

A Study to Assess the Knowledge of Nursing and MBBS Students Regarding Biomedical Waste Management and to Develop an Information Booklet on Bio Medical Waste Management in a Selected University of New Delhi

Merlin Mary James*, Naseem Mancheri*, Manju Chhugani**

Abstract

The waste generated from medical activities can be hazardous, toxic and even lethal because of their high potential for disease transmission and injury that also result in environmental degradation. An adequate and appropriate knowledge of Bio Medical Waste Management among the students of MBBS & Nursing is the first step to safe disposal hazardous hospital waste. Appropriate management of health care waste is then a crucial component of environmental health protection, and it should become an integral feature of health care services. A Quantitative Non-Experimental Research using Descriptive Research Design was used. Data was collected from 100 BSc(Hons) Nursing 1st year students and MBBS 2nd year students of Jamia Hamdard, New Delhi, in the month of April 2016. Structured Knowledge Questionnaire was used to assess knowledge regarding Bio Medical Waste Management. The study findings revealed that the mean knowledge score (17.74) of MBBS 2nd year students was higher than that of the mean knowledge score (13) of BSc. (Hons.) 1st year students. Out of 50 BSc. (Hons) Nursing 1st year Students, 6 students had below average scores, 32 students had average scores and 12 students had above average scores, whereas out of 50 MBBS 2nd year students, none had below average scores, 33 students had average scores and 17 students had above average scores.

Keywords: Nursing Students; MBBS Students; Knowledge and Biomedical Waste Management.

Background

Hospitals are the centers of cure and also important centers of infectious waste generation [1]. Advances in medical facilities with the introduction of sophisticated instruments have increased the waste generation per patient in health care unit. The rapid mushrooming of hospitals has increased the quantity of hospital waste production [2].

BMW (Bio Medical Waste) is defined as the waste which is generated during the diagnosis, treatment, or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing biological [3].

U Ujwala Ukey, Ramasankaram Kambatla, Dash Satyanarayan, Appajirao N R Naidu and P Ved Kulkarni conducted a study to create awareness about the Biomedical Waste Management in Undergraduate Medical And Nursing Students at a teaching institute in Vizianagaram, Andhra Pradesh. The findings showed that MBBS students had a fairly better awareness regarding the subject than nursing students. Almost all study participants were aware about colour coding in segregation of biomedical waste. But when asked about which waste is to be put in which bag, correct response was given by almost half amongst them [4].

Jahanvi G and Raju P V conducted a study on the awareness and training need of bio medical waste management among undergraduate students in ASRAM Medical College in Andhra Pradesh. Total 463 under graduate students (216 males and 247 females) were the sample. Most of the students have heard about bio medical waste. Some of them were

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aware that it causes health hazards. But knowledge about category of wastes, duration of wastes, Type of bag used for collection, identification of biohazard symbol was poor. There were gaps in various aspects of bio medical waste management among medical students. Appropriate training or inclusion of a topic in undergraduate curriculum can fulfill this [5].

The nurses and doctors spend maximum time with patients in the ward than any other member of the health team, increases the exposure to the hazard present in hospital environment mainly bio medical waste. They need to be well equipped with latest information, skills and practices in managing this waste besides reducing hospital acquires infections to protect their own health. They are also responsible for preventing risk due to waste to the other member of health team and community at large [6].

Inadequate and inappropriate knowledge of handling of healthcare has serious health consequences and a significant impact on the environment as well. Lack of awareness can lead to the hospitals becoming a hub of spreading disease rather than working toward eradicating them. There is a need for resource material to help administrators, doctors, nurses and paramedical staffs and sanitary workers to aid in proper and safe disposal of waste.

Hence a need was felt to assess the knowledge of BSc. (Hons) Nursing and MBBS students regarding Bio Medical Waste management and to develop and disseminate an information booklet on Biomedical Waste Management.

Aims

1. To assess the knowledge of BSc. (Hons) Nursing 1st year students regarding Bio Medical Waste management.
2. To assess the knowledge of MBBS 2nd year students regarding Bio Medical Waste management.
3. To develop and disseminate an information booklet on Bio Medical Waste management

Material and Methods

A quantitative non - experimental approach was adopted. The research Design for the following study was Descriptive Research Design. The present study was conducted in Rufaida College of Nursing and

Hamdard Institute of Medical and Science Research (HIMSR), Jamia Hamdard, New Delhi. In the present study, population comprised of students of BSc. (Hons.) Nursing and MBBS Students. The samples for the present study comprised of 50 BSc. (Hons) Nursing Students studying at Rufaida College of Nursing, Jamia Hamdard and 50 MBBS 2nd year students studying at HIMSR. Jamia Hamdard, New Delhi. The sampling technique used for the study was convenient sampling.

A Structured Knowledge Questionnaire developed for the collection of data. A formal administrative permission was obtained from the administrative authority to conduct the study. The study was conducted in Jamia Hamdard, New Delhi, in the month of April 2016. Informed Consent was taken from the subjects. A total of 100 students was selected using convenient sampling technique. Confidentiality of their identity and their responses was assured. Further, a Structured Knowledge Questionnaire was administered to students. Following data collection, an information guidelines regarding Bio Medical Waste Management was developed and disseminated to students. All the data was entered in the master sheet in Microsoft Excel. The data was analyzed using descriptive statistical methods. The demographic variables of the subjects were described using frequencies and percentages. The knowledge scores were assessed using mean, median and standard deviation.

Results

The demographic characteristics (Age, Religion, Previous Knowledge) of 100 BSc. (Hons) Nursing – 1st year students and MBBS 2nd year students were describe using frequencies and percentages.

Regarding the age of the students, the data revealed that out of 100 students, majority 82(82%) belonged to the age group of 19-22 years of age, 14(14%) belonged to the age group of below 18 and only 4(4%) belonged to age group of above 23. Out of 100 students, majority of the students 53 (53%) were Islam, 34(34%) were Hindu, 11(11%) were Christian, and only 2(2%) were others. Out of 100 students 76(76%) had attended any program on Bio Medical Waste Management and 24 (24%) haven't attended any such programme before.

The knowledge scores were computed using a Structured Knowledge Questionnaire. The mean, median, Standard Deviation of the knowledge scores were computed and the knowledge scores were

categorized as:

Below Average: 0 – 8

Average: 7 - 16

Above Average: 17 - 24

Table 1: Mean, Median, Standard Deviation, Possible Range of Score and Obtained Range of Knowledge Scores of BSc. (Hons) Nursing students and MBBS students N = 100

Category	Mean	Median	Standard Deviation	Possible Range of Scores	Obtained Range of Scores
BSc. (Hons) Nursing students (n ₁ = 50)	13	12	6.4	0 - 24	5 - 20
MBBS students (n ₂ = 50)	17.74	18	7.10	0 - 24	10 - 22

Table 2: A Table showing Category of Knowledge Scores of BSc. (Hons) Nursing and MBBS Students N = 100

Category	BSc. (Hons) Nursing Students (n ₁ = 50)	MBBS Students (n ₂ = 50)
Below Average (0-8)	6	0
Average (9-16)	32	33
Above Average (17-24)	12	17

Data presented in Table 1 shows that the mean knowledge score (17.74) of MBBS 2nd year students was higher than that of the mean knowledge score (13) of BSc. (Hons.) 1st year students.

Data presented in Table 3 shows that out of 50 BSc. (Hons) Nursing 1st year Students, 6 students

had below average scores, 32 students had average scores and 12 students had above average scores, whereas out of 50 MBBS 2nd year students, none had below average scores, 33 students had average scores and 17 students had above average scores, (Figure 1).

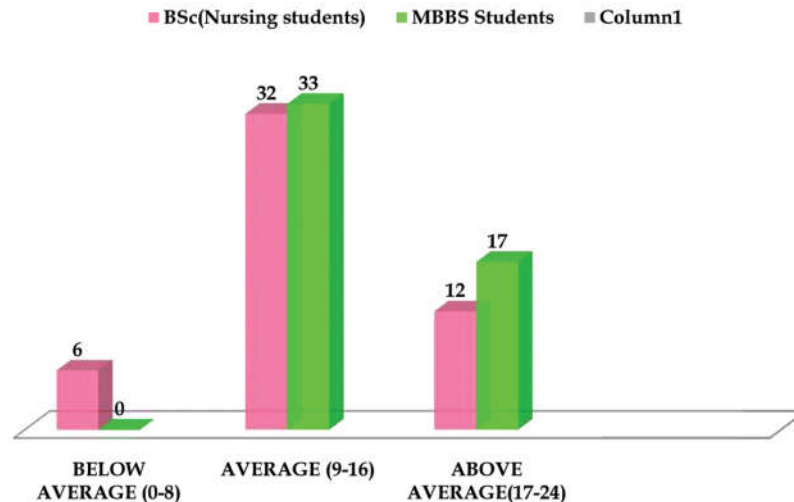


Fig. 5: A Compound Bar Diagram representing the Frequency Distribution of Category of Knowledge Scores of BSc. (Hons) Nursing and MBBS Students

Discussion

U Ujwala Ukey, Ramasankaram Kambatla, Dash Satyanarayan, Appajirao N R Naidu and P Ved Kulkarni⁴ conducted a study to create awareness about the Biomedical Waste Management in Undergraduate Medical And Nursing Students at a teaching institute in Vizianagaram, Andhra

Pradesh. The findings showed that MBBS students had a fairly better awareness regarding the subject than nursing students. This study finding are similar to the present study in which the The mean knowledge score (17.74) of MBBS 2nd year students was higher than that of the mean knowledge score (13) of BSc. (Hons.) 1st year students.

Gupta V, D Mohapatra and V Kumar⁷ conducted

a study to assess the knowledge, attitude and practices of Biomedical Waste Management among health care personnels at Pt. B.D. Sharma PGIMS, Rohtak during the months of September and October 2013. The study participants included, interns and house officers doctors, nursing staff, laboratory technicians, sanitary workers (ward boys and sweepers) working in the institute and dealing with BMW. The study findings revealed that knowledge score as satisfactory was highest among doctors (86%), followed by nursing staff (70%) and lab technicians (46%). The practice score of BMWM was satisfactory in most doctors (90%), nursing staff (78%) and lab technician (68%) and it was poor in 62% of sanitary workers. This study finding conforms to the present study in which out of 50 BSc. (Hons) Nursing 1st year Students, 6 students had below average scores, 32 students had average scores and 12 students had above average scores, whereas out of 50 MBBS 2nd year students, none had below average scores, 33 students had average scores and 17 students had above average scores.

Conclusions

The mean knowledge score (17.74) of MBBS 2nd year students was higher than that of the mean knowledge score (13) of BSc. (Hons.) 1st year students. Majority of MBBS students (33) had Average Knowledge and 17 students had Above Average Knowledge and none had below average knowledge score, whereas In BSc(Hons) Nursing majority of students (32) had Average Knowledge, 12 students had Above Average Knowledge and 6 had Below Average. The sample size of the study, was small, thus restricting our ability to make broader generalization. Only MBBS – 2nd year & BSc(Hons) Nursing– 1st year Students were included in the study. The time period of the data collection was less. Students of MBBS & BSc(Hons) Nursing should be updated about regarding management of Bio Medical Waste. In service education programs may be conducted to update the knowledge of MBBS & BSc(Hons) Nursing students regarding management of Bio Medical Waste Management. Nursing Administrators may facilitate and support the organization and participation personnel in various continuing education programs to enhance knowledge regarding management of Bio Medical Waste. Students are future Health care workers they need to understand the importance of Bio Medical Waste Management in the work setting. The students may be educated about the

causes, risk factors, hazards, and management of Bio Medical Waste. Nurses should need to collect data regarding the knowledge level of MBBS & BSc(Hons) Nursing students and further should take measures to improve their knowledge by conducting planned teaching programmes. Further research studies can be conducted to assess the retention of knowledge after dissemination of information booklet. The study can be replicated on a larger sample and also on other health care professional. The study could be done for a larger time period as this would give more significant results.

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