

Effectiveness of structured teaching programme on knowledge regarding occupational health hazards among multipurpose health care workers of Oncology unit

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ABSTRACT

Introduction: Workers in oncology unit get exposed to the physical hazards due to radiation therapy, biological hazards due to exposure of pathogens, chemical hazards due to inadequate handling of cytotoxic drugs, ergonomic hazards caused by bad posture. Chemotherapy is one of the important treatment in cancer management. people who are associated with handling of cytotoxic drugs, disposal of cytotoxic drugs, handling of body fluids who are receiving cytotoxic drugs, managing of spills of cytotoxic drugs are exposed to the health hazards. **Aim:** To identify the knowledge level regarding occupational health hazards, to compare the knowledge level regarding occupational health hazards among multipurpose health care workers from Oncology unit. **Method and material:** The study adopted Quantitative Research Approach and pre-experimental pre-test post-test design research design. Sample were consisting of 250 multi-purpose health care workers from chemotherapy units / Bone Marrow Transplantation unit between age 18 to 58 years posted in morning, evening and night shift. Participants were selected with non-probability purposive sampling techniques. Written consent from the participants was taken, made them comfortable and tool was administered, each participants were given 30-35 minutes and data collected by using semi structured interview technique. Data collection of the study was based on study objectives, demographic variables and health status assessment and knowledge-based tool. **Result:** The majority of the participants i.e. 47.60% belonged to the age group 29 – 38, 61.20% were females, 51.60% were completed their high school education where as 78% were married. It shows that all participants i.e. 100% had average knowledge score in pretest, in posttest I 60% had good knowledge score where as 40% had excellent knowledge score. In posttest II 59.60% have good and 40.40% had excellent knowledge score. **Conclusion:** The structured teaching programme was effective on knowledge regarding occupational health hazards among multi-purpose healthcare workers of oncology unit from selected hospitals.

KEYWORDS: Knowledge, Structured Teaching Programme, Occupational Health Hazards, Multipurpose Health Care Workers.

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INTRODUCTION

Cancer is the group of diseases characterized by abnormal cell growth. Cancer may begin to grow in any tissue and can grow to the any parts of the body. This process is called metastasis. Cancer is second major cause of mortality universally. ¹ As per the International Agency for Research on Cancer estimation, globally 200 lakhs people were newly diagnosed with cancer and 97 lakhs deaths from cancer in the year 2022. From which 1 in 5 people got diagnosed with cancer in life span. Around 1 in 9 men and 1 in 12 women deaths from the cancer. ²

There are different types of treatment options are available to control the disease. it includes surgery, chemotherapy, radiation therapy, hormone therapy, stem cell transplant, targeted therapy. People who are diagnosed with cancer, they will need one of these treatment options or combination of available treatment options.³ As per the International Labour Organization estimation; Occupational Health Hazards results in death of about 2.78 million people; from these number 2.4 million workers develops diseases due to exposure to the occupational hazards which is reducing overall productivity by 4%.⁴

Multipurpose health care workers dealing with the post administration disposal of cytotoxic drugs material, handling of the clothes, bed linen and elimination products of patients such as urine, faeces, management of spillage of hazardous drugs without adherence to prescribed guidelines increases risk of exposure to cytotoxic drugs. knowledge of multipurpose health care workers regarding occupational health hazards in oncology unit can improve adherence to guidelines and prescribes measures. it will lead to improvement in occupational health of the multipurpose health care worker in oncology unit.

NEED OF THE STUDY

As per the International Labour Organization estimation; Occupational Health Hazards results in death of about 2.78 million people; from these number 2.4 million workers develops diseases due to exposure to the occupational hazards which is reducing overall productivity by 4%.¹¹

A researcher conducted study to determine occupational safety and health among healthcare workers, which showed about 21 % of population had musculoskeletal diseases, 13 % had burn , 10% had strain ; chemical exposure included hazard related to dust about 8% , exposure to the hazardous chemicals and gases about 13%, 12% had needle stick injury , about 11% had splash exposure and sharp related injury was 5%. 17% had changing shift related stress. Researcher concluded that increasing awareness is beneficial to improve occupational health.¹²

A research study conducted to evaluate the acute adverse effect of cytotoxic drugs among nurses and nursing assistants founded that about 56.86% of total population had experienced one adverse effect. about 37.25 % of population had headache, 25.49 % population had irritation of eyes, 21.60% of population had loss of hairs, 19.60 % were feeling dizzy and 7.84 % had throat irritation.¹⁶

An article on research study done to assess the contact with potential harm among health care providers and ancillary staff using scoping review design. Study concluded that healthcare workers had lack of knowledge regarding mitigation of potential threat in work place.¹⁸

MATERIAL AND METHODS

The study adopted Quantitative Research Approach and pre-experimental pre-test post-test design research design. Sample were consisting of 250 multi-purpose health care workers from chemotherapy units / Bone Marrow Transplantation unit between age 18 to 58 years posted in morning, evening and night shift. Participants were selected with non-probability purposive sampling techniques. Written consent from the participants was taken, made them comfortable and tool was administered, each participants were given 30-35 minutes and data collected by using semi structured interview technique. Data collection of the study was based on study objectives, demographic variables and health status assessment and knowledge-based tool. **Result:** The majority of the participants i.e. 47.60% belonged to the age group 29 – 38, 61.20% were females, 51.60% were completed their high school education where as 78% were married. It shows that all participants i.e. 100% had average knowledge score in pretest, in posttest I 60% had good knowledge score where as 40% had excellent knowledge score. In posttest II 59.60% have good and 40.40% had excellent knowledge score. **Conclusion:** The structured teaching programme was effective on knowledge regarding occupational health hazards among multi-purpose healthcare workers of oncology unit from selected hospitals.

RESULT

Finding related to the Frequency and distribution of demographic variables of samples.

It shows that majority of participants, i.e. 119(47.60%) were in the age group of 29 – 38 years, 153(61.20%) were female, 129 (51.60%) completed their high school education, 195 (78.00%) were married, 213(85.20%) were residing in urban area, 124(49.60%) participants had 1- 2 years in oncology, 250(100%) participants didn't receive any specialized oncology training.

Table No:1 Analysis of knowledge regarding occupational health hazards among multi-purpose healthcare workers from oncology unit.

N=250

| Test score | Pretest level(%) | Knowledge | Post test -I Knowledge level (%) | Post test -II Knowledge level (%) |
|-----------------------|------------------|-----------|----------------------------------|-----------------------------------|
| Average (0 - 09) | 100 | | 0 | 0 |
| Good (10 - 19) | 0 | | 60 | 59.60 |
| Excellent (20 - 24) | 0 | | 40 | 40.40 |

Table no, 1 shows 100% had average knowledge score in pretest, in posttest I 60% had good knowledge score where as 40% had excellent knowledge score. In posttest II 59.60% have good and 40.40% had excellent knowledge score.

Table N0.2 Findings related to comparison of knowledge before and after structured teaching programme regarding occupational health hazards among multi – purpose healthcare workers oncology unit
N=250

| parameter | | Mean | | x | % improvem of | Standard Deviation | | Degree of Freedom | t valu e | P Value |
|-----------------------|-----------------------|-----------|-----------|-----------|---------------|--------------------|------|-------------------|-----------|------------|
| | | Pre | Post | | | Pre | Post | | | |
| Knowledge level score | Pre Test -Post Test-I | 3.79 2 | 18.8 6 | 15.0 6 | 79.89% | 2.41 | 2.05 | 249 | - 79.7 | < 0.001 |
| | Pre Test -Post Test2 | 3.79 2 | 18.7 6 | 14.9 7 | 79.79% | 2.41 | 2.11 | 249 | - 78.2 | < 0.001 |

Table No. 2 highlights that of Knowledge Score of pretest was 3.792 which increased to 18.86 at 1st post test. The mean improvement in knowledge score was 79.89% which is significant as observed by paired t test (as p value<0.05), also 79.79% improvement found at 2nd post test in Knowledge Score regarding occupational health hazards among Multi-purpose Healthcare workers from Oncology unit. It can be said that there is noteworthy rise on Knowledge Score related to health hazards among Multi-purpose Healthcare workers from Oncology unit.

**Table No.3 Association between pre-interventional knowledge score regarding occupational health hazards among Multi-purpose Healthcare workers from Oncology unit with demographic variables
N=250**

| Sr.No | Demographic Variable | Degree of Freedom | Chi -Square Value | P- Value | Result |
|-------|-----------------------------|-------------------|-------------------|----------|-----------------|
| 1 | Age | 6 | 2.89 | 0.82 | Not Significant |
| 2 | Gender | 2 | 0.16 | 0.92 | Not Significant |
| 3 | Educational status | 6 | 2.89 | 0.82 | Not Significant |
| 4 | Marital status | 3 | 10.46 | 0.02 | Significant |
| 5 | Area of residence | 2 | 0.19 | 0.91 | Not Significant |
| 6 | Number of years' experience | 6 | 2.84 | 0.83 | Not Significant |

Table No. 3 shows that, no noteworthy association between pre-interventional knowledge score showed in regarding occupational health hazards among Multi-purpose Healthcare workers from Oncology unit with demographic variables like age, gender, educational status, area of residence , number of years' experience. Significant association between marital status and pre-interventional knowledge score regarding occupational health hazards among Multi-Purpose Healthcare workers from oncology unit.

DISCUSSION

The present study aimed to evaluate the effectiveness of a structured teaching programme on improving knowledge related to occupational health hazards among multipurpose healthcare workers in the oncology units of selected hospitals in Pune city. Occupational health hazards are a major concern in oncology settings due to the frequent handling of cytotoxic drugs, which pose significant risks not only to nurses but also to multipurpose health workers involved in patient care and support activities.

A researcher conducted the study among 60 staff nurses working in oncology departments across two hospitals, utilizing a structured questionnaire to assess baseline knowledge and practices related to workplace hazards. The intervention involved a structured teaching module designed to enhance understanding and promote safe practices regarding exposure to hazardous substances, particularly cytotoxic drugs. The post-intervention assessment revealed a marked improvement in both knowledge and safety practices among participants, indicating the effectiveness of the teaching programme.

The findings highlighted that many healthcare workers, including nurses and multipurpose workers, are unnecessarily exposed to cytotoxic agents due to inadequate awareness and improper safety measures. This underscores the urgent need for comprehensive educational programmes focusing on occupational safety in oncology settings. The structured teaching programme implemented in this study successfully increased awareness and understanding of occupational health risks, thereby reducing the likelihood of accidental exposure and promoting safer workplace practices. Many healthcare workers are exposed to cytotoxic drugs unnecessarily; therefore, multipurpose health workers are also at risk of such exposure ⁵.

In conclusion, the study demonstrated that a well-designed structured teaching programme is an effective educational strategy for enhancing knowledge and promoting safe work practices among multipurpose healthcare workers in oncology units. Such interventions are essential for minimizing occupational health risks, protecting healthcare personnel, and improving overall patient care standards in oncology departments. Continuous education and periodic reinforcement of safety protocols are recommended to sustain the improvements achieved through such programmes.

CONCLUSION

The present study aimed to evaluate the effectiveness of a structured teaching programme on knowledge regarding occupational health hazards among multipurpose healthcare workers in oncology units of selected hospitals in Pune city. The findings revealed that the structured teaching programme was highly effective in improving participants' knowledge about occupational risks associated with exposure to cytotoxic drugs, biological agents, radiation, and ergonomic stressors. The comparison of pre-test and post-test results demonstrated a significant increase in knowledge scores, confirming that educational interventions play a vital role in enhancing awareness and promoting safer work practices among healthcare personnel.

Before the intervention, all participants exhibited average knowledge levels, indicating limited awareness of occupational health hazards. Following the structured teaching programme, the majority of participants achieved good to excellent scores, highlighting substantial improvement in understanding and adherence to safety measures. Statistical analysis further supported the effectiveness of the teaching intervention, showing a highly significant difference between pre- and post-test scores (p <

0.001).

In conclusion, structured teaching programmes serve as an essential educational tool to safeguard the health of multipurpose healthcare workers. Regular training, reinforcement of safety protocols, and institutional support are strongly recommended to sustain knowledge and ensure safe, hazard-free oncology work environments.

Data study statement:

This study manuscript contains all data generated and analysed during this study

Ethical consideration:

This study received ethical approval from the institutional research cell of college of Nursing, Bharati Vidyapeeth (Deemed to be University), Pune. Oral information provided to the participants and after willingness written consent was taken, made them comfortable, each participants were given 30-35 minutes and tool was administered. Data collection done by assessment of collected from participants while preserving their anonymity, considering importance of ethical concerns, privacy and confidentiality throughout the study.

Additional information Disclosures:

Human subjects: Authors have confirmed that human participants involved in this study.

Animal subjects: All authors have confirmed that this study did not involve animal subjects or tissue.

Conflicts of interest: The authors declare that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

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