

A Study to Assess the Knowledge, Attitude and Practice of Undergraduate Nursing Students on Bio-Medical Waste Management at Selected Nursing College in Bhubaneswar

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ABSTRACT

Background: Segregation and proper disposal of Bio medical waste (BMW) is very important concern for health-care workers and in general community. Effective management of BMW is very necessary and legal as well as social responsibility. Objectives: To assess the knowledge, Attitude and Practices of undergraduate nursing students regarding BMW management. Methodology: Descriptive observational based cross-sectional study was conducted among undergraduate nursing students. The study was conducted by using the demographic tool including, Age, gender, source of knowledge, religion etc. Knowledge Questionnaire about Biomedical waste and management, Likert scale to assess the attitude and Practice checklist used to assess the practices of subjects regarding BMW management. Results: Present study shows that none of the subjects had adequate knowledge, 66.7percent had moderate knowledge, regarding BMW management. And majority (70%) of the subjects were favorable attitude toward BMW management and most of the subjects practiced adequately. Conclusion: This study concluded that there were not adequate knowledge regarding BMW management. Training program are needed for student nurse as well as staff nurse who is working in hospitals and clinics.

KEYWORDS: Attitude, Knowledge, Practice, Bio-medical waste, undergraduate nursing students

How to cite this paper: Rahul Ranjan | Asokan R "A Study to Assess the Knowledge, Attitude and Practice of Undergraduate Nursing Students on Bio-Medical Waste Management at Selected Nursing College in Bhubaneswar"

Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-3 | Issue-6, October 2019, pp.421-425, URL: <https://www.ijtsrd.com/papers/ijtsrd28116.pdf>



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1. INTRODUCTION

Hospital is an organization which provides comprehensive health care to the depending community. In the process it generates lots of waste which is very hazardous to the community to which hospital is supposed to serve (Sharma, 2007). The BMW waste produced in health care activities can be a high risk for infection and injury in compare to any other type of waste so, it is very important to have safe and reliable method to handle. It can be serious public health consequence, and a significant impact on the environment if handle practice in inappropriate and inadequately. It has seen that management of bio-medical waste is still very poor all over the world. Bio-Medical waste is a growing concern and direct impact on health because of recent incidents were found in public exposure by discarded blood, Vials, needles, empty medicine bottles and syringes, in the healthcare setting as well as from the municipal garbage bins and disposal sites. Lack of awareness about the health hazards and its improper management of biomedical wastes were seen which is due to insufficient financial and human resources, and poor control of waste disposal (Madhukumar and Ramesh, 2012).

Health care is vital for our life and health, and the waste generated from health-care activities can be a real problem for human being and living organism. Improper handling of generated BMW in health care facilities can causes direct health impact on the health care workers, community and on the environment. Potentially infectious and hazardous waste is generated at large amount in hospitals and health care facilities around the world. (Mathur, Patan, and Shobhawat, 2012). According to World Health Organization 85% of hospital produces wastes are nonhazardous, whereas 10% are infectious and 5% are non-infectious. Around 15% to 35% of hospital waste is considered as infectious waste and it depends on the total amount of waste generated (Glenn and Garwal, 1999). If biomedical wastes not properly managed then it can threaten the public dangerous infection and poses a potential threat to the surrounding environment. (Radha, Kalaivani and Lavanya, 2009). According to WHO poor management of biomedical waste potentially hazardous for health care workers, waste handlers, patients, and the community at large to infection, toxic effects and injuries, and risks polluting the

environment. It is very essential that all bio-medical waste materials should be segregated at the source of generation, appropriately treated and disposed to be safely (Nwachukwu, Frank and Ositadinma, 2013).

Collection of biomedical waste and proper disposal has become a significant concern. There is a strong evidence of transmission through healthcare waste has been seen, among all health problems the infections are more common like HIV/AIDS, Hepatitis B and C (Patil and Shekher, 2001). The rule for management of BMW are applies for all healthcare personnel who generate, collect, receive, store, transport, treat, dispose or handle BMW in every institution where BMW generate. The BMW waste should be segregated at source and categorizes into color coded bags or containers (Chudasama et al. 2014). For the effective management of biomedical waste it is a legal necessity as well as social responsibility. Therefore, resource are needed, administrators should prove it to the institution and help the healthcare personnel. The main purpose of BMW management is to reduce waste generation, to ensure its efficient collection, handling, and safe disposal in such a way that it can control infection and improves safety for healthcare worker as well as general community in the system (Basu, Das and Pal, 2012). Hospitals are health care institutions providing patient care services and the duty of these institutions to establishments of healthcare, to look after the public health. This can be directly through patient care or indirectly by ensuring a clean healthy environment for their healthcare personnel and the community. Current BMW management practices are characterized by poor quality of collection service, handling and improper disposal.

There is a dire need to change this picture by careful planning and implementation of the bio-medical waste management program in all its aspects as well as to create awareness about the health hazards in public, patients and health workers. Hence the training programs for all categories of the staff are the need of the time. For the effective management of BMW, it needs to know the knowledge, attitude and practice of healthcare worker and need to evaluate for the improvement. Therefore, this study was planned to assess the knowledge attitude and practice of undergraduate students, on bio-medical waste management. The objectives of the study was, i). To assess the knowledge of undergraduate nursing students regarding BMW management, ii). To assess the attitude of undergraduate nursing students regarding BMW management and iii). To assess the practices of undergraduate nursing students regarding BMW management.

2. RESEARCH METHODOLOGY

The study was conducted at Kalinga institute of Nursing Sciences, Bhubaneswar, India in April 2015. Ethical

clearance was taken from the institutional ethical committee to conduct the study and informed consent obtained from the subjects. It was a descriptive observational based cross sectional study. Study subjects included undergraduate nursing students i.e. B. Sc. Nursing. The study was conducted by using demographic tool including, age, gender, source of knowledge, religion etc. Knowledge Questionnaire about Biomedical waste and management, Likert scale to assess the attitude of subjects and Practice checklist used to assess the practices of subjects about biomedical waste management. Data were collected by probability (simple random sampling) sampling technique by using lottery method. A total of 30 subjects were included in the study who satisfied the inclusion criteria were present during the study. Collected data was analyzed using descriptive statistics including frequency, percentage, Mean and Standard Deviation.

Inclusion criteria includes student who

- was studying in Kalinga Institute of Nursing Sciences.
- was available during data collection.

Exclusion criteria

- was not been willing to practice in the study.
- was absent during data collection.

Scoring criteria of the "tools"

For the assessment of knowledge

- Adequate knowledge: >75%
- Moderate knowledge: 51%-75%
- Inadequate knowledge: <50%

For the assessment of Attitude

- Favorable: >75%
- Neutral: 51%-75%
- Unfavorable - <50%

For the assessment of Practices

- Good: >75%
- Average: 51%-75%
- Poor: < 50%

3. RESULTS

Result shows that most of the subjects (73.3%) had acquired knowledge regarding BMW management from Health care workers. Electronic media and publishing media is also helpful for acquiring the knowledge. None of the students had adequate knowledge about BMW management and 66.7% had moderate knowledge. 70% students had favorable attitude and 30% have neutral attitudes toward BMW management and 70% students was doing good practice on BMW management.

Table 1 Frequency and percentage distribution of the subjects according to demographic characteristics.

n=30

Demographic Variables	Frequency (f)	Percentage (%)
Age in year		
18-20	27	90%
>20	03	10%
Gender		
Male	03	10%
Female	27	90%

Religion		
Hindu	27	90%
Muslim	00	00
Christian	03	10%
Others	00	00
Family income per month		
<10,000 rupees	00	00
10-15,000 rupees	03	10%
15-20,000 rupees	06	20%
>20,000 rupees	21	70%
Place of living		
Rural area	11	36.7%
Urban area	19	63.3%
Source of knowledge		
Electronic media	03	10%
Publishing media	03	10%
Health care workers	22	73.3%
Relatives & Nabors	02	6.7%

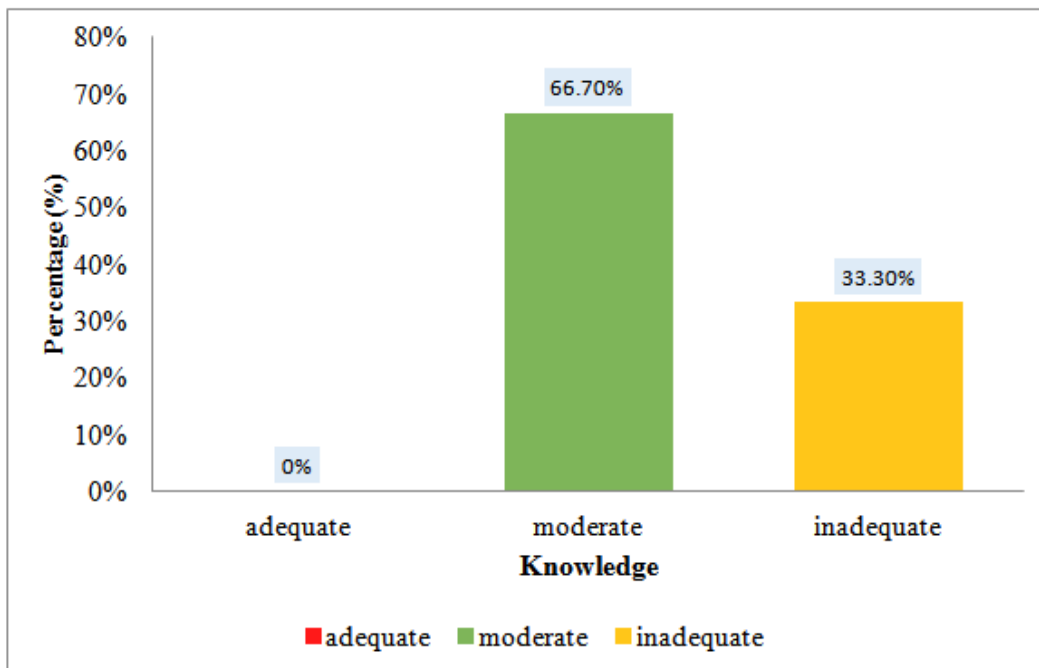


Figure1. Cylinder diagram showing percentage distribution of knowledge of undergraduate nursing students regarding BMW management

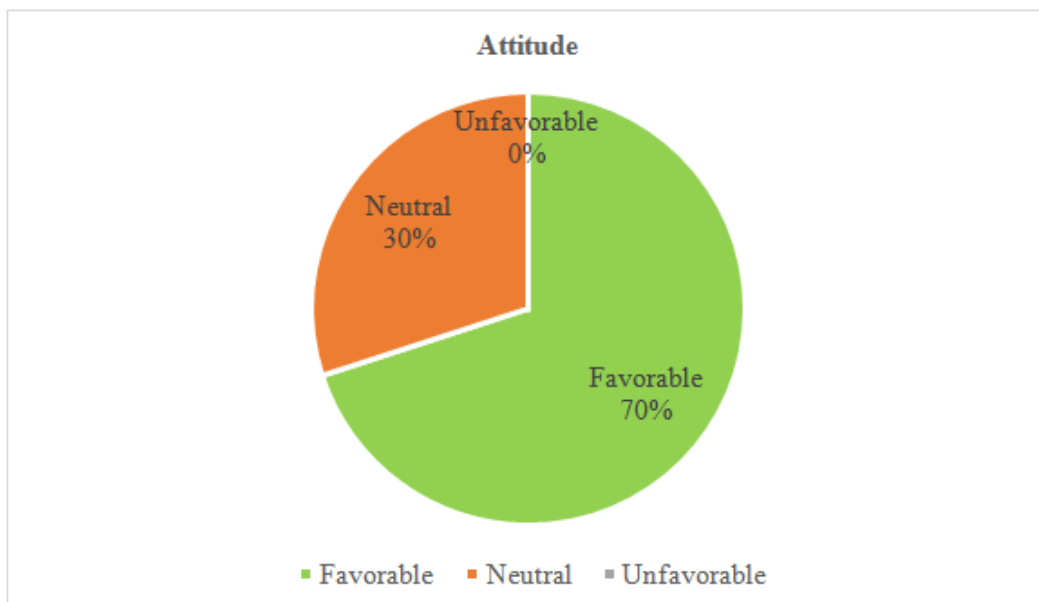


Figure2. Pie diagram showing percentage distribution of attitudes of undergraduate nursing students towards BMW management

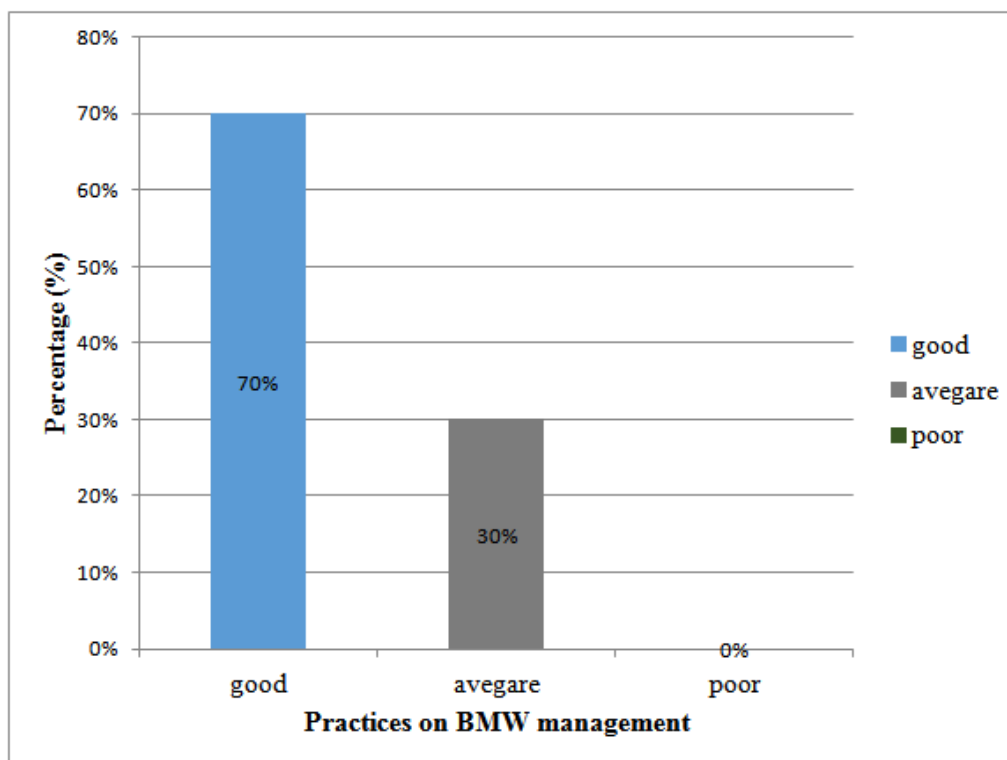


Figure3. Bar diagram showing percentage distribution of undergraduate nursing students on practices BMW management.

4. DISCUSSION

The present study shows that none of the subjects had adequate knowledge regarding BMW management. Majority (66.7%) of the subjects belongs from moderate knowledge category and 30% of the subjects had inadequate knowledge regarding BMW management. In the other study conducted by Singh et al. 2014, about 63.7% of the dentists were not aware of BMW management. Another study conducted by Ranjini, 2014 and found that, nearly 78% of participants had very good knowledge regarding BMW management. Mathur, Dwivedi, Hassan and Mishra, 2011 conducted a study and found that knowledge regarding the color coding, and waste segregation at source was found to be better among the nurses and laboratory staff as compared to doctor.

Most (70%) of the subjects had favorable attitude, 30percent of subjects had neutral attitude and no any subject had unfavorable attitude regarding BMW management. Study conducted by Sinha 2011 the finding shows that among OT technicians, laboratory and housekeeping staff had comparatively less understanding of BMW management, but had a more positive attitude towards BMW management. Another study conducted by Rudraswamy, Sampath and Doggalli, 2012, findings of this study suggest that the 82.6 % of staff had good attitude towards BMW waste management.

Most (70%) of the subjects had doing Good practice, 30percent subjects doing average practices and no one had doing Poor Practice on BMW management. Another study conducted by Nagraju et al. 2013 and found that the majority of subjects (53%) had average practice and (35%) had good practice. Mathur, Dwivedi, Hassan and Mishra, 2011 found that lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal. The main issue of concern in BMW management in providing the training program for the healthcare personnel and it is mandatory to understand the existing gaps and deficiencies in knowledge, attitude and

practices. Lack of these, even with good infrastructure and technology, there is no use in proper waste management (Rudraswamy, Sampath and Doggalli, 2012). The undergraduate student nurse are the future nursing profession and should be trained properly and develop awareness about BMW management and impacts of the improper handling it.

5. CONCLUSION

The present study concluded that, there were not adequate knowledge regarding BMW management but favorable attitude were found. Improper or lack of knowledge regarding bio medical waste management affects the correct practices. Training program regarding BMW management on regular interval are required for all student nurse, healthcare workers for create awareness for the improvement of the knowledge, attitude and practice which will helpful in effective management.

6. IMPLICATIONS OF THE STUDY

- Exploring of knowledge, change attitude and encourage for practice on BMW management among the nursing students is the single most effective methods in the prevention of injury, accidental transmission of microbe infections.
- This study will provide the basis for improving knowledge attitude and practice regarding BMW management and to further research into the topic or the area.

7. RECOMMENDATIONS

- The study can be replicated on large samples in different settings to have a wider generalization of findings.
- A similar study can be conducted among doctors, staff nurses and paramedical staffs.
- A study can be conducted using other strategies, information booklet and other manuals etc.

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