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A Study Regarding Knowledge, Attitude, and Practices for Biomedical Waste Among Staff of Tertiary Care Hospital in Patan, Gujarat

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Abstract

Background: Biomedical waste management is a critical aspect of hospital operations, ensuring both environmental safety and the health of staff and patients. This study examines the knowledge, attitudes, and practices (KAP) concerning biomedical waste among staff at a tertiary care hospital in Patan.
Objectives: To assess the level of knowledge, attitudes, and practices among hospital staff regarding biomedical waste management.
Methodology: A cross-sectional study was conducted among 250 staff members using a structured questionnaire. The sample was stratified by occupation to ensure representation across doctors, nurses, technicians, and support staff.
Results: The study revealed that 60% of the participants had good knowledge scores, while 10% had poor knowledge. Good practice was most common among doctors (70%), while support staff exhibited the highest rate of average practice (70%).
Conclusion: The findings indicate a need for ongoing education and training, particularly among support staff, to improve biomedical waste management practices.

Keywords: Biomedical waste, knowledge, attitude, practices, hospital staff.

INTRODUCTION

Biomedical waste management is crucial for maintaining hospital hygiene and ensuring the safety of healthcare workers and patients. Mishandling of biomedical waste can lead to serious health hazards, including infections, environmental contamination, and the spread of drug-resistant pathogens. Studies have consistently highlighted the significant variation in knowledge, attitudes, and practices (KAP) regarding biomedical waste management among hospital staff. Despite the implementation of stringent regulations and guidelines, compliance remains a challenge in many healthcare settings, particularly in developing countries where resources and training opportunities are often limited [1-3].

It is essential for healthcare facilities to prioritize regular training and awareness programs to ensure that all staff, including doctors, nurses, technicians, and support personnel, are equipped with the necessary knowledge and skills to handle biomedical waste appropriately. Effective waste management not only protects human health but also safeguards the environment by reducing the potential for pollution and contamination. This study seeks to assess the current state of KAP related to biomedical waste management among staff at a tertiary care hospital inPatan, with a view to identifying gaps and recommending targeted interventions [4-6].

Conducting a study on the Knowledge, Attitude, and Practices (KAP) of biomedical waste management in a tertiary care hospital inPatan is crucial, as it will provide insights into the existing gaps and challenges in compliance, identify areas needing improvement, and ultimately help enhance the overall safety and environmental standards within the hospital.

METHODOLOGY

A cross-sectional study was conducted among 250 staff members at a tertiary care hospital in Patan. The sample included doctors, nurses, technicians, and support staff, stratified to ensure adequate representation from each group. The sample size was calculated based on the prevalence of good practice reported in previous studies, with a margin of error of 5% and a confidence level of 95%. Participants were selected using stratified random sampling. Data was collected using a structured questionnaire that assessed participants' knowledge, attitudes, and practices regarding biomedical waste management. The questionnaire was pre-tested for validity and reliability.

RESULTS

The study included 250 participants, with a slight majority of females (54%). The age group with the highest

representation was 30-39 years (34%), followed by 40-49 years (30.4%). Most participants were doctors (35.2%) or nurses (34.8%).

Knowledge scores varied, with 60% of participants having good knowledge (70-100%), 30% having average knowledge (40-69%), and 10% having poor knowledge (0-39%). Regarding practices, 70% of doctors exhibited good practice, while 70% of support staff exhibited average practice

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Table 1: Demographics of Study Participants

Demographic Variable	Frequency (n=250)	Percentage (%)
Gender	Male	115
	Female	135
Age Group	20-29 years	60
	30-39 years	85
	40-49 years	76
	50 years and above	29
Occupation		
Doctors	88	35.20%
Nurses	87	34.80%
Technicians	31	12.40%
Support Staff	44	17.60%

Table 2: Knowledge regarding Biomedical waste management among Study Participants

Knowledge Question	Correct Responses (n=250)	Percentage (%)
Aware of biomedical waste categories	200	62.40%
Knows about the color coding for waste disposal	219	80.00%
Familiar with hospital's waste management policy	155	88.40%
Knows the risks associated with improper disposal	216	76.40%

Figure 1: Knowledge Score Distribution among Study Participants

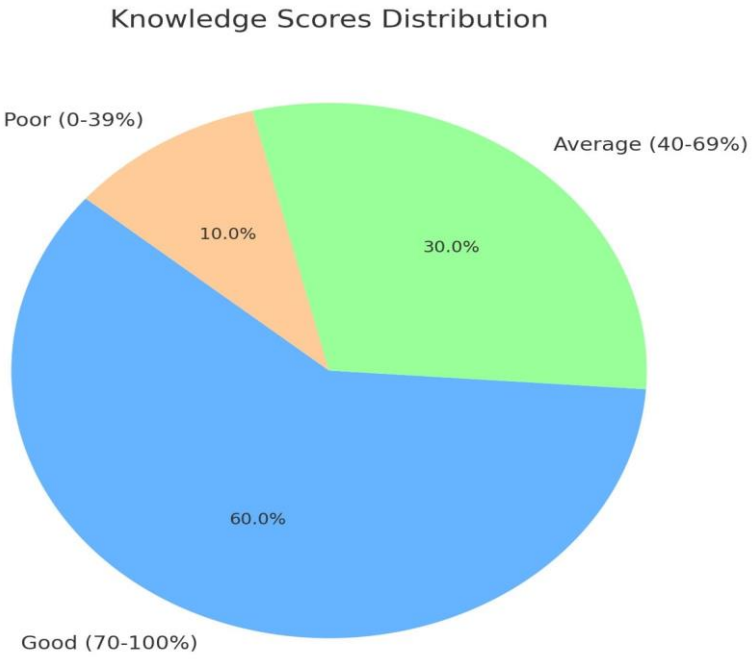
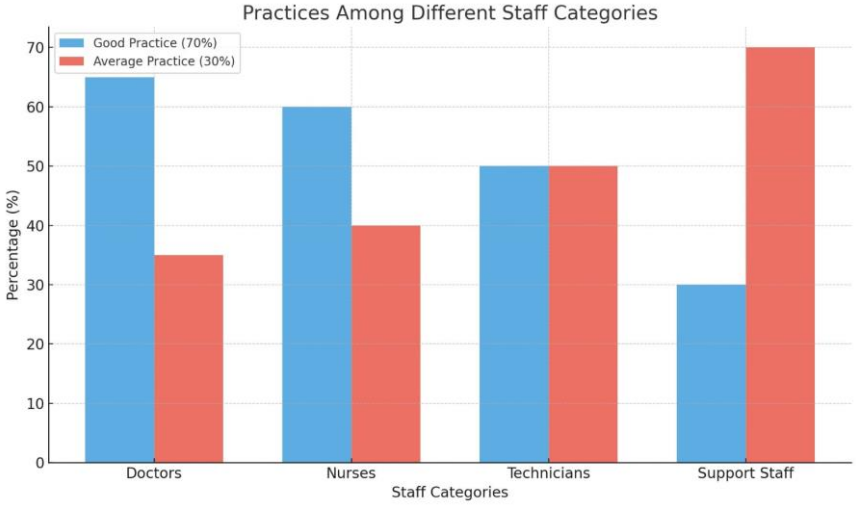


Figure 2: Practices among Different Staff Categories



DISCUSSION

This study's findings are consistent with previous research indicating that healthcare workers generally have a good understanding of biomedical waste management but may lack consistent practices [4,5]. The high level of knowledge observed in this study may be attributed to the hospital's ongoing training programs. However, the lower levels of good practice among support staff highlight the need for more targeted interventions [6]. Comparing these results with studies conducted in similar settings, it is evident that while knowledge levels are comparable, practices vary significantly, suggesting contextual factors may influence the implementation of waste management protocols [7,8].

This study's findings align with existing literature, indicating that healthcare workers generally possess a good understanding of biomedical waste management principles but often fail to apply this knowledge consistently in their daily practices. The relatively high knowledge scores observed among the hospital staff in this study may be attributed to the institution's ongoing training initiatives, which have likely contributed to a greater awareness of biomedical waste management protocols. However, the discrepancy between knowledge and practice, particularly among support staff, underscores the need for more tailored training programs that address specific barriers to implementation [7].

In comparison to studies conducted in other regions, it is evident that while knowledge levels among healthcare workers are generally comparable, the practical application of waste management protocols varies significantly. This variation may be influenced by factors such as resource availability, the organizational culture of the hospital, and the degree of oversight and enforcement of waste management policies. For instance, facilities with regular audits and stringent enforcement mechanisms tend to report higher compliance rates among staff [8-10].

Given the critical role of support staff in the daily handling and disposal of biomedical waste, it is imperative that hospital management invests in continuous education and monitoring efforts aimed at this group. Regular audits, combined with feedback and corrective actions, can help reinforce the importance of adherence to waste management protocols and reduce the incidence of improper disposal practices. Additionally, integrating waste management training into the broader context of infection control and patient safety may further enhance compliance and contribute to a safer hospital environment [11-13].

CONCLUSION

The study concludes that while knowledge regarding biomedical waste management is relatively high among hospital staff, there is a gap in translating this knowledge into consistent practices, particularly among support staff. Continuous education and regular audits are recommended to improve adherence to waste management protocols.

Limitations and Recommendations

This study was limited by its cross-sectional design, which does not allow for assessment of changes over time. Additionally, self-reported practices may be subject to bias. Future studies should consider longitudinal designs and include observational methods to validate self-reported data. It is recommended that hospital management implement regular training and monitoring to ensure consistent adherence to waste management protocols.

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