

Effect Of Information Booklet on Institutional Waste Management (IWM) Among Employees Serving in Selected Higher Educational Institutions (HEI) Of Urban Area Vidarbha Region Maharashtra

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Abstract—Background of the study: With rapid development and increasing waste generation in India, proper waste management has become an important concern. Educational institutions generate different types of waste, including solid, food, liquid, electronic, and hazardous waste. If this waste is not handled properly, it can affect the environment and community health. Improving the knowledge of employees can help promote proper segregation, recycling, reuse, and safe disposal of waste.^{1, 2} Therefore, this study was conducted to assess the effectiveness of an information booklet on knowledge regarding institutional waste management among employees working in selected higher educational institutions of Maharashtra. Objective: The objective of the study was to assess the effectiveness of an information booklet on knowledge regarding institutional waste management among employees working in selected higher educational institutions of Maharashtra. Methods: A quantitative approach with a pre-experimental one-group pre-test–post-test design was used. A total of 131 employees were selected for the study, and data were collected using a structured knowledge questionnaire. After the pre-test, an information booklet on institutional waste management was provided to the participants, followed by a post-test. The collected data were analysed using descriptive and inferential statistics. Results: The average knowledge score increased from 14.02 ± 2.69 before the intervention to 25.56 ± 2.83 after the intervention, with a mean difference of 11.56. The *t* value was 40.603 ($p = 0.001$), showing a clear improvement in knowledge after receiving the information booklet. The knowledge scores were not associated with age, gender, employment status, or years of experience ($p > 0.05$). Conclusion: The study showed that the information booklet significantly improved the knowledge of employees regarding institutional waste management. The findings suggest that simple

educational materials can be a useful way to improve awareness and encourage better waste management practices in higher educational institutions in Maharashtra.

Index Terms—Institutional Waste Management, Information Booklet, Knowledge, Employees, Higher Educational Institutions, Maharashtra.

I. INTRODUCTION

India, being one of the fastest developing nations with a vast and growing population, is experiencing a significant rise in waste generation. Among the various types of waste, institutional waste is becoming increasingly important to address. Institutional waste refers to the waste generated by schools, colleges, hospitals, government offices, private corporations, and other formal establishments.

In Educational institutions, waste is produced in large quantities and it includes a mix of solid, liquid, electronic, food, and hazardous waste. Environmental damage and landfill blockages can result from improper garbage handling. By improving understanding of best management practices, organizations may provide staff and students with chances to use creative waste management ideas and reduce the worldwide waste management problems. Poorly managed solid waste can cause significant air, soil, and water pollution through waste burning, decomposition, leachates, and poor landfill practices. It harms ecosystems, generates toxic gases, and disrupts habitats. Mismanaged waste can also attract disease vectors, create unpleasant odors, and

block drains, leading to flooding and water pollution. To reduce these impacts, waste should be managed by changing behaviors. Waste can be separated for recycling, repurposing, composting, or biogas production. Promoting awareness and improved disposal technologies, like controlled incineration or landfill liners, can also help. A circular economy approach, where materials are reused or recycled, can create new business opportunities while reducing waste.

II. OBJECTIVE

To assess the effect of information booklet on institutional waste management among employees serving in selected higher educational institutions of urban area, Vidarbha Region, Maharashtra

III. MATERIALS AND METHODS

A quantitative research approach was adopted and one group pre-test post-test pre-experimental design was used for this study. The study was carried out in the selected higher educational institutions (HEIs) of urban region Vidarbha region Maharashtra. The period of data collection was three weeks. The permission was obtained from head of institute of HEIS of urban region. The purposive sampling technique was used to select 131 employees working in HEIS of urban regions of Maharashtra. Written consent was obtained from the samples and pre-test has been assessed for all the 131 employees using demographic and self-administered questionnaire (SAQ) questionnaire for assessing knowledge.

Then the information booklet was given to all employees working in HEIS of urban region to whom the pre-test was conducted. After 7 days, the post test was taken and the data was analyzed. Statistical analysis the data was analyzed by descriptive and

inferential statistics. Demographic data was analyzed using frequency and percentage, data from the questionnaire before and after the information booklet administered was also analyzed using frequency, percentage and 't' test. The association between knowledge findings and demographic variables was found by using t test and chi-square test.

IV. RESULTS

Table 1 : percentage wise distribution of employees according to their demographic characteristics

N=131

Demographic Characteristics	No. of employees (F)	%
AGE IN YEARS		
20 - 30 years	39	30%
30 - 40 years	40	31%
40 - 50 years	32	24%
50 & above	20	15%
GENDER		
Male	56	43%
Female	75	57%
Employee service cadre		
Class I	12	9%
Class II	65	49%
Class III	21	16%
Class IV	33	25%
Type of employment		
Contractual	45	34%
Regular	86	66%
Year of experience		
1 – 5 yrs.	35	27%
5 – 10 yrs.	45	34%
10 – 15 yrs.	36	27%
20 yrs. & above	15	11%

Table 2: Significant difference between pre-test and post-test knowledge score on the effect of information booklet on institutional waste management among employees serving in higher educational institutes (HEIs) in experimental group.

N = 131

Group	Test	Mean	SD	Mean difference	df	't' value	P value	Significance
Experimental	Pre-test	14.02	2.69	11.56	130	-40.603	0.001	Significant (p<0.05)
Experimental	Post-test	25.56	2.83					

In this table show that a paired-samples t test revealed a statistically significant difference between pre-test and post-test knowledge scores, $t = -40.603$, $p < .001$. Since p was less than .05, the null hypothesis was rejected, confirming that the information booklet significantly improved employee's knowledge or Effectiveness of Information Booklet (Paired t-Test)

Table 3: Significance of Difference Between Pre-Test and Post-Test Knowledge Scores.

N = 131

Group	Mean Difference	df	t-value	p-value	Significance
Experimental Group	11.54	130	-40.603	0.001	Significant ($p < 0.05$)

In this table shows that the calculated paired 't' value (-40.603) was statistically significant at $p < 0.001$. The mean difference of 11.54 clearly indicates that the information booklet was highly effective. Hence, the research hypothesis was accepted.

V. DISCUSSION

The present study was undertaken to assess the effectiveness of an information booklet on knowledge regarding institutional waste management among employees working in selected higher educational institutions of Maharashtra. The findings revealed a marked improvement in knowledge following the intervention. During the pre-test, the experimental group had a mean knowledge score of 14.02 ± 2.69 , which increased to 25.56 ± 2.83 in the post-test, with a mean difference of 11.56. The study findings showed a significant increase in knowledge, with a t value of 40.603 and $p = 0.001$, indicating that the information booklet was effective in improving knowledge regarding institutional waste management. There was no significant association between knowledge score and selected demographic variables such as age ($\chi^2 = 7.78$, $p = 0.0508$), gender ($\chi^2 = 0.09$, $p = 0.76$), employment ($\chi^2 = 1.99$, $p = 0.16$), and years of experience ($\chi^2 = 2.09$, $p = 0.55$), as the p values were greater than 0.05. Thus, the study concluded that the information booklet was effective in improving knowledge regarding institutional waste management among employees of selected higher educational institutions in Maharashtra.

VI. CONCLUSION

The present study concludes that the information booklet was highly effective in improving employee's knowledge regarding institutional waste management. Post-test findings demonstrated a marked increase in knowledge levels when compared with pre-test scores, indicating that the educational intervention successfully enhanced employees' understanding of institutional waste management. Statistical analysis further supported this improvement through higher mean scores and reduced variability after the intervention. Significant associations between pre-test knowledge levels and selected demographic variables, such as professional qualification and sources of prior information, were also observed. Overall, the study affirms that planned educational strategies play a vital role in strengthening employees' competence.

ACKNOWLEDGEMENT

First and foremost, we expressed our deep gratitude and praise to God almighty whose grace and continuous blessings given us strength and courage to complete this study. I owe my sincere thanks to Prof. Prabhudas Raiborde Principal, Dr. P.D.N.I. Amravati for his constant support and valuable guidance. I express my heartfelt thanks to Ms. Priyanka Adhau, Associate Professor and Head of the Department of Community Health Nursing, for her valuable guidance and encouragement throughout the study. I express my sincere gratitude to my guide Dr. Sandeep Kolaskar for his expert guidance, continuous support and valuable suggestions throughout the research study. I am grateful to all the experts for their valuable suggestions in validating the research tool and to all the employees who participated in the study and extended their cooperation.

I also thank my classmates for their support and cooperation. Finally, I express my heartfelt gratitude to my parents for their constant encouragement, love, and support throughout this journey.

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