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THEMATIC CONTENT ANALYSIS OF OPEN ENDED QUESTION IN A STUDY TO EVALUATE EFFICACY OF EDUCATIONAL PROGRAM ON KNOWLEDGE AND PRACTICES OF BIOMEDICAL WASTE HANDLERS IN A MEDICAL COLLEGE

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ABSTRACT

AIMS: To carry out Thematic Content Analysis of open ended question in a study to evaluate efficacy of educational program on knowledge and practices of Biomedical Waste Handlers in a medical college

Study design: Exploratory study

Place and Duration of Study: Armed Forces Medical College Pune from June 2019 to December 2020

METHODOLOGY: A total of 37 reviews were received. Many answers were in Hindi, Marathi, English and Roman Hindi (Transliteration of Hindi in Roman Script) and thus were transcribed to English. Useless data was excluded and codification of data was carried out. Themes were generated from these data and Thematic Content Analysis was carried out.

RESULTS: The themes prominently noticed were "positive feedback of the training program", "suggestions for better training", and "suggestions for better outcomes". 10% of the feedbacks were appreciative of the Instructor, 10% of the feedbacks were appreciative of the conduct of class, and 17% of the suggestions revealed that these programs are indeed helpful and created awareness. 24% of the feedback received revealed that the gain of knowledge from such program is directly associated with performance. 14% of the feedbacks laid emphasis on Hands on Training, 17% feedback reflected that the timing, duration and initiation of the program should be suited to the participants, and 7% of the suggestions demanded a need for certification of such a program.

CONCLUSION: Causes for poor participation to offer suggestion should be evaluated to ensure better feedback and also to know the exact cause of lassitude – whether organic or systematic. Despite a few inadequacies, the program was much appreciated with a positive peer to peer feedback.

KEYWORDS : Thematic Content Analysis, Educational Programs, Biomedical Waste Handlers

INTRODUCTION

Bio - Medical Waste (BMW) comprises of human and animal anatomical waste, treatment apparatus like needles, syringes and other materials used in health care facilities in the process of treatment and research. This waste is generated during diagnosis, treatment or immunization in hospitals, nursing homes, pathological laboratories, blood bank, etc. BMW is not handled like general waste. The Central Pollution Control Board (CPCB) is the apex body to monitor India's BMW management activities under the Ministry of Environment, Forest, and Climate Change (MoEF & CC). According to the data published by the Central Pollution Control Board (CPCB) in Annual Report 2018-19, the country has a total of 2,38,170 healthcare facilities (HCF), out of which 87,269 are bedded while the remaining 1,51,901 are non-bedded healthcare facilities (HCFs) generating BMW. Total amount of BMW generated in India is 557 tons per day (TPD) in the year 2018 – 19 out of which 518 TPD was treated. There are 198 Common Bio – Medical Waste Treatment Facility (CBWTF) in operation (24 under construction) and 9,830 HCFs are having captive BMW treatment and disposal facilities. (K Choudhury et al., 2018)

India has a stringent policy of onsite segregation of the generated BMW and storing, transporting, and disposing of them in adherence to the Biomedical Waste Management Rules, 2016 (BMWM Rules, 2016). BMWM Rules, 2016 stipulates that every HCF shall take all necessary steps to ensure that biomedical waste is handled without any adverse effect to human health and the environment. (*Bio Medical Waste Management Rules - 2016 | Department of Health Research | MoHFW | Government of India*, n.d.) Alarmingly, 23,942 HCFs / CBWTFs were observed to be violating the provisions of the BMW Rules, 2016 and CPCB report shows the massive amount of BMW generation per day and around 13% of HCFs have violated BMW rules, (K Choudhury et al., 2018) which show the poor biomedical handling and management in India.

BMW Rules, 2016 mandates that all the persons involved in the handling of BMW should be given the required training. These individuals should adhere to the standard operating procedures, follow basic hygiene and infection control measures, and undergo regular health screening. This should be accompanied by education, training and awareness is given at regular intervals. The prescribed authority for enforcement of the provisions of these rules in respect of all the HCFs located in any State / Union Territory is the respective State Pollution Control Board (SPCB) / Pollution Control Committee (PCC) and in case of health care establishments of the Armed Forces under the Ministry of Defence shall be the Director General, Armed Forces Medical Services (DGAFMS).

It was observed that most of the BMW Handlers in our medical college were ignorant of the four categories of biomedical waste, important colour coding of the containers / bins, and ways of separation, transportation, treatment and disposal of BMW. Considering these things, an educational and informational capsule was conducted for all BMW handlers with an aim of teaching them about latest hospital waste management and knowledge about newer guidelines, improving their work efficiency and enabling them to adopt safe practices. Subsequently, a study was undertaken with an aim to study the efficacy of educational program on knowledge and practices of biomedical waste handlers in a medical college.

While studying various responses, researchers find it easy to work with Likert scale based tools as they can be evaluated quantitatively. However, when faced with an open ended question, evaluating it qualitatively poses a challenge. With the advent of text mining tools and age of feedbacks, it becomes important to know how to make sense out of such unstructured data as it carries immense amount of information. Thematic Content Analysis is one such approach.

METHODOLOGY

An educational and informational capsule was conducted for all BMW handler in our medical college and various areas

covered included familiarization with BMWM Rules, 2016 and amendments thereof, duties and responsibilities of BMW Handlers, safety and precautionary procedures, methods of segregation, storage, transport and handling of BMW. The program was an interactive lecture series which also included audio – visual demonstrations. Subsequently, at the end of the training session, a study was undertaken by with an aim to study the efficacy of educational program on knowledge and practices of biomedical waste handlers in a medical college. The study tool administered was a self-administered mixed questionnaire with 06 x multi - item scale questions on perceptions of program (based on 3 point Likert Scale with Agree / Disagree / Can't Comment option), 01 x question (Based on 5 point Likert Scale with 5 quality indicators of program), and 01 x open ended question seeking suggestion for improvement of program.

Qualitative analysis was carried out on single open ended question. Many answers were in Hindi, Marathi, English and Roman Hindi (transliteration of Hindi in Roman Script) and thus were transcribed to English. Useless data was excluded and codification of data was carried out. Themes were generated from these data and Thematic Content Analysis was carried out.

RESULTS AND DISCUSSION

128 BMW Handlers (universal set) participated in the training program. Subsequent to the study, a total of 128 feedbacks (100% participants) were obtained out of which only 37 (28.9%) suggestions were received in the open ended question. Out of the 37 suggestions, 03 were disallowed as they explicitly mentioned non offering of suggestions by citing universally accepted terms like "No, Nothing and Nil".

It was noticed that some suggestions were implicit in nature while many were recurring. 22 codes were generated based on the remarks by the participants. These codes were than grouped into 07 categories. These 07 categories were than assigned to 03 themes. The generation of theme is depicted in Table 1.

Table 1. Generation of Codes, Categories and Themes

Code Number	Code	Category Number	Category	Theme Number	Theme
(a)	Appreciation for Instructor	A	Appreciation	1	**POSITIVE FEEDBACK**
(b)	Appreciation for Class				
(c)	Appreciation for Program				
(d)	Need for Participation of New Housekeepers	B	Other persons requirin training	3	**SUGGESTIONS FOR BETTE OUTCOME**
(e)	Need for Participation of Doctors				
(f)	Need for Participation of Nurses				
(g)	Need for Participation of Patients				
(h)	Need for Participation of Healthcare Workers				
(i)	Need for Participation of Other Stakeholders				
(j)	Blame Perception				
(k)	Linkage of Knowledge to Performance	C	Importance of structured training	2	**SUGGESTIONS FOR BETTE TRAINING**
(l)	Linkage of Knowledge to Responsibility				
(m)	Importance of Hands on Training				
(n)	Importance of Training				
(o)	Need for Certification	D	Certification of Program	3	**SUGGESTIONS FOR BETTE OUTCOME**
(p)	Feeling of Empowerment				
(q)	Need for Affiliate Program on General Waste	E	Need for targete Program	2	**SUGGESTIONS FOR BETTE TRAINING**
(r)	Need for Program in other Language				
(s)	Suggestions for Frequency of Program	F	Suggestions for Program	2	**SUGGESTIONS FOR BETTER TRAINING**
(t)	Suggestions for Duration of Class				
(u)	Suggestions for Timing of Class				
(v)	Need for Personal Protective Equipment	G	Need for PPE	3	**SUGGESTIONS FOR BETTER OUTCOME**

A total of 128 participants took the feedback for the program. These participants were present in all the phases of the program. However in the post training feedback, only 37 participants actually responded to the open ended question. The reasons could not be sought for 71% participants not offering any suggestion. However it is speculated that the reasons are language barrier, shyness or intimidation with the system, scared of offending the instructor, finding no value in offering suggestions, lack of vocabulary, inappropriate time and place of taking the survey, simply not in the mood to take survey or are actually satisfied with all facets of the training and had no suggestions to offer.

Nonetheless, the rest of the 29% responses were analyzed and interesting and varying results were obtained. Some of them were in line with the Review of Literature while the rest were surprising.

In stricter sense, the positive feedbacks were noticed for Instructor, Conduct of class including its content and appreciation for the conduct on such a topic. 10% of the feedbacks were appreciative of the Instructor. They felt that the speaker was very good in imparting knowledge which had a potential to save them from injuries in future. One of the exact translated feedbacks was,

"Presentation and speaker is very good, thank you in advance to save us from injuries"

10% of the feedbacks were appreciative of the conduct of class and it was pointed out that the class was enjoyable and the class was well planned. 17% of the suggestions revealed that

these programs are indeed helpful and created awareness. Many participants felt enlightened and appreciated that such a program was initiated. A few translated feedbacks are,

"Time and arrangement is good."

".....it was an excellent awareness program."

24% of the feedback received revealed that the gain of knowledge from such program is directly associated with performance. Such programs enhanced their performance and made them empowered and responsible. A few quoted (translated),

"The program enhanced my knowledge, now I will try to do my work in a better way."

14% of the feedbacks laid emphasis on Hands on Training and suggested an increase in allotment of time for it. A single feedback gave a feedback to conduct such class in vernacular language. The quoted translate is

"Similar class in Marathi language."

A surprising, although a single suggestion, was a need for other affiliate program of such similar nature. It suggested

"Similar class can be taken on general waste but this class is good."

17% feedback reflected that the timing, duration and initiation of the program should be suited to the participants.

"Class should be conducted in the afternoon; I am free in the afternoon."

7% of the suggestions demanded a need for certification of such a program.

21% suggestions were coherent with the perceived needs of the researcher in involving other healthcare workers which included Doctors, Nurses, New Inducted Housekeepers and even Patients. The translated comments read,

"There should be involvement of the other healthcare workers, especially doctors and nursing staff."

However, such programs should be undertaken with caution. 7% of the suggestion giving participants felt that they were being blamed.

"We are not responsible for mixing of general waste with biomedical waste."

"Come in the ward to see what others are doing."

A single suggestion reflected the scarcity of personal protective equipment.

Recommendations

Causes for poor participation to offer suggestion should be evaluated to ensure better feedback and also to know the exact cause of lassitude – whether organic or systematic. Ignoring the two suggestions which reflect a perception that the training was undertaken as they were perpetuators, it can be deduced that such training program is indeed needed as there exists a knowledge gap. Despite a few inadequacies, the program was much appreciated with a positive peer to peer feedback.

"Classes and hands on training should be conducted frequently.....
I can teach others also which I have learnt in this class."

CONCLUSION

Most of the BMW Handlers in our medical college were ignorant of the four categories of biomedical waste, important colour coding of the containers / bins, and ways of separation, transportation, treatment and disposal of BMW. However, they were eager to receive training, although with a few modifications like inculcated training with other healthcare workers like doctors and nurses, certification and vernacular contents. There was a definite perceived increase in knowledge and attitude. Such Programs help healthcare workers to adhere to the standard operating procedures, follow basic hygiene and infection control measures.

Acknowledgements

None.

Competing Interests

Authors have no competing interests to declare.

Consent

Informed consent was taken from all participants of the Program. All patient data were anonymized before analysis by the reviewer.

Ethical Approval

Ethical approval received from Ethical Review Committee of Armed Forces Medical College Pune.

REFERENCES

1. *Bio Medical Waste Management Rules - 2016 | Department of Health Research | MoHFW | Government of India*. (n.d.). Retrieved November 1, 2021, from https://dhr.gov.in/document/guidelines/bio-medical-waste-management-rules-2016
2. K Choudhury, S. M., Sagar, A., & Satish Kumar, S. (2018). *Central Pollution Control Board Ministry of Environment, Forest & Climate Change Website: www.cpcb.nic.in*. www.cpcb.nic.in