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Descriptive Study to Assess the Knowledge Concerning Biomedical Waste Handling Among B.Sc. Nursing Scholars of Selected Nursing Colleges of District Kangra (Himachal Pradesh)

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Abstract

The waste generated from health actions can be dangerous, poisonous, toxic, and even mortal because of their high probability of ailment transmission and injury that also outcome in environmental disturbances. The first step to safe disposal of dangerous hospital wastes. Acceptable and proper knowledge of biomedical waste management among the students of nursing is important. Appropriate management of healthcare waste is a vital part of environmental health protection, and it should be an integral step of healthcare services. ***Aim:*** *To assess the knowledge regarding biomedical waste procedures among B.Sc. nursing scholars.* ***Methods:*** *A descriptive cross-sectional study, was administered. The study was conducted in Netaji Subhash College of Nursing, Himachal Pradesh. The purpose of this study was to find the extent of knowledge regarding BMW procedure among nursing scholars, The sampling technique non-probability was used and a semi-structured questionnaire to check the knowledge regarding biomedical waste management was administered. SPSS interpretation 20 was used for analysis.* ***Conclusion:*** *The study report shows that among 100 nursing scholars, nearly (71.67%) 71.67% repliers had good knowledge, 23.33% of nursing scholars had a poor level of knowledge and 5% of nursing repliers had having fair level of knowledge regarding BMW procedure.*

Keywords: Nursing scholars, knowledge and biomedical waste procedure, health care waste, disposal, environmental disturbances

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INTRODUCTION

Hospitals and other healthcare organizations are among the vital commodities of lifestyle. They induce "waste" day in and exiting which can be latent health hazards to medical staff. While hospitals claim to dispose of their wastes as per the specified standards, it is shocking to notice that the spread of infectious waste including catheters, needles, and syringes is being recycled.

Health department people are infectious with sharps articles like scalpels, needles, and articles which have proficient of injuring the skin and causing needle stick injuries, in laboratories waste generated like plastic waste, chemical hazardous

waste, and pharmaceuticals waste requires special care, to prevent its dangerous hazardous to people and the environment [1].

In July 1988, the Ministry of Environment notified the Biomedical Waste Management and Handling Rules, 1998, this was notified due to the improper process of discarding biomedical waste management. In this rule, it was said that the waste generated by health institution should be treated within 48 hours period and hence, it is the responsibility and duty of each person who handle the waste to prevent the atmosphere and person's health from none adverse effect of the waste generated (accordance Rule 4) [2].

Jahnavi G. and Raju PV conducted a study on the notice and training needs for biomedical waste procedures among undergraduate scholars at Medical College in Andhra Pradesh. A total of 463 undergraduate scholars (216 males and 247 females) were the sample. Most scholars have heard about biomedical waste, and several of them were conscious that it causes healthy biohazards., but students have poor knowledge regarding what are the symbols of biohazards, bag types, waste interval, and waste collection process. There have been gaps in various features of biomedical waste procedures among medical students [3].

For the existence of life healthcare departments and institutions are important.

They produce “wastes” day in and day out which can be a latent health hazard to medical staff. The adequate procedure of waste assumes great importance in a country like India, whose budget forces the poverty-disturbed and ignorant ragpickers to sift and soften through discarded waste resources to earn subsistence.

About 10–25% of biomedical waste is dangerous and could ruin people, creatures, or even the atmosphere. In India, it is reported about 0.33 million tons of health atmosphere waste are produced annually [4].

The normal waste generation rate per bed per day is between 0.3 and 8.4 kg. According to statistics from the Ministry of the Environment, 651.23 tons of BMW were formed daily in the nation in 2020 between May 2020 and March 2022, the day-to-day production of BMW grew by around 962.31 tons as a result of the COVID-19 pandemic [5].

While hospitals claim to dispose of their wastes as per the restricted norms, it is awful to notice that much of the contagious waste including needles, plungers, tubes, etc. is being recycled only to seek its way back to the store and its department.

Healthcare waste (waste stream) can affect human health, and due to its hazardous effect, waste generated requires special attention. Health department people are infectious with sharps articles like scalpels, needles, and articles which have proficient of injuring the skin and causing needle stick injuries, in laboratories waste generated like plastic waste, chemical hazardous waste, and pharmaceuticals waste requires special care, to prevent its dangerous hazardous to people and the environment. The present study compared with Chandra Boss study (2013) finding shows that the medical department and nurses were leading unsuitable disposal of biomedical waste and improper use of color bags for disposing of the BMW waste.

RESEARCH STUDY

Descriptive study to assess the knowledge concerning biomedical waste handling among B.Sc. nursing scholars of selected nursing colleges of district Kangra, Himachal Pradesh.

AIM

Aim to evaluate the knowledge concerning biomedical waste handling among B.Sc. nursing scholars of selected nursing colleges of district Kangra, Himachal Pradesh.

Study Objectives

1. To assess the knowledge concerning BMW handling among nursing students.
2. To find an association between knowledge and socio-demographic variables concerning BMW handling among B.Sc. nursing students.

ASSUMPTIONS

Nursing scholars will have insufficient knowledge regarding biomedical waste procedures.

MATERIAL AND METHODS

Research Approach

To assess the knowledge quantitative exploration research approach was used.

Research Plan

A descriptive non-experimental exploration design was used.

Research Setting

Selected nursing college of district Kangra, Himachal Pradesh.

Target Population

The target study was nursing scholars of Netaji Subhash College of Nursing Palampur, district Kangra, Himachal Pradesh.

Sample Size

The sample size was 100 Samples.

Sampling Method

For gathering information non-probability purposive sampling technique was used.

Addition Criteria

The study included

- B.Sc. nursing scholars
- Scholars available at the time of knowledge collection
- Present at the time of study

Omission Criteria

The study excluded

Samples omitted in the present study were pupils,

- Not presented at the time of statistics collection.

Development and Description of Tool

To assess the knowledge self-structured questionnaire was made

An extensive review of literature, i.e., books, papers, specialists' opinions, representatives' professional experience, and Informal interviews with pupils gave the basis for having the self-structured questionnaire.

DESCRIPTION OF TOOL

The tool has two parts in this study:

A self-structured knowledge questionnaire was set to assess knowledge concerning BMW procedure among BSc nursing pupils.

Section A: Demographic Data
Source of data, age, classes, sex, awareness, and residence area.

Section B: Structured questionnaire
It has a self-structured knowledge questionnaire concerning biomedical waste handling

- Biomedical waste cause
- Waste supervision and treatment rules
- Illness transmission
- Color-coding system
- Isolation of waste
- Disposal of waste

With validity and consistency tool was confirmed, and to check the feasibility trial study (pilot study) was conducted.

Content Validity
Items were judged by experts for significance, clarity, and correctness. As per experts' judgement changes in the tools were made.

Reliability of the Tool
Consistency was established by the split-half method.

The stages taken for the development of data were as follows:

- Review of literature
- Journals, books, internet as sources used
- Views and suggestions from specialists

The contents covered the proceeding areas:

- Meaning of biomedical waste
- Causes of BMW
- Types of BMW
- Color-coding classification
- Treatment choices for wastes
- Education to nursing students related to clinical wastes.

Nursing pupil's role and responsibilities in BMW procedure managing.

RESULTS AND ANALYSIS

Plan for Data Analysis
Data were analyzed as follows:

- Describe demographic characteristics.
- Mean, SD, and mean % were used to describe area-wise knowledge scores.

RESULTS

The demographic physical characteristics of the respondents revealed that
50.83% each belong to age 20–21 and above, 19–20 age has 11.50% of the respondents and 18–19 years have 4.83%.

The majority 61.6% of respondents were male and 38.33% were female.

The findings explain that the part of male candidates (61.67) migrating to B.Sc. Stream then female (38.3) candidates.

A maximum of 63.33% of respondents belong to III yr. B.Sc. nursing, 20.3% in II years and 16.2% in IV yr. B.Sc. nursing.

The majority 84.17% of respondents were aware of BMW management and only 15.83% of respondents were not conscious of BMW management.

A maximum of 53.33% of pupils got information from educators, 23.33% from health group members, 17% from mass broadcasting, and 6.34% from friends.

An equal percentage, 50% of each of the respondents belong to the rural and concrete backgrounds.

Table 1. Area-wise percentage of knowledge scores.

Area of knowledge	Mean	SD
Cause of origin	67.50	49.64
Waste supervision and treatment rules	74.17	21.97
Disease transmission	51.67	22.39
Color-coding system	81.11	19.68
Isolation of waste	53.33	28.79
Disposal of waste	35.83	18.07
Treatment of BMW	64.58	34.90

Area-wise knowledge scores revealed that the knowledge of respondents regarding the color-coding system was 81.11%, waste supervision, and treatment rules 74.17%, isolation of waste 53.3%, cause of origin 67.5%, treatment of BMW 64.58%, and therefore the lowest percentage of data found for disposal of waste 35.83% which is that the most sensitive aspect of BMW procedure (Table 1). Hence it had been necessary for the investigator agent to enhance the information by providing with information brochure.

The present study compared with Chandra Boss study (2013) finding shows that the medical departments and nurses were leading unsuitable disposal of biomedical waste and improper use of color bags for disposing of the BMW waste.

The finding revealed that B.Sc. nursing scholars do not have proper information regarding causes of origin, handling BMW, and its disposal, with the help of proper education and training programs BSc nursing students' knowledge can be enhanced.

DISCUSSION

Worldwide, 18–64% of healthcare organizations are stated to have undesirable Biomedical Waste Managing (BMWM) services; due to the absence of awareness, scarce resources, and poor disposal devices [6, 7].

As per the Biomedical Waste (Managing and Handling) Rules 1998 any violation of the rules is penalized under the Environment Protection Act 1986 [8, 9].

Not only for medical universities, hospitals, health centers, and nursing homes BMW procedure is a very important issue but also for atmosphere and law imposing agencies, media, and the public [9]. It has been seen that awareness regarding effective BMW procedures is unfortunate among various classes of healthcare workers [10].

Facts about BMW treatment and waste isolation is probably the most significant critical point and key for further waste procedure [11, 12].

Many studies have revealed that nursing students have good BMW procedure knowledge, which is reliable with the current results.

The finding showed that among 100 nursing students, almost 61.67% of nursing pupils had good knowledge 33.33% of them had poor knowledge, 5% of them had fair information, and the remaining 0% were reported to have excellent knowledge regarding BMW procedure.

Level of Knowledge Regarding BMW Management

The findings of the present show that 71.67% of pupils have good knowledge, a poor level of knowledge data among 23.33% of nursing students, and a fair level of knowledge data was 5% among nursing respondents regarding BMW management (Table 2).

Table 2. Distribution of level of knowledge regarding biomedical waste management among nursing students (n =100).

Level of knowledge regarding biomedical waste management	Frequency	Percentage	Mean±SD
Excellent	12	0	24.5 ± 15.5
Good	50	71.67	
Fair	18	5	
Poor	20	23.33	

Level of Data Regarding BMW Management

The present study compared with Chandra Boss study (2013) finding shows that the medical department and nurses were leading unsuitable disposal of biomedical waste and improper use of color bags for disposing of the BMW waste.

Finding an Association Between Selected Demographic Variables and Knowledge Scores

Association between knowledge scores and carefully chosen demographic variables like age in years (f=1.71), gender (z=-0.87), class (f=0.688) area of residence (z=-0.88), awareness regarding BMW procedure (z=1.23), source of statistics data (f=0.72).

This finding shows that between knowledge score and demographic variables concerning biomedical waste handling among nursing scholars; there is no significant association.

Recommendations

Based on the present results of the study the following recommendations are recommended:

- A similar study can be directed at a huge population of pre-service and in-service nurses.
- A comparative study can be directed at diploma nursing students.
- Co-relational study can be shown on knowledge attitude and practice among nursing students on this topic.
- The pre-experimental study can be conducted on the attitude and practices of B.Sc. nursing children of biomedical waste procedures.

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