



KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT BIOMEDICAL WASTE MANAGEMENT AND IMPACT OF AWARENESS CLASSES AMONG DENTAL STUDENTS IN LUCKNOW, INDIA

Paediatrics

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ABSTRACT

Study Design: Cross sectional observational study

Aim: To assess knowledge, attitude and practice regarding bio-medical waste management

and to assess impact of awareness classes among dental Undergraduate and Postgraduate students of King George's Medical University, Lucknow
Background data: Biomedical waste is generated in large quantities in dental procedures. This waste is hazardous to the persons coming in contact with it as well as it has the potential to pollute environment. The awareness of health care professionals towards biomedical waste hazards and its management can prevent possible hazards.

Materials and methods: Ninety undergraduate and postgraduate students were assessed for their knowledge, attitude and practice regarding biomedical waste management. A self-structured questionnaire containing 30 questions was given to all the students. The statistical analysis of the data was done using appropriate statistical tools.

Results: Postgraduate students showed significantly better knowledge ($p = 0.021$) and practice ($p = 0$) than undergraduate students. However, there was no difference in attitude of students towards biomedical waste.

Conclusion: Postgraduate students had significantly better knowledge and practice towards biomedical waste with no difference in attitude. Awareness lectures were helpful in improving the knowledge and practice of students.

KEYWORDS

Biomedical, Waste, Dental, Management

Introduction:

Biomedical waste (BMW) is defined as any waste generated during diagnosis, treatment operation or immunization or in research activities including production of biologicals. Dental colleges/hospitals produce a large amount of hazardous bio-medical waste in the form of cotton, gauge, syringes, chemicals, latex, masks, sharps and other materials, often infected with patient's body fluids. This waste, if not treated properly, not only may produce a significant health hazard to the persons coming in contact with it, but also has the potential to pollute environment. These infectious materials may produce many fatal infections such as HBV, HCV, and HIV. Also sharps, if not handled and managed properly, may cause prick injuries, may be reused leading to serious diseases. Implementation of an efficient waste management system in the hospitals can prevent the possible health hazards.⁽¹⁾

The notification of biomedical waste rules, 1998 was implemented by Union Ministry of Environment and Forests under the provision of Environment [protection] act, 1986.⁽²⁾ The notification brought into the focus of BMW management in India. The rules are applied to all involved in generation, collection, receiving, storage, transportation and handling of BMW in any form.⁽³⁾

Although, the awareness of hazards and proper BMW management is increasing globally, but the studies have shown unsatisfactory level of awareness among health care professionals in India.⁽⁴⁻⁶⁾ In dental practice, most of the hazardous bio-medical waste is generated during clinical working by dental undergraduate (UG) and postgraduate (PG) students. So, knowledge, attitude and practice (KAP) followed by UG and PG students are crucial in effective segregation and further management of hospital generated biomedical waste.

University Environment Department of King George's Medical University (KGMU), Lucknow conducts awareness lectures on BMW management for students and staff. The students and staff are notified of the lecture which is conducted from time to time. However, not all

the students are able to attend the awareness lectures due to miscellaneous reasons.

Therefore, the present study was conducted to assess KAP and to observe the impact of awareness classes on BMW management on dental UG and PG students of KGMU, Lucknow.

Methodology:

The present cross-sectional study was conducted in Faculty of Dental Sciences, King George's Medical University, Lucknow. A total of 90 students participated in the study including 43 UG and 47 PG students. A self-structured closed ended questionnaire was prepared and distributed to the students. The questionnaire contained total 30 question on knowledge, attitude and practice. The questionnaire also inquired if the students attended the awareness classes of BMW management conducted by the University environment Department of KGMU from time to time. The purpose of the study was explained to the participants and written consent of the participants were taken. The confidentiality of the participants was maintained in the study.

The scoring criteria based on correct response to questionnaire is shown in Figure 1. Statistical analysis was done and value were represented N (%). Fisher exact test was used to compare two groups. $P < 0.05$ was taken as statistically significant.

Results:

A total of 90 students (43 UG, 47 PG) completed the questionnaire. In UG, 62.8% students were males and 37.2% were females, while in PG 57.45% were males and 42.55% were females. There was no significant difference in gender of both the groups ($p = 0.66$). The mean age in UG students was 24.12 ± 1.69 years, whereas in PG students was 28.0 ± 3.89 years ($p = 0$). The comparison of gender and mean age between UG and PG students is summarized in Table 1.

The results showed a significant difference in knowledge ($p = 0.021$) and practice ($p = 0$) of UG and PG students regarding BMW (Table1).

PG students showed better knowledge and practice than UG students. However, there was no difference in attitude of PG and UG students towards BMW (Table 2).

There was no significant difference in knowledge and attitude of UG students those who attended and those who did not attend the awareness classes of BMW. However practice was significantly better ($p = 0.019$) in students who attended the classes (Table 3). Statistically, no significant difference was observed in knowledge and attitude of PG students who attended and who did not attend the awareness classes of BMW. However a significantly better ($p = 0.006$) practice was observed in PG students who attended the classes (Table 4).

There was a significant difference in knowledge and practice of PG students than UG students those who attended the awareness classes of BMW. However, there was no difference in attitude of both the groups (Table 5).

Discussion:

For environment conservation and health of community, it is important to self-manage the health care waste.⁽⁹⁾ The present study assessed KAP of dental UG and PG students of King George’s Medical University, Lucknow regarding biomedical waste management. The study also assessed the impact of awareness classes on BMW management on UG and PG students who attended and who did not attend the classes.

In the present study, 88.4% UG and 100% PG students showed excellent knowledge of BMW management. In UG group, 32.56% students showed excellent practice while 65.12% showed good to average practice. In PG group, 87.24% students showed excellent practice while 6.38% showed good to average practice. The attitude towards BMW management was same in both the groups.

A good impact of awareness classes were observed in both the UG and PG groups as can be observed by Tables 3, 4 and 5. The results of the study showed that both UG and PG students who attended classes had better practice than those who did not attend. However when UG and PG students were compared, PG students had better knowledge. This suggests the seriousness of PG students about BMW management than UG students.

The results of a previous study showed good awareness and perception level of BMW management among students of an Dental institute.⁽⁸⁾ Some studies suggests lack of adequate knowledge, awareness, practices, legislation and management among students/staff towards BMW management.⁽⁹⁻¹¹⁾ One study suggests good attitude of staff towards BMW management⁽¹²⁾ while other suggested good knowledge but poor attitude and practice⁽¹³⁾.

Training programmes may be designed for students, dental staff and auxiliaries for proper management of BMW. The KAP of all persons who are involved in BMW management should be assessed periodically and training programmes should be modified as per requirements to fill the gap in their KAP towards BMW management.

The limitation of this study was that it was conducted on 90 UG and PG students, so it may not be generalization of KAP of all UG and PG students. Further studies with more sample size involving all concerned healthcare personals may provide a better assessment tool to evaluate the level of these training programmes as well as the ways of improvement.

Conclusion: PG had significantly better knowledge and practice towards biomedical waste with no difference in attitude than UG students. A well designed periodic awareness education by means of lectures, seminars and workshops of all the students, doctors and staff may play and important role in efficient management of BMW management.

Figure 1: Scoring criteria based on response to questionnaire

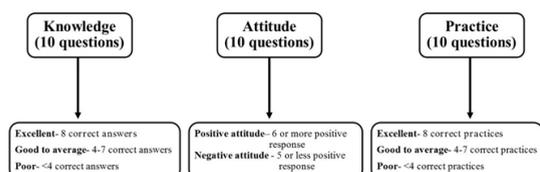


Table 1: Comparison of gender and age of UG and PG students

		UG students		PG students		
		N	%	N	%	
Gender	Males	27	62.8	27	57.45	p = 0.66 (non-significant)
	Females	16	37.2	20	42.55	
	Total	43	100.0	47	100.00	
Age	Mean ± SD (in year)	24.12 ± 1.69		28.0 ± 3.89		p = 0 (significant)

Table 2: Comparison of KAP of UG and PG students

		UG students		PG students		
		N	%	N	%	
Knowledge	Excellent	38	88.4	47	100	p = 0.021 (significant)
	Good/average	5	11.6	-	-	
	Poor	-	-	-	-	
Attitude	Positive	43	100	47	100	No difference
	Negative	-	-	-	-	
Practice	Excellent	14	32.56	41	87.24	p = 0 (significant)
	Good/Average	28	65.12	3	6.38	
	Poor	1	2.3	3	6.38	

Table 3: Comparison of KAP of UG students who attended Vs who did not attend classes of BMW management

		Attended		Not attended		
		N	%	N	%	
Knowledge	Excellent	12	48	16	89	p = 1 (non-significant)
	Good/Average	13	56	2	11	
	Poor	-	-	-	-	
	Total	25	100	18	100	
Attitude	Positive	25	100	18	100	Test not applicable
	Negative	-	-	-	-	
	Total	25	100	18	100	
Practice	Excellent	12	48	2	11.11	p = 0.019 (significant)
	Good/Average	23	52	15	83.33	
	Poor	-	-	1	5.56	
	Total	25	100	18	100	

Table 4: Comparison of KAP of PG students who attended Vs who did not attend classes of BMW management

		Attended		Not attended		
		N	%	N	%	
Knowledge	Excellent	45	100	2	100	Test not applicable
	Good/Average	-	-	-	-	
	Poor	-	-	-	-	
	Total	45	100	2	100	
Attitude	Positive	45	100	2	100	Test not applicable
	Negative	-	-	-	-	
	Total	45	100	2	100	
Practice	Excellent	41	91.11	0	-	p = 0.006 (significant)
	Good/Average	1	2.22	2	100	
	Poor	3	6.67	0	-	
	Total	45	100	2	100	

Table 5: Comparison of KAP of UG and PG students who attended classes of BMW management

		UG students		PG students		
		N	%	N	%	
Knowledge	Excellent	22	88	45	100	p = 0.047 (significant)
	Good/average	3	2	0	-	
	Poor	0	-	0	-	
	Total	25	100	45	100	
Attitude	Positive	25	100	45	100	No difference
	Negative	-	-	-	-	
	Total	25	100	45	100	
Practice	Excellent	12	48	41	91.11	p = 1.5X10 ⁻⁵ (significant)
	Good/Average	13	52	1	2.22	
	Poor	-	-	3	6.67	
	Total	25	100	45	100	

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