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Comparison of knowledge, attitude and practices of health care personnel regarding biomedical waste management in selected hospital of Ambala, Haryana

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Abstract

The improper handling and mismanagement of biomedical waste is posing serious health problem. Health care personnel need to be well equipped with latest information, skill and practices in managing this biomedical waste. The study has been conducted with the aim to assess and compare the knowledge, attitude and practices of health care personnel regarding biomedical waste management. The study subjects (N=120) health care personnel (40 doctors, 40 staff nurses and 40 laboratory technicians) were selected by convenience sampling technique. The data was collected by structured knowledge questionnaire, likert scale and observational checklist. It was found that there was a significant gap in the knowledge and practices of health care personnel regarding biomedical waste management. Staff nurses were having significantly better knowledge as well as practices regarding biomedical waste management as compared to doctors and laboratory technician. It is recommended that all healthcare facilities to get their healthcare personnel trained.

Keywords: Biomedical waste, knowledge, attitude and practices, Health care personnel.

Introduction

Biomedical waste, also known as infectious waste or medical waste is defined as waste generated during the diagnosis, testing, treatment, research or production of biological products for humans or animals" [1]. As per the reports from developed countries approximately 1-5 kgs of waste is generated per bed per day, whereas 1-2 kgs / bed / day is the figure from developing countries. In India it is estimated to be 2.0 kgs /bed/day. The current status of employees' awareness about biomedical waste management will help the authorities to create strategy for improving the status in future. The presented study was conducted to study the awareness amongst the health care personnel, about biomedical waste management, so that policies for improved status be formulated in future [2].

The objectives of the study were:

1. To assess and compare the knowledge, attitude and practices of health care personnel (doctors, staff nurses, laboratory technicians) regarding biomedical waste management.
2. To assess the available resources for biomedical waste management.
3. To determine the relationship between knowledge, attitude and practices regarding Biomedical waste management among health care personnel (doctors, staff nurses, laboratory technicians) in terms of
 - Knowledge and attitude
 - knowledge and practice
 - Attitude and practice
 - To determine association of level of knowledge, attitude and practices regarding biomedical waste management among health care personnel (doctors, staff nurses, laboratory technicians) with their selected variables.

Method and Material

Non experimental approach and descriptive comparative research design was adopted for the study in M.M.IM.SR & Hospital Mullana, Ambala. This is 780 bedded hospital. The sample of the study were 120 health care personnel including 40 doctors, 40 staff nurses and 40 laboratory technician, by convenience sampling. The tools used in the study were a) selected

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personal variables b) Structured knowledge questionnaire comprised of 30 items c) five points likert scale for attitude d) observational checklist for practice comprised of 30 items. The reliability of the tool was 0.81 (Acceptability range is 0.6-1) [8]. Item analysis was done for each item and it is found that the items are under the 0.3 -0.7 discriminatory index. The reliability of the tool was 0.81 (Acceptability range is 0.6-0.9). Reliability of observational checklist was established through inter-observer reliability. Reliability of tool was found to be 88%.

Results

Selected Personal Variables: out of total health care personnel, majority (87%) were in the age group of 21-30years followed by 13% having age more than 30 years. Nearly two-third (61.6%) was diploma holders followed by

31.6% graduates and 6.6% postgraduate. Majority of the health care personnel (54.1%) were having 1-3 years of working experience followed by 25% were having more than 3 years of experience followed by 20.8% having 0-1 years of experience. Majority of health care personnel (35.8%) were working in laboratory followed by 18.3% in surgical ward, 17.5% in Gynae ward, 16.6% in ICU/CCU/causality ward and 11.6% working in medical ward.

Mean knowledge score of doctors, staff nurses and laboratory technician was 17.58±2.13 18.10±2.25and 16.38±1.83 and the mean attitude score of doctors was 68.50 ± 4.13.and the mean practice score of doctors was 57.86±16.16. Therefore, it can be concluded that mean knowledge score of staff nurses (18.10) was higher than doctors (17.58) and laboratory technician (16.38).

Frequency and percentage distribution of health care personnel according to the level of knowledge regarding Biomedical waste management.

Level of Knowledge	Doctors	Staff Nurses	Lab Technician	Chi Square Value	Health care personnel					
	n=40	n=40	n=40		N-140					
	f	%	f		%	f	%	x2	p Value	f
Good	0	0	33	82.5	0	0	96.32	0.001	33	27.5
Fair	28	70	6	15	20	50			54	45
Poor	12	30	1	2.5	20	50			33	27.5

Chi Square (4)=9.48* significant (p<0.05)

The findings of the study showed that there was a significant gap in the knowledge and practices of health care personnel regarding biomedical waste management. Staff nurses were having significantly better knowledge as well as practices regarding biomedical waste management as compared to doctors and laboratory technicians. All of the health care personnel were having moderately favourable attitude regarding biomedical waste management. The F-value is statistically significant at 0.05 level in terms of knowledge and practices. Therefore, it can be concluded that the mean knowledge and practice scores of staff nurses was

significantly higher (p=.0011) than doctors and laboratory technicians and there is no significant difference in mean attitude score of doctors, staff nurses and laboratory technicians at 0.05 level.

Majority (65%) of health care personnel were having moderately favourable attitude regarding biomedical waste management.

There is no significant relationship between the knowledge and attitude, attitude and practice and knowledge and practice of health care personnel regarding biomedical waste management.

Correlation between Knowledge and Practice of Health care personnel regarding biomedical waste management

Health Care Personnel	Knowledge		Practice		r
	Mean	S.D.	Mean	S.D.	
Doctor	17.35	2.135	57.86	1.941	-0.341
Staff Nurse	18.10	4.139	74.55	14.87	-0.186
Laboratory Technician	16.38	1.835	70.65	14.49	-0.001

Or

Correlation between Knowledge and Attitude, Attitude and practice, Knowledge and Practice of Health care personnel regarding biomedical waste management

	Mean	S.D	r
Knowledge	17.35	2.18	0.052 ^{NS}
Attitude	68.46	4.11	
Attitude	68.4	4.11	-0.125 ^{NS}
Practice	64.81	17.7	
Knowledge	17.35	2.18	-0.162 ^{NS}
Practice	64.81	17.7	

There is significant association of the levels of knowledge of health care personnel with working experience (X² = 7.808*, df -2, p value=0.020*) and area of work (X² =10.970*, df 2, p value=0.027*). Knowledge of health care personnel is

associated with experience and area of work. There is significant association of levels of attitude with health care personnel with age (X² = 11.096* df-2 p value=0.0035*) and working experience (X² = 6.678*df- 2 p value=0.004*).

There is significant association of levels of practice of health care personnel regarding biomedical waste management with qualification ($X^2=30.668$ *df-2p value=0.000*).

Discussion

In the present study, majority of the staff nurses (82.5%) were having good level of knowledge regarding biomedical waste management. These findings are similar with another study by Mohd Shafee (2010) *et al.* in which 85%, nurses were having good knowledge regarding medical waste management [3].

Gehen M Mustafa Md found that 27.4% of the nurses and 36.8% of the doctors had satisfactory knowledge. Concerning practice, 18.9% of the nurses, and none of the doctors had adequate practice. But in the present study, 82.5% nurse and none of the doctor had good knowledge. 35% nurses and only 10% doctors had good practice (>75% score) [4].

The present study revealed that 35% staff nurses had good practice as compared to another study conducted by N. Mathar Mohideen in which only 1.7% of the nurses had adequate practices [5].

N. Mathar Mohideen reported very negligible percentage of the nurses had high knowledge (1.17%) and more than three fourth of the nurses had low knowledge [4, 7]. But in the present study, 82.5% nurses had good knowledge and Only 2.5% had poor knowledge [5].

In the present study, there was no significant correlation between the knowledge and attitude scores of doctors ($r=0.097$), staff nurses ($r=0.208$) and laboratory technicians (-0.184), between the a attitude and practices scores of doctors $r = (-0.098)$, staff nurses ($r= -0.246$) and laboratory technicians ($r = -0.067$) and between the knowledge and practices scores of staff nurses ($r= -0.186$) and laboratory technicians (-0.001) regarding Biomedical waste management. The correlation of knowledge and practice scores of doctors (-0.341, $p<0.05$) was statistically significant at .05 level of significance.

Conclusion: On the basis of the result of above study it can be concluded that the knowledge must provide to the health care personnel regarding biomedical waste management. Education must emphasized widely on biomedical waste management to bring about more competence and in depth knowledge among the health care students regarding biomedical waste management and can utilize this knowledge into nursing practice in the clinical area. At community level, Implementation of the environment, law & safe practice is not only the responsibility of hospital alone, but also active participation of the people essential. There is a need to give emphasis on biomedical waste management in staff development programmes. Nurse administrator should ensure provision of equipment & facilities for effective management of Biomedical Waste.

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