



Awareness About Disposal of Dental Biomedical Waste Among Dentists

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Abstract

Introduction

Proper disposal of hazardous waste is an important part of maintaining a clean personal work environment and also helps in providing a hygienic and better quality of treatment to the patient. It is also essential to keep our surroundings free from biomedical waste so as to reduce infection in the community. Hence the main aim of the study is to assess the knowledge about dental waste disposal among dental practitioners.

Materials and Methods

A cross-sectional study was conducted in 100 private dental practitioners selected by simple random sampling using a close-ended questionnaire.

Results:

Out of the 105 dental practitioners that took part in this survey 46.4% belonged to those with less than 5 years of experience, 18.8% belong to 5-10 years of experience, 34.8% belonged to those with greater than 10 years of experience. 44.9% are aware of the right disposal of anatomical waste. 46.4% are aware of how to dispose sharps and glass. 75.4% of the participants know how to segregate biomedical waste.

Conclusion: The awareness of waste segregation and disposal of biomedical waste is very high among the participants but it's still not complete unless every dentist should practice and follow

Keywords: Awareness, dental, waste disposal, health, biomedical waste

INTRODUCTION:

Medical waste is often considered as solid, liquid or residual matter produced during the diagnosis or treatment of an individual(1). According to WHO only 10% of the waste produced from medical facilities are infectious and 5% is hazardous chemicals (2). The main worry about medical waste is the transmission of

diseases like hepatitis B. Which are transmitted by needles and blades used in practice .(3)

Dental waste is also included in hospital waste(4) . It's of two types, liquid waste and solid waste(5). Which can be further classified into Non-risk waste and risk waste. Risk waste contains infectious waste and hazardous waste(6).Infectious waste

has pathogens while hazardous waste has toxic chemicals like mercury lead and X-rays(7). Mercury is the most toxic non radioactive heavy metal. Other which fall in this category include polystyrenes, barium, strontium hence they should be properly disposed of after use(8). Improper handling and disposal of such materials may not only harm the dentists but also the people in vicinity of the dentists ,those who handle the waste and the general public(9). The growing need for good dental care and treatment has lead to increase in number of dental clinics. Leading to increase dental waste production (10). Our previous experience has enabled us to perform this research.(11–21)This study aims to assess the awareness and practices regarding disposal of various types of wastes in dental clinics.

Methodology:

The research methodology used for this study was a survey questionnaire that was distributed to 100 dentists who had a minimum of 5 years of experience. The survey was conducted through online platforms, including email, social media, and messaging apps. The questionnaire was designed to gather information about the

dentists' knowledge of the proper procedures for disposal of dental biomedical waste. The questionnaire consisted of multiple-choice questions and open-ended questions to allow participants to provide detailed responses to the questions.

Results:

The results of the survey showed that dentists with more experience have a higher level of awareness about the proper disposal of dental biomedical waste. Of the 105 participants, 34.8% of the dentists who had more than 10 years of experience,18.8% had 5-10 year’s experience ,46.4% has less than 5 years of experience (fig 1). 76% of the participants were aware of the various categories of biomedical waste (fig 2). 44.9% are aware of the right disposal of anatomical waste (fig 3). 46.4% are aware of how to dispose sharps and glass (fig 4). 78.3% of the participants know colour coding of biomedical waste (fig 5). The use of needle burner to dispose of needles 40.6% were aware (fig 6). 47.8% of the participants know that the extracted tooth must be disposed in yellow containers (fig 7).

Number of years of private practice

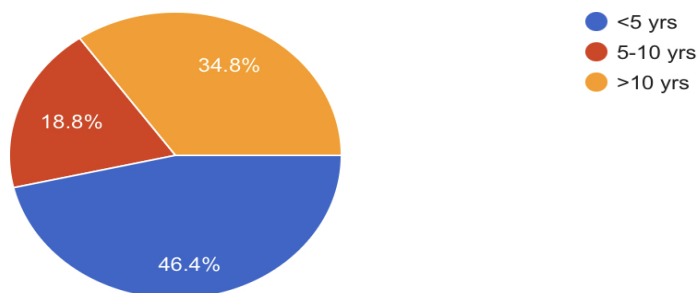


Fig 1 Number of years of private practice

Awareness regarding different categories of biomedical waste generated in the clinic

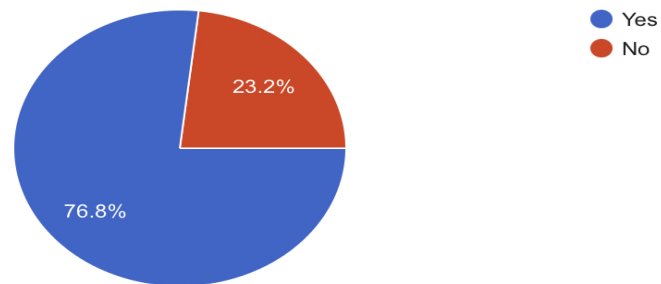


Fig 2 Awareness regarding different categories of biomedical waste generated in the clinic

Human anatomical wastes should be disposed in

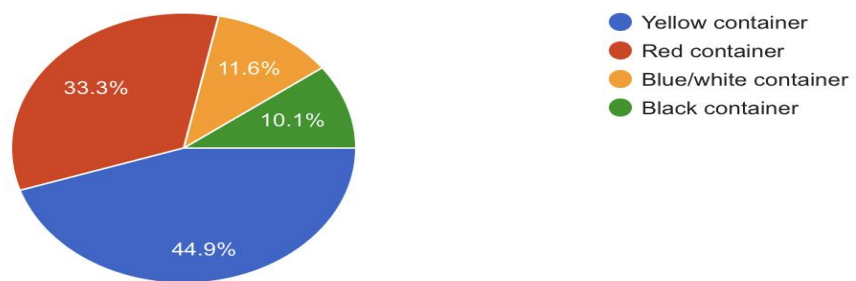


Fig 3 Human anatomical wastes should be disposed in

Sharps should be disposed in

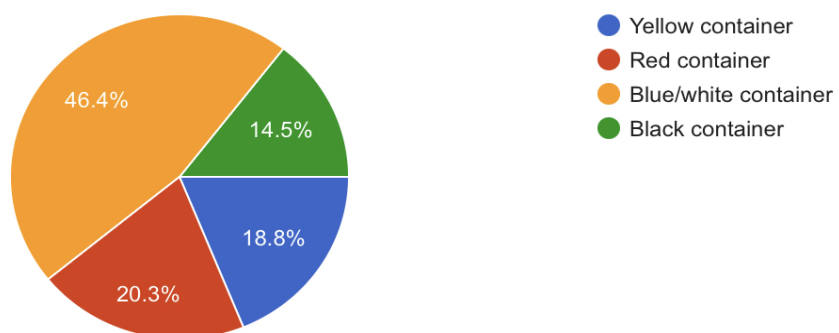


Fig 4 Sharps should be disposed in

Awareness regarding various color coding for different types of biomedical wastes

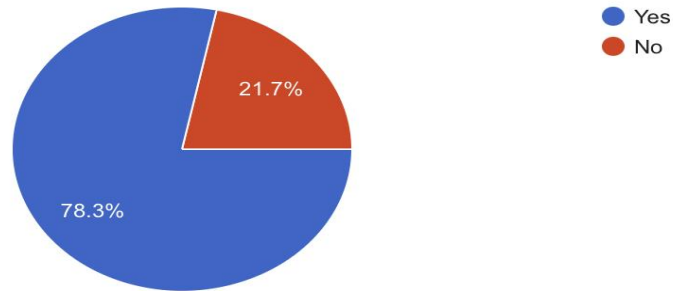


Fig 5 Awareness regarding various color coding for different types of biomedical wastes

How do you dispose infected needles



Fig 6 How do you dispose infected needles

How do you dispose extracted tooth

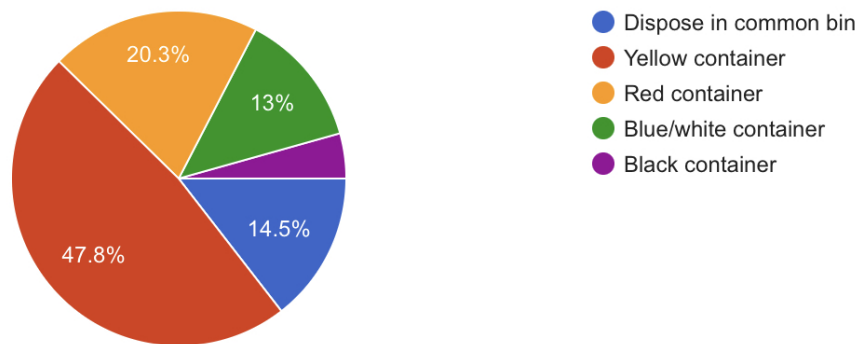


Fig 7 How do you dispose extracted tooth

Discussion:

The results of the survey indicate that dentists with more experience have a higher level of awareness about the proper disposal of dental biomedical waste. This finding is consistent with previous studies on healthcare waste management, which have shown that healthcare workers with more experience have a better understanding of waste management practices (7). Experienced dentists may have a greater knowledge base about the disposal of biomedical waste due to their accumulated years of practice. Additionally, they may have witnessed the consequences of improper waste disposal, such as environmental pollution and harm to public health, and therefore understand the importance of proper disposal.

Another factor that may contribute to the higher level of awareness among experienced dentists is the availability of resources(22). Experienced dentists may have access to more resources, including continuing education courses, professional organizations, and government guidelines, that provide information on the proper disposal of dental biomedical waste. These resources may help experienced dentists stay up-to-date with the latest guidelines and regulations on waste management, which may explain their higher level of awareness compared to less experienced dentists.

However, the results also show that dentists with less than 5 years of experience had the lowest level of awareness about the proper disposal of dental biomedical waste. This finding is consistent with previous studies that have shown that healthcare workers with less experience have poorer waste

management practices (8). This highlights the need for improved training and education for dental students and new graduates to ensure that they are equipped with the knowledge and skills to properly dispose of biomedical waste.

The majority of participants had received some form of training on the disposal of dental biomedical waste, indicating that dental schools and other educational institutions are providing adequate training to students. This finding is encouraging as it suggests that dental education programs are incorporating waste management practices into their curricula. However, it is important to note that the quality and effectiveness of the training provided may vary, and further research is needed to assess the impact of dental education on waste management practices.

It is also worth noting that the results of the survey may be influenced by social desirability bias. Participants may have provided socially desirable responses, such as indicating that they had received training on waste management, even if they had not(23). Additionally, the survey did not assess the actual waste management practices of the participants, and therefore it is unclear if their level of awareness translates into proper waste management practices.

Finally, the results of this study have implications for public health and the environment. Improper disposal of dental biomedical waste can lead to serious health hazards for the general public and healthcare workers. By increasing the awareness and knowledge of dental professionals on proper waste management practices, the risk of health hazards can be reduced, and the environment can be protected from pollution caused by biomedical waste.

Conclusion:

In conclusion, the results of this survey indicate that dentists with more experience have a higher level of awareness about the proper disposal of dental biomedical waste. This may be attributed to their accumulated knowledge base, access to resources, and experience witnessing the consequences of improper disposal. The results also highlight the importance of training for dentists on the proper procedures for disposal of dental biomedical waste. Dental schools and other educational institutions are providing adequate training to students, but it is essential to continue providing training to dentists throughout their careers to ensure that they remain up-to-date with the latest guidelines and regulations. Overall, this research emphasizes the importance of proper disposal of dental biomedical waste to protect public health and ensure the safety of healthcare workers.

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