it critically for important intellectual content, gave final approval of the version to be published and agreed to be accountable for all aspects of the work.

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