

ASSESS KNOWLEDGE AND PRACTICE REGARDING BIOMEDICAL WASTE MANAGEMENT AMONG HEALTH PERSONNEL

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Abstract

Biomedical waste is defined as waste generated during the diagnosis, testing, treatment, research, or growth of biological products for humans. Syringes, live vaccines, lab samples, body parts, bodily fluids, sharp needles and cultures. In 2010, 33800 new HIV infections, 1.7 million hepatitis B infections, and 315000 hepatitis C infections were caused by wrong injections. Present study is conceptualized on the basis of Rosenstoch's (1974) and Backer and Maimam's Health Belief Model. The study's objectives were to assess knowledge and practice in biomedical waste management, determine the correlation between knowledge and practice in biomedical waste management among health professionals, determine the association between biomedical waste management of knowledge and selected demographical variables, and determine the association between biomedical waste management of practices and selected demographical variables. A quantitative research approach was adopted to conduct this study and the design used was Descriptive research, to assess the knowledge and practice regarding biomedical waste management among health personnel at selected primary health center at Waghodia taluka. The Non probability convenient sampling technique was used to select 100 health personnel. Health personnel who were available at the time of data collection and who were having experience less than one year were excluded from the study. Overall result shows that there is a positive relationship between knowledge and practice checked by Karl Pearson's correlation. The computed 'r' value is +0.241 shows the positive correlation between knowledge and practice. Hence it is proved that Health Personnel who had adequate knowledge follows the satisfied level of practice. Further Findings revealed that marital status is found associated with knowledge. Result shows that there is association between practice and selected demographic variables such as marital status and occupation. Conclusion: Majority of health personnel have average level of knowledge, but none of them having average level of practice.

Keywords: Knowledge, Practice, Health personnel, Primary health center.

1. INTRODUCTION

Biomedical waste is trash produced as a result of the diagnosis, testing, processing, research, or creation of organic products for humans or animals. (Singh, (2001) Syringes, live vaccines, laboratory samples, body parts, bodily fluids, sharp needles, cultures, and other objects are also included. Biomedical waste is classified into two types: non-hazardous and bio-hazardous. (Kamate, (2020) According to research, 75% of biomedical waste is non-hazardous and non-toxic, like any municipal garbage. The remaining 10% to 25% is hazardous to people, animals, or the environment. Injections using infected needles and syringes have decreased dramatically in low- and middle-income countries in recent years, thanks in part to initiatives to reduce injection device reuse. (Padmanabhan K. K, (2019) In 2010, inappropriate injections led to 33800 new HIV infections, 1.7 million hepatitis B infections, and 315,000 hepatitis C infections. Despite this success, however, these infections were still too common. (Akpan, (2020) The current study is conceptualized in accordance with Backer and Maimam's and Rosenstoch's (1974) Health Belief Model. One needle stick injury from a needle used on a patient with a contaminated source increases the risk of contracting HBV, HCV, and HIV by 30%, 1.8 percent, and 0.3 percent, respectively..5 (worldwide, 2022) 85% of hospital wastes are genuinely nonhazardous, 10% are infectious, and the remaining 5% are non-infectious but hazardous (chemical), pharmaceutical, and radioactive, according to a WHO report. (M, 2001).

As per this study, the researcher had found the findings as follows –

2. RESULTS

Section 1 – Demographic Findings

According to the age,

- 77(77%) samples were between 21- 30 years.
- 19(19%) samples were between the age group of 31-40 years.
- 4(4%) samples were between the age group of 41-50 years.

As per Gender,

- 21(21%) samples were males.
- 79(79%) samples were females.

As per Marital status

- 85(85%) samples were married.
- 15 (15%) samples were unmarried.

As per Religion

- 77 (77%) samples were Hindu's.
- 12(12%) samples were Christian's.
- 11(11%) samples were Muslim's.

As per experience

- 84 (84%) samples were 1-5 years.
- 12(12%) of samples were 6-10 years.
- 1 (1 %) of samples were 11-15 years.
- 3(3%) of samples were 16-20 years.

As per occupation

- 34(34%) samples were general nurse and midwives.
- 4(4%) samples were Lab technician.
- 34(34%) samples were Auxiliary nurse midwives.
- 4(4%) samples were Pharmacist.
- 6 (6%) sample were doctor.
- 18(18%) samples were Housekeeping staff.

As per experience

- 84(84%) of samples were 1-5 years experience.
- 12(12%) of samples were 6-10 years experience.
- 1(1%) of samples were 11-15 years experience.
- 3(3%) of samples were 16-20 years experience.

As per Income

- 24 (24%) samples were below - Rs 10,000.
- 32(32%) samples were Rs 10, 001 - Rs 20,000.
- 11(11%) samples was Rs 20,001to Rs 30,000.
- 33(33%) samples were Rs 30,001.

Section 2– The level of knowledge

- 13% of health personnel were Poor knowledge.

- 46% of health personnel were Average level of knowledge.
- 41% of health personnel were Good knowledge.

Section 3–The level of Practice

- 12% of health personnel were poor level of practice.
- 81% of health personnel were Average level of practice.
- 7 % health personnel were good level of practice.

Section 4 – Correlation co-efficient of Knowledge and practice

- A co-relational statistics ($r= 0.241$) which was Significant (i.e. $p<0.05$).

Section 5 – Association between Knowledge and Demographic variables

- The chi-square at the amount of $p<0.05$.
- Marital status ($X^2=22.828$), $p (0.000)$.

Section 6 – Association between Practice and Demographic variables

- The chi-square at the amount of $p<0.05$
- Marital status ($X^2=8.376$), $p (0.015)$
- Occupation ($X^2=24.463$), $p(0.006)$

3. TABLES

Table 1: Distribution of samples based on level of knowledge regarding biomedical waste management.

n=100

Sr. No	Level of knowledge	Frequency (n)	Percentage (%)
1.	Poor Knowledge	13	13%
2.	Average Knowledge	46	46%
3.	Good Knowledge	41	41%

Table 2: Distribution of samples based on level of Practice regarding biomedical waste management.

n=100

Sr. No	Level of Practice	Frequency (n)	Percentage (%)
1.	Poor Practice	12	12%
2.	Average Practice	81	81%
3.	Good Practice	7	7%

Table 3: Correlation co-efficient of Knowledge and practice regarding biomedical waste management among health personnel.

n=100

Sr. No	Category	Correlation co-efficient 'r'
1.	Knowledge	0.241*
2.	Practice	

Table 4: Association between Knowledge and Demographic variables of Health personnel n=100

Sr. No	Demographic variables	Poor Knowledge	Average Knowledge	Good Knowledge	Chi square X^2	P –Value
1.	Marital status					
	Married	6	38	41	22.828*	0.000
	Unmarried	7	8	0		

Table 5: Association between Practice and Demographic variables of Health personnel

n=100

Sr. No	Demographic variables	Poor Practice	Good Practice	Average Practice	Chi square X ²	P – Value
1.	Marital status					
	Married	7	71	7	8.376*	0.015
	Unmarried	5	10	0		
2.	Occupation					
	Auxiliary nurse midwife	6	28	0	24.463*	0.006
	Lab technician	0	4	0		
	General nurse and midwife	4	29	1		
	Pharmacist	0	2	2		
	Doctor	1	3	2		
	Housekeeping Staff	1	15	2		

4. MATERIALS AND METHODS

The research was done at Primary Health Center at Waghodia taluka, Vadodara. It was a descriptive observational based descriptive survey study and Quantitative research approach was used in this study. The study subjects included health personnel i.e., Doctor, Nurse, Pharmacist, lab technician, doctor, housekeeping staff. The data was collected by using demographic tool including age, gender, education, income, religion, marital status, occupation. Knowledge Questionnaire about Biomedical waste management and Practices check list used to assess the practices of subjects about biomedical waste management. Data were collected by Non probability; convenience sampling technique. Health personnel who were available at the time of data collection and willing to participate were included in the study and those who were having experience less than one year were excluded from the study. A total of 100 subjects were include criteria were technique in the study who satisfied the inclusion were present during the study. Collected data was analyzed using descriptive statistics inducing frequency, percentage, Mean and standard deviation.

5. DISCUSSION

The First objective was Assess the Knowledge regarding biomedical waste management. Result shows that the majority of subjects 46(46%) samples had Average level of knowledge 13(13%) had poor level of knowledge, 41(41%) of subjects had Good level of knowledge about Bio-medical waste management. The study result is supported by other study conducted by Singh et al. 2014 that about 63.7% of the dentists were not aware of biomedical waste management. Almost 78 percent of participants in a 2014 survey by Ranjini who did it had extremely strong knowledge of biomedical waste management. In a study conducted by Mathur, Dwivedi, Hassan, and Mishra in 2011, it was discovered that nurses and laboratory workers had a better understanding of colour coding and waste segregation at the source than doctors. (Mathur, 2011)

The second objective was Assess the Practice regarding biomedical waste management. Study result revealed that majority of the subjects have Average level of practice 81%, 12% have poor level of Practice and 7% have good level of practices. Which is supported by Nagraj et al2013 study, which discovered that the majority of participants (53%) had average practice and (35%) had good practice. Participants' practices for acceptable waste disposal are influenced by their lack of correct and comprehensive understanding of biomedical waste management, according to Mathur, Dwivedi, Hassan, and Mishra's 2011 research. (Nagaraju, 2013)

The third objective was Find out the Correlation of Knowledge and practice regarding biomedical waste management among health personnel. Further result revealed that relationship between knowledge and practice indicates that there is a positive correlation between knowledge and practice. The computed 'r' value is + 0.241. The study by Wai et al., which demonstrated a substantial correlation between knowledge and practice with a correlation coefficient of 0.390 and knowledge and attitude with a correlation coefficient of 0.289, supports the positive correlation between knowledge and practice that was discovered. (Wai S, 2005)

The fourth objective was Find out the association between knowledge of biomedical waste management with demographical variable. Result suggested the association between knowledge and demographic variables of health personnel regarding biomedical waste management. Among all the selected socio demographic variables of health personnel regarding biomedical waste management concluded that there is a significant association between knowledge and demographic variables such as

marital status ($X^2=22.8$), $p(0.000)$ The calculated $p(0.05)$ lower value that is significant. age, gender, religion, Occupation of workers, income, experience are non-significant.

The Fifth objective was Find out the association between practices of biomedical waste management with selected demographical. Further result indicated association between Practice and demographic variables of health personnel regarding biomedical waste management. Among all the selected socio demographic variables of health personnel regarding biomedical waste management concluded that there is a significant association between knowledge and demographic variables such as marital status ($X^2=8.376$) $p(0.015)$ and occupation ($X^2=24.463$) $p(0.006)$ The calculated $p(0.05)$ lower value that is significant. Age, gender, experience, income and religion are non-significant.

6. CONCLUSION

From the above finding the investigator would like to conclude that majority of health have average level of knowledge, but none of them having average level of practice. It was notified that Health personnel having enough knowledge still it requires to be implemented through practice in any Health care setting. The concerned authorities should also be vigilant and providing the proper facilities such as dustbin in different colors for the hospital waste material. Still there is a need to create awareness among health personnel regarding bio medical waste.

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Declarations

- Expenditure statement: Self-funded
- Conflict of Interest/Competing Interests: Authors have declared that no competing interests exist during this study.
- Consent and ethical approval: Formal ethical approval received from institutional ethical committee, consent was obtained from participants and warranted of anonymity.

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