

A Study on Public Awareness about Medical Waste Management with special reference to Kottayam district.

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Abstracts:

Medical care is supreme factor for our health and life expectancy. But the waste generated from health care institutions can be dangerous, poisonous and even fatal because of their high potential for infections transmission. The effective medical waste management has become a universal philanthropic subject now due to its communicable and risky nature that can cause objectionable impact on public health and the natural resources. This study aims to examine the awareness of public towards medical waste management practices. The data for the study will be collected from both primary and secondary sources. The study will be a descriptive and analytical one. Statistical Random Sampling will be applied for the selection of sample respondents located in Kottayam will be identified. The primary data will be collected by using a well-structured interview schedule. For analyzing the primary data, statistical tools like ANOVA, Friedman Test and Mean comparison test are used.

Introduction

Medical care facilities should aims to reduce health issues and providing treatment of diseases which generate medical waste. In other words, medical waste is considered as the by-product of health care services. Unsystematic and inefficient treatment and clearance of medical waste, could have severe community fitness issues and an essential influence on the atmosphere. Activities involved in applying efficient management of medical waste need, a methodical approach, orderly framework, multi-level teamwork, and should be a fundamental element of medical care facilities. Public involvement is also a dynamic and pivotal in the executing strategies and procedures for medical waste administration process. Public participation in employing procedures and programmes can be enhanced by improving the awareness of the civic towards harmless organization of medical waste. An activity involved in

implementing systematic and efficient management of hospital waste necessitates multi-dimensional approach and cooperation from all levels. Understanding about probable destruction from medical waste is evident to governments, public and medical personnel. In the current eras it is supposed that inappropriate and disorganized medical waste management inside the medical institution is agreeing to pathetic values of patient care and an unnecessary cause of pollutions and damages to public health and environment. Public awareness about management of medical waste is considered as vital element for effective implementation of proper medical waste management practices.

Scope & Significance of the Study

The management of hospital waste is of extreme significance due to its probable ecological threats and community welfare perils. The safe management of healthcare waste can be achieved through proper care in dealing with the healthcare waste. It is the ethical responsibility of hospital management because healthcare establishments (HCE) to have concern for public health and also ensure well-being of community. The management of medical waste is still in its beginning stage all over the world. There is a lot of misperception among the producers, workers, policy makers and the general public about the harmless managing of medical waste. Medical waste management is an unusual case wherein the threats and dangers occur not just for the producers and workers but also for the general public. Medical waste management is a multifaceted issue with harmful effect and one has to appeal the complexities of management and practices of MW faces lot of problems. Therefore, public awareness and public involvement is very essential for the proper management of MW. So these study attempts understand level of awareness of public towards MWMP.

OBJECTIVES

The objective of the study will be:

1. To understand the awareness of public towards medical waste management practices.
2. To know the source of awareness of BMW Rule 2016.
3. To evaluate relation between public awareness and education and also between occupation.

HYPOTHESIS OF THE STUDY

- Ho1: There is no relation between public awareness about MWMP and education of respondents.
- Ho2: There is no relation between public awareness about MWMP and gender of respondents.

METHODOLOGY AND COLLECTING DATA

The data for the study should be collected from both primary and secondary sources. The study should be a descriptive and analytical one. Statistical Random Sampling should be applied for the selection of sample respondents who live near to health institutions located in Kottayam. The primary data will be collected by using a well-structured interview schedule. The secondary data will be collected from various government publications, bulletins, magazines, journals etc.

ANALYSIS OF DATA: For analyzing the primary data, statistical tools like ANOVA, Friedman Test and Mean comparison test are used.

LIMITATION OF THE STUDY.

- 1) The respondents may not be available in all time to conduct the interview.
- 2) The problem studied is of a qualitative nature and there were problems in quantifying the same.
- 3) Since it is a sample study it possesses all the limitations of sampling study.

Introduction

The medical waste disposal issues in the hospitals and other medical care institutions has become an issue of increasing apprehension thereby, an efficient management of medical institution to identify and implement innovative techniques for systematic, technical, safe and cost effective disposal of medical waste. They try to updating knowledge about changes in MWMP of their staffs and also give priority to public awareness. An essential element of quality assurance in the hospital must be considered as functioning of well-structured hospital waste management system. This issue has expected great significance in our country, exclusively in the light of Honourable Supreme Court Judgement and the notification of the Bio-medical waste management Rules, 2016.

Medical Waste: Medical waste is defined as “the any waste which is generated during the services provided to patients in the hospital or any other convenient palace”.

Medical Waste Management: Medical Waste Management means management of different activities involved in medical waste management practices from the segregation of medical at source to safe treatment and final disposal of medical waste in order to attain sustainable development of the nation. Medical waste management is the ethical responsibility of every occupier of medical institution so as to provide medical care with adequate safe environment. The occupier of hospital should ensure that medical waste management activities are performs in accordance with BMW Rules 2016 and if, they make any default in the procedure, he must pay penalty as per rules. Hospital Waste Management helps medical care institutions to implement justifiable approaches that optimize cost-effectiveness without compromising value of care. The blameless medical waste management depends on noble body, adequate finance and lively involvement of knowledgeable and qualified staffs.

REVIEW OF LITERATURE

The medical care system is faces difficulty to dispose medical waste in such a way as to avoid unusual altitudes of ecological destruction. Here an effort has been ready to scrutinize the studies accessible to address the medical waste management concerns.

S.Chandralekha (2004): Studies have described that medical waste does not have an isolated line of clearance in majority of the places. This study reveals that medical waste is thrown outside the HCI and lastly this medical waste discovers its way into municipal waste and gets disposed along with other municipal waste.

Mishra, Sharma, & Ayub (2016), found out that volume of hospital waste generated per day is grow due to growth in health care services. This study defines numerous methods used for disposal of medical

waste management and also studies the knowledge and attitude of public and medical staffs towards practices of health care waste management.

Anozie Et Al., (2017), study the awareness of proper procedures for handling medical waste is essential for safe work environment to the health care workers and patients. The study evaluates approaches of hospital managers towards medical waste management and also measure effectiveness of medical management practices to ensure occupational safety practices.

Analysis of Data

Table 1
Gender wise classification

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	27	52.9	54.0	54.0
Female	23	45.1	46.0	100.0
Total	50	98.0	100.0	

Source: Primary data

Table 1 shows the gender wise classification of respondents selected for the study. Out of the total respondents, 54 per cent are male and 46 per cent are female.

Table 2
Educational Qualification

Educational Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
Matriculation	10	19.6	20.0	20.0
+2	6	11.8	12.0	32.0
Diploma	3	5.9	6.0	38.0
Degree	11	21.6	22.0	60.0
Professional Degree	13	25.5	26.0	86.0
PG	7	13.7	14.0	100.0
Total	50	98.0	100.0	

Source: Primary data

Table 2 shows the educational qualification of respondents selected for the study. A close observation of the table shows that 39.2 per cent of the public are professionally qualified and have master degrees. 21.6 per cent of them have degree qualification but only 5.9 per cent of the respondents have Diploma qualification. 31.4 per cent of selected civic have SSLC and plus two qualification.

Table 3
Locality and Awareness about MWM Rules and health issues because of improper MWM

Locality		Awareness about MWM					Total
		Strongly Aware	Aware	Neither aware Nor unaware	Unaware	Strongly Unaware	
Urban	Count	7	0	5	6	4	22
	% of Total	14.0%	0.0%	10.0%	12.0%	8.0%	44.0%
Semi-Urban	Count	4	1	2	4	2	13
	% of Total	8.0%	2.0%	4.0%	8.0%	4.0%	26.0%
Rural	Count	3	1	4	5	2	15
	% of Total	6.0%	2.0%	8.0%	10.0%	4.0%	30.0%
Total	Count	14	2	11	15	8	50
	% of Total	28.0%	4.0%	22.0%	30.0%	16.0%	100.0%

Source: Primary data

The above Table 3, reveals that locality and awareness about MWM Rules and health issues because of improper MWM. Out of 50 respondents 14 are strongly aware about MWM of which 7 respondents are from Urban area 4 from Semi-urban and 3 from Rural area. But only 2 respondents have aware about MWM rules and health issues because of improper MWM. Rest of 34 (11+15+8) respondents are not aware about MWM Rules. That means majority of the respondents are unaware about MWM rules and its impact on health and environment. So we concluded that, most of the public irrespective of area of living are unaware about MWM practices and its adverse effect on public well-being and natural resources. It is a very critical issue faced by hospital and authority, because of difficulty to implement and follow proper MWM practices.

Table 4**Type of Residence and Awareness about MWM Rules**

Type of Residence	Strongly Aware	Aware	Neither aware Nor unaware	Unaware	Strongly Unaware	Total
Owned	Count	10	1	8	5	29
	% of Total	20.0%	2.0%	16.0%	10.0%	58.0%
Rental	Count	4	1	3	10	21
	% of Total	8.0%	2.0%	6.0%	20.0%	42.0%
Total	Count	14	2	11	15	50
	% of Total	28.0%	4.0%	22.0%	30.0%	100.0%

Source: Primary data

From the Table 4 observed that type of Residence and Awareness about MWM Rules. It is clear that, 28 per cent of public are strongly aware about MWM out of these 20 per cent of them have owned house and 8 per cent of them have a rental house. Only 4 per cent of them are aware about MWM rules and its impact. Remaining 68 per cent (22% + 30%+16%) of respondents are unaware about MWM practices and its adverse influence on community and ecosystem. We found that, 29 respondents have owned house of which only 11 of the have strongly aware about MWM, rest of 18 are unaware about MWM whereas, 21 respondents who have rental house of which only 5 of them are strongly aware about MWM practices followed by nearby hospitals, remaining of 16 are unaware about it. So we summarized that respondents who have owned house nearby hospital are more aware and bothered about medical waste management practices of hospital than that of selected persons who have rental house.

Table 4 Source of Awareness

Source of awareness	Mean Rank
News paper	2.38
Television	1.84
Internet	1.94
Books and Magazine	3.94
Hoardings	6.28
Posters in the Hospital	6.24
Awareness programmes by different Agency	5.68
Practical knowledge	8.32
Knowledge Sharing	9.00
Sufferings of self or others	9.38

Source: Primary data

Table 5
Friedman Test
Test Statistics

N	50
Chi-Square	407.359
df	9
Asymp. Sig.	.000

Source: Primary data

*Significance at 5% level of significant

Tables 4 and 5 observed the rank of preference of selected public about the sources of awareness. Here, the best operational preference is the component having the lowermost mean, rank 1 should give in the rank order preferences. Therefore, as per the mean rank preferences, Television is considered as utmost used source of awareness to the public with mean rank of 1.84 followed by Newspaper and Internet, mean rank are 1.94 and 2.38 respectively. Subsequent commonly used source of information may Books and Magazine with mean rank of 3.94. Mean value of Awareness programmes by different Agency is 5.68 which indicate that, it is fifthly preferred source of awareness. Posters in hospital have a mean value of 6.24, which means Posters in hospital is preferred as the next source of awareness followed by Hoardings (6.28), Practical knowledge gained through the activities carried on by the hospitals (8.32) and Knowledge sharing (9), Sufferings of self or others (9.38) is the top mean value in the rank order preferences which means it is the least preferred source of MWM awareness to the selected public. The deviation in the mean rank preference of selected public is tested by using Friedman Test and its results were statistically verified that the value of Chi-square is significant at 5 per cent level of significance. ($p=.000 < 0.05$). So it may concluded that the media of awareness of MWM is dissimilar among the public.

Table: 6 Locality -wise mean comparison of Awareness about health issues with respect to improper MWM

Locality	Mean	N	Std. Deviation
Urban	3.000	22	1.5430
Semi-Urban	2.923	13	1.5525
Rural	3.133	15	1.3558
Total	3.020	50	1.4637

Source: Primary data

From the table, it is seen that, with respect to respondents from Rural area have the highest Mean scores (**3.133**) related to Awareness regarding health issues with respect to improper MWM. The mean score of urban area is 3.000 and Semi-urban area is 2.923. So we concluded that, rural people have more concern about health issues with respect to improper MWM.

Hypothesis I

Ho 1: There is relation between public awareness about MWMP and the educational level of respondents.

Table: 7 ANOVA table showing Results for the variable Education and Awareness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.429	5	4.086	.021	.000
Within Groups	84.551	44	1.922		
Total	104.980	49			

Source: Primary data

Significant at 5% level of significance

From the table it is evident that the F value derived is significant at 5 per cent level ($p > 0.05$). Hence the null hypothesis is rejected. Therefore, there is difference in the public awareness about MWMP and the education of respondents. It implies that the level of education of respondents have greater influence on the public awareness about MWMP.

Hypothesis II

Ho2: There is no difference in the public awareness about MWMP and gender of respondents.

Table: 8 ANOVA table showing Results for the variable Awareness and gender of respondents

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.172	1	.172	.079	.780
Within Groups	104.808	48	2.184		
Total	104.980	49			

Source: Primary data

Significant at 5% level of significance

From the above table it is evident that the F value derived is not significant at 5 per cent level ($p < 0.05$). Hence the null hypothesis is accepted. Therefore, there is no difference in the public awareness about MWMP and gender of respondents. It infers that gender of respondents have no effect on the public awareness about MWMP.

Findings of the study.

Important findings of the study are discussed as follows.

1. The majority of the respondents are unaware about MWM rules and its impact on health and environment. So we concluded that, most of the public, irrespective of area of living are unaware about MWM practices and its adverse effect on public well-being and natural resources. It is a very critical issue faced by hospital and authority, because of difficulty to implement and follow proper MWM practices.
2. We found that, 29 respondents have owned house of which only 11 of them have strongly aware about MWM, rest of 18 are unaware about MWM whereas, 21 respondents who have rental house of which only 5 of them are strongly aware about MWM practices followed by nearby hospitals, remaining of 16 are unaware about it. So we summarized that respondents who have owned house nearby hospital are more aware and bothered about medical waste management practices of hospital than that of selected persons who have rental house.
3. The deviation in the mean rank preference of selected public is tested by using Freidman Test and its results were statistically verified that the value of Chi-square is significant at 5 per cent level of significance ($p = .000 < 0.05$). So it may concluded that the media of awareness of MWM is dissimilar among the public.

4. The study reveals that, with respect to respondents from Rural area have the highest Mean scores (3.133) related to Awareness regarding health issues with respect to improper MWM. The mean score of Urban area is 3.000 and Semi-urban area is 2.923. So we concluded that, Rural people have more concern about health issues with respect to improper MWM.
5. The F value derived is significant at 5 per cent level ($p>0.05$). Hence the null hypothesis is rejected. Therefore, there is difference in the public awareness about MWMP and education of respondents. It implies that the level of education of respondents have greater influence on the public awareness about MWMP.
6. The F value derived is not significant at 5 per cent level ($p<0.05$). Hence the null hypothesis is accepted. Therefore, there is no difference in the awareness about MWMP and gender of respondents. It infers that gender of respondents have no effect on the public awareness about MWMP.

Suggestions

All the public who live near to hospital premises must be acquire knowledge and information about medical waste including health issues and environment issues and also take adequate protective measures for preventing communicable diseases. Continuous monitoring on the part of government agencies along with public will go a long way in seeing that the waste generated in the hospital premises is treated and disposed off regularly. The authorities must take all necessary steps to ensure proper involment and support of public for disposal of medical waste without any adverse effect on human health and environment.

Conclusion

To ensure the participation of public for the reduction, reuse and recycling should be considered in proper perspectives. The challenge before us, is to scientifically manage growing quantities of biomedical waste that go beyond past practices, so the public must be aware about MWM practices of hospitals, in order to avoid severe health issues and ecological issues. By the use of better waste management practices hospital attain hygiene with in the hospital as well as environment and also win the mind of the public. Provide quality service along with quality environment is the responsibility of every hospital administrators, it should be attained with the support of public because the hospital uses the resources of the society.

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