

1-1-2019

Knowledge and practice among housekeeping staff on methods of bio-medical waste (BMW) management

Nanda Kumar Paniyadi Mr

College of Nursing, AIIMS, Bhubaneswar, patnanandupadhyaya@yahoo.com

Asha P. Shetty Dr

College of Nursing, AIIMS, Bhubaneswar

Alice Minj Ms

College of Nursing, AIIMS, Bhubaneswar

Edavathra Jennie Varghese Ms

Follow this and additional works at: <https://impressions.manipal.edu/mjnhs>



Part of the [Nursing Commons](#)

Recommended Citation

Paniyadi, Nanda Kumar Mr; Shetty, Asha P. Dr; Minj, Alice Ms; and Varghese, Edavathra Jennie Ms (2019) "Knowledge and practice among housekeeping staff on methods of bio-medical waste (BMW) management," *Manipal Journal of Nursing and Health Sciences*: Vol. 5: Iss. 1, . Available at: <https://impressions.manipal.edu/mjnhs/vol5/iss1/4>

This Original Research is brought to you for free and open access by the MAHE Journals at Impressions@MAHE. It has been accepted for inclusion in Manipal Journal of Nursing and Health Sciences by an authorized editor of Impressions@MAHE. For more information, please contact impressions@manipal.edu.

Knowledge and practice among housekeeping staff on methods of bio-medical waste (BMW) management

Cover Page Footnote

We acknowledge management of All India Institute of Medical Sciences, Bhubaneswar, Director, AIIMS, Bhubaneswar, Principal College of Nursing, Medical Superintendent, AIIMS, Hospital and Institutional Ethics Committee for the permission and support.

Knowledge and practice among housekeeping staff on methods of bio-medical waste (BMW) management

Nanda Kumar Paniyadi*, Asha P Shetty, Alice Minj, Edavathra Jennie Varghese, Kumari Raj Laxmi, Poonam Nara, Ritu Kumari, Upasana

Email: patnanandupadhy@yahoo.com

Abstract

Waste is any substance that is not useful. Bio-medical waste (BMW) is any kind of waste containing infectious material. Inappropriate and inadequate handling of health care waste has serious public health issues and significant influence on environment. **Objective:** Objective of the study is to find out the relation between knowledge and practice regarding the method of BMW disposal. **Methodology:** A descriptive study design with non-probability convenient sampling technique was used to collect the data from 65 housekeeping staff of AIIMS, Bhubaneswar after obtaining administrative approval from the authorities. Structured knowledge questionnaire on BMW disposal and observational checklist for the practice of BMW disposal were used. **Result:** The study revealed weak positive correlation between knowledge and practice regarding method of BMW disposal. **Conclusion:** Study concludes that continuous intermittent knowledge sensitization program on BMW disposal can bring significant bio-medical practices among housekeeping staff.

Key words: Bio-medical wastes, housekeeping staff, knowledge, practice, waste disposal

Introduction

Waste is any substance that is not useful. BMW is any kind of waste containing infectious material. BMW is any waste that is generated in the diagnosis, treatment and immunization of human beings or animals or in the research activities pertaining to or in the production or testing of biologicals. It includes categories mentioned in the government of India's BMW (Management and handling) rules 1998 (Sharma, Sharma, Sharma, & Singh, 2013). The significant waste generating sources are private and Government hospitals, clinics, blood banks, nursing homes, laboratories and other research

organizations. Approximately 75 to 90% of BMW is non-hazardous and remaining 10 to 25% is hazardous. If hazardous and non-hazardous wastes are mixed together, the whole waste becomes hazardous and dangerous (Vishal, Swarn, Mahesh, Arvind, Sanjay, & Uma, 2012).

Globally, poor disposal mechanism, lack of awareness and insufficient resources result in unsatisfactory BMW management facilities up to 18 to 64% in healthcare. India is a developing country. Poor waste management is identified as a serious concern by both governmental and non-governmental organizations (WHO). Almost 0.33 million tonnes of estimated hospital wastes are produced in India annually and waste generation rate ranges from 0.5 to 2kg/bed/day (Mathur, Dwivedi, Hassan, & Mishra, 2014). India having around 50,000 hospitals we can generalize how much waste is generated. Globally, health professionals are aware on improper BMW management technique and level of awareness regarding its disposal if health remains unsatisfactory.

Nanda Kumar Paniyadi¹, Asha P Shetty², Alice Minj³, Edavathra Jennie Varghese³, Kumari Raj Laxmi³, Poonam Nara³, Ritu Kumari³, Upasana⁴

1. Assistant Professor, College of Nursing, AIIMS, Bhubaneswar

2. Professor-cum Principal, College of Nursing, AIIMS, Bhubaneswar

3. BSc Nursing student, College of Nursing, AIIMS, Bhubaneswar

4. Guest faculty in Statistics, AIIMS, Bhubaneswar

Manuscript received: 27 Aug 2018

Revision accepted: 28 Nov 2018

*Corresponding Author

How to cite this article: Paniyadi, N.K., Shetty, A.P., Minj A., Varghese E.J., Laxmi, K.R., Nara, P., Kumari, R., & Upasana. (2019). Knowledge and practice among housekeeping staff on methods of bio-medical waste (BMW) management. *Manipal Journal of Nursing and Health Sciences*, 5(1), 16-20.

According to WHO (2008), about 85% of wastes generated by health-care activities is general and non-hazardous waste. The remaining 15% is considered as hazardous. Worldwide, every year an estimated 16 billion injections are administered, but not all of the needles and syringes are properly disposed. India generates 1,00,000 metric tonnes waste/day. Odisha waste generation rate is 42 million tonnes annually. In Bhubaneswar (City where setting is located) itself 200 metric tonnes of waste/day is generated. Status of knowledge and practice of housekeeping staff can draw the attention of the administrators in this regard. With this view, this study was carried out to assess the knowledge and practice on the method of waste disposal among housekeeping staff working in AIIMS hospital, Bhubaneswar.

Objective: The objective of the study was to find out relation between knowledge and practice regarding the method of BMW disposal.

Materials and methods

The study used a quantitative non-experimental descriptive research design among 65 housekeeping staff working in AIIMS, Bhubaneswar. Housekeeping staff, who were willing to participate and present at the time of study and those who were able to respond to the knowledge questionnaire of Odia language were included in the study. Subjects, who had less than six months of experience, were excluded from the study.

Tools and technique

Study started after getting clearance from institutional ethics committee. After obtaining an informed consent, a knowledge questionnaire on BMW disposal was administered to 65 housekeeping staff of various department of hospital of AIIMS, Bhubaneswar. Study used the following tools:-

Tool 1: Demographic pro forma

Based on the findings of previous studies baseline demographic information including age, gender, working experience, educational qualification and marital status were included in tool.

Tool 2: Knowledge questionnaire on BMW disposal

This tool had 30 items and was constructed by the investigator to assess the knowledge related to BMW disposal.

Tool 3: Practice checklist on BMW disposal

Checklist contained 15 statements to assess the practice related to waste disposal. Tools were constructed by investigators.

Tools were given to five experts of various departments (trauma, oncology, urology, pulmonary and neonatology) for the purpose of validation. Language experts made the language validity of the tools. The reliability co-efficient ($r=0.63$) was calculated by administering 20 housekeeping staff by using test retest method.

Statistical analysis: Inferential and descriptive statistics were used to analyse the data.

Result

Majority of the subjects belonged to the age group above 32 (35%) years of age and 92% were males and 7% were female. 84% were having work experience above one year. Maximum were having secondary level of educational qualification (60%).

Study identified majority of the subjects i.e. 80% were having moderate level of knowledge on method of waste disposal and 20% were having poor knowledge. Among the housekeeping staff, 58% were following moderate level of practicing BMW disposal methods, where as 38% were following good practice and the remaining 4% were following poor practice regarding the method of waste disposal.

The study attempted to examine the relation between knowledge and practice regarding method of BMW disposal by using Karl Pearson correlation co-efficient ($r = .251$) and found that there was a weak positive correlation between knowledge and practice. It shows increase in the knowledge on waste disposal, will increase the good waste disposal practices. It was found that there is no significant association between knowledge and demographic variables such as age, education qualification, marital status and working experience and no significant association between practice and demographic variables such as age, education qualification, marital status and working experience.

Figure 1: Distribution of subjects with their age

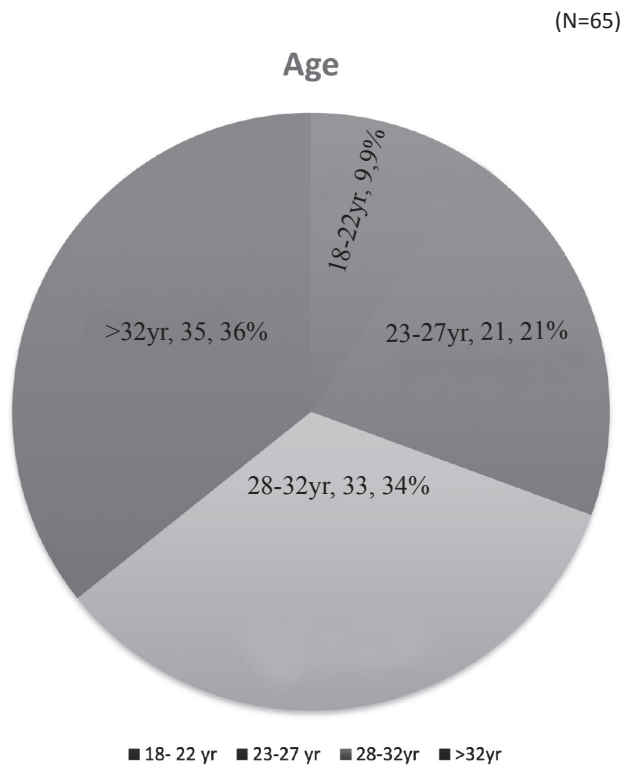


Table 1:
Frequency and Percentage Distribution of Demographic Characteristics

N=65

Variables	Frequency	Percentage
Educational status		
Primary	13	20
Secondary	39	60
Higher-Secondary	08	12
Graduate	05	07
Work experience		
<6 Months	2	03
6 Months	3	04
1 year	15	07
Above 1 year	55	84

As per the Table 1, 23 (35%) of housekeeping personnel were above the 32 years of age group, whereas 6 (9%) population were at the age group of 18-22 years. Majority 39 (60%) population had the secondary level of education. Majority i.e. 55 (84%) population were having experience of above one year.

Table 2:

Description of Knowledge of Bio-Medical Waste Disposal in Terms of Frequency, Percentage, Mean and Standard Deviation

N= 65

Variable	Score	Frequency (f)	Percentage (%)	Mean	S D
Knowledge	Poor (0-10)	13	20	14.28	1.8
	Moderate (11-20)	52	80		
	Good (21-30)	0	--		

Table 2 shows that majority of the housekeeping personnel had moderate level of knowledge (80%), whereas 20% had poor level of knowledge regarding disposal of BMW in tertiary hospital.

Table 3:

Description of Practice of Bio-Medical Waste Disposal in Terms of Frequency, Percentage, Mean and Standard Deviation

N=65

Variable	Score	Frequency	Percentage (%)	Mean	S D
Practices	Poor (0-5)	02	3%	9.7	1.3
	Moderate (6-10)	38	58%		
	Good (11-15)	25	38%		

Table 3 shows that majority of housekeeping personnel had moderate (58%) level of practice and 38% had good level of BMW disposal practice in tertiary care hospital.

It is interpreted that demographic variables presented in table 4 are independent from knowledge regarding BMW disposal amongst housekeeping personnel at tertiary care hospital, India. This study indicates that there is an urgent need to train the housekeeping staff and provide educational program regarding method of BMW disposal.

Discussion

Major discussion point was that housekeeping staff had a poor level of knowledge as well as practice regarding BMW disposal in tertiary hospital. Respondents were not practicing as per the standard guidelines. Similar findings were found in the study by Sanjeev, Kuruvilla,

Table 4:

Association Between Knowledge and Demographic Variables

N= 65						
Variables	Knowledge score			Chi square (χ^2)	df	Significance
	Poor	Moderate	Good			
Age						
18-22year	1	5	0	4.3	6	N.S
23-27 years	1	13	0			
28-32 years	8	15	0			
Above 32 years	4	18	0			
Marital Status						
Married	10	36	0	1.2	6	N.S
Unmarried	1	14	0			
Divorced	3	0	0			
Educational qualification						
Primary education	2	11	0	2.79	6	N.S
Secondary education	9	11	0			
Higher secondary	1	8	0			
Graduate	2	2	0			
Work experience						
< 6 months	0	1	0	2.34	6	N.S
6 months	1	1	0			
6 months – 1 year	2	3	0			
Above 1 year	11	46	0			

($\chi^2=12.5$, df=6)

Subramaniam, Prashant, and Gopalakrishnan, (2014), that respondents were unaware about the BMW management handling rules and having moderate level of knowledge on BMW management. Same finding was observed in the study by Mathur, Dwivedi, Hassan, and Mishra (2014) that sanitary staff was having low level of knowledge regarding BMW management as compared to technical staff like doctors, nurses and laboratory staff.

Researcher found that there was a relation between knowledge and practice, but there was no significant association between knowledge and demographic variables (age, marital status educational qualification and work experience) as well as practice and

demographic variables (age, marital status, educational qualification and work experience). These entire demographic variables were independent of knowledge as well as practice regarding BMW disposal.

Conclusion

On the basis of study findings following points are concluded:

Researcher identified that there is a weak positive correlation between knowledge and practice regarding the method of BMW disposal. Among 65 housekeeping personnel, majority were males, married, and had secondary level of educational status and had more than one year of work experience. There is no association between knowledge score as well as practice score regarding method of BMW disposal and demographic variables. Majority had moderate level of knowledge and practice regarding BMW disposal. Continuous intermittent sensitization program regarding BMW management guidelines and positive reinforcement can bring strong BMW management practices among the housekeeping staff.

Acknowledgement

We acknowledge management of All India Institute of Medical Sciences, Bhubaneswar, Director, AIIMS, Bhubaneswar, Principal College of Nursing, Medical Superintendent, AIIMS, Hospital and Institutional Ethics Committee for the permission and support.

Sources of support: None

Conflict of interest: None declared

Source of support in form of grants: None

References

- Mathur, V., Dwivedi, S., Hassan, M., & Mishra. P. (2011). Knowledge, Attitude, and Practices about Biomedical Waste Management among Healthcare Personnel: A Cross-sectional Study. *Indian Journal of Community Medicine*, 36(2). 143 – 45.
- Sanjeev, R., Kuruvilla, S., Subramaniam, R., Prashant, P.S., & Gopalakrishnan, M. (2014, March). Knowledge, attitude, and practice about biomedical waste management among dental health care personnel in dental colleges in Kothamangalam: A cross sectional study. *Health Sciences*, 1(3), JS001I.

- Sharma, A., Sharma, V., Sharma, S., & Singh, P. (2013, March). Awareness of biomedical waste management among health care personnel in Jaipur, India. *Oral Health and Dental management*, 12(1), 32 – 40.
- Vishal, B., Swarn, K., Mahesh, K., Arvind, V., Sanjay, A., & Uma, S. (2012, June) Knowledge assessment of hospital staff regarding biomedical waste management in a tertiary hospital. *National Journal of Community Medicine*, 3(2), 197 – 200.
- World Health Organization. (2018). Retrieved from Facts Sheet/ Health Care waste: <https://www.who.int/news-room/fact-sheets/detail/health-care-waste>