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Assessment of household waste disposal knowledge among house helpers in Guwahati, Assam

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ABSTRACT

***Background**: The disposal of waste remains a critical issue in developing countries, exacerbated by insufficient understanding of waste generation. In India, rapid and unplanned urbanisation has led to significant environmental degradation, compounding the challenges of managing solid, liquid, and toxic waste. **Aims**: The aim of the study is to assess the level of knowledge among house helpers regarding proper disposal of household waste. **Method**: A quantitative research survey assessed house helpers' knowledge on proper household waste disposal to develop an informational pamphlet for selected housing societies. A total of 30 house helpers were chosen through purposive sampling, and a semi-structured questionnaire evaluated their knowledge on this issue. **Results**: Results indicated that 50% of house helpers possess poor knowledge, while another 50% have average knowledge about proper household waste disposal. The mean knowledge score was 6.76 with a standard deviation of 2.11. A significant association was found between knowledge and demographic variables, particularly educational status, with a χ^2 value of 7.624 and a p-value of 0.022 at the 0.05 significance level. **Conclusion**: The majority of respondents had poor knowledge about proper disposal of household waste.*

***Keywords**: Knowledge; household waste; house helpers; housing society.*

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INTRODUCTION

Waste accounts for 20% of human-related methane emissions, which are 80 times more potent than carbon dioxide. Without action, these emissions will cause severe environmental and economic damage. Urbanisation in cities like Guwahati has led to a rise in household waste, contributing to over 2 billion tonnes of municipal solid waste produced globally each year, projected to rise by 70% by 2050. Additionally, plastic waste results in the deaths of over one million seabirds and more than 100,000 marine mammals annually, according to UNESCO.

The country generates about 640 million metric tonnes of municipal solid waste annually, projected to rise to 1.3 billion metric tonnes by 2025. India's recycling rate is only 18%, significantly lower than the global average of 35%. This inadequate waste management poses serious risks to the environment and public health.

The result of a study of similar topic conducted in Mangalore indicated that 52.5% of participants had moderate knowledge (mean 10.05, SD 3.990) and 73.8% exhibited moderate waste management practices (mean 18.09, SD 5.413). Statistical analysis using the

chi-square test found no significant association between knowledge and practice scores when considering selected demographic variables.[1] The findings of another study demonstrated a significant improvement, with a pre-test mean score of 43.50 and a post-test mean of 67.18. The resulting P value of 0.006 confirms the intervention's effectiveness.[2] A recent study on women's knowledge and practices regarding household waste disposal revealed that 52.1% had moderate knowledge, 33% inadequate knowledge, and 14.9% adequate knowledge. In practice, 53.2% performed adequately, 36.2% moderately, and 10.6% inadequately. A positive correlation was found between knowledge and practice, with no significant associations to demographic variables.[3]

The result of a study of the 100 housewives' knowledge and attitudes toward household waste management in an Agartala urban slum showed that 23% had adequate, 35% moderate, and 42% inadequate knowledge. Attitudinally, 20% had a positive attitude, 33% an average attitude, and 47% a negative attitude. A significant link was identified between knowledge and the participants' educational status.[4] Evaluating knowledge on domestic waste management revealed that 52.5% of participants had moderate knowledge, with a mean score of 10.01±6.6. The study concluded that there is a need for improved knowledge in the area.[5]

Many house helpers in our country lack knowledge about effective waste segregation, recycling, and disposal methods. This lack of understanding can result in improper disposal practices that cause environmental pollution and health hazards, which complicate waste management. There is a pressing need for enhanced discussions and actions regarding waste management to tackle global issues such as climate change, population growth, and biodiversity loss.

The study aims to evaluate house helpers' knowledge of proper household waste disposal in selected housing societies in Guwahati, Assam, and to investigate the relationship between this knowledge and various demographic factors.

MATERIALS AND METHODS

The research employs a quantitative approach with a descriptive design, focusing on the variable of knowledge related to household waste disposal among house helpers. Key demographic variables include age, gender, educational status, working experience, type of house, and prior knowledge of waste disposal practices. The study is situated in the Piya Tower Housing Society, located at Radhanagar, VIP Road, Guwahati, Assam. The targeted population comprises house helpers within this housing society, and the accessible population mirrors the target group. A sample size of 30 house helpers will be selected using a non-probability purposive sampling technique, ensuring that participants meet specified inclusion criteria.

Inclusion criteria for the study require that participants be house helpers currently employed at a selected domestic help service agency in Guwahati, Assam, and must be available on the day of data collection. Exclusion criteria specify that individuals who are unwilling to participate in the study will be excluded.

The study utilised a semi-structured knowledge questionnaire as a tool and technique for assessing knowledge. This method involved self-reporting from participants. The scoring system allocated one point for each correct answer, with a maximum total score of 18 possible; incorrect answers received a score of zero.

In the provided classification of knowledge levels, the criteria are divided into three distinct categories based on scoring. Individuals with inadequate knowledge score less than 33%, corresponding to 0-5 marks. Those with moderately adequate knowledge fall within the range of 33% to 66%, which translates to a score of 6-12 marks. Lastly, individuals demonstrating adequate knowledge scored above 66%, falling between 13 and 18 marks.

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The document outlines the development and validation of a nursing assessment tool. It details the content validity process, where the instrument, accompanied by its problem statement and objectives, was evaluated by three experts in Medical-Surgical nursing and three specialists for Assamese tool validation. For reliability testing, the Karl Pearson correlation coefficient was employed, yielding a strong reliability score of 0.80 for knowledge assessment. A pilot study to assess feasibility was conducted from March 25 to March 27, 2025, involving 10 participants selected through a Non-probability purposive sampling technique, confirming the tool's practicality for use.

RESULTS

Table 1 Frequency and percentage distribution of demographic variables of house helpers (**n=30)**

S. No	Demographic Variables	Frequency	Percentage
1	Age in years		
	a. 18-24 years	8	26.7
	b. 25-34 years	18	60
	c. 35-44 years	4	13.3
	d. 45 years and above	0	0
2	Gender		
	a. Male	7	23.3
	b. Female	23	76.7
3	Educational status		
	a. No formal education	4	13.3
	b. Primary school	19	63.4
	c. Secondary school and above	7	23.3
4	Working experience of house helpers in years		
	a. < 1 year	3	10
	b. 1-5 years	22	73.3
	c. 6-10 years	5	16.7
	d. > 10 years	0	0
5	House type		
	a. Single-person house	3	10
	b. Nuclear family	24	80
	c. Extended family	3	10
	d. Joint family	0	0
6	Previous knowledge regarding disposal of household waste		
	a. Yes	9	30
	b. No	21	70
	If yes, source of information		
	a. Family members	3	33.3
	b. Peer group	5	55.6
	c. Mass media	1	11.1
	d. Agency	0	0

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Table 2 Frequency and percentage distribution of the house helpers according to their level of knowledge (n=30)

Level of knowledge	Frequency (f)	Percentage (%)	Score range	Median	Mean	SD
Poor	15	50	2 – 12	6	6.76	2.11
Average	15	50				
Good	0	0				

Table 2 illustrates the distribution of knowledge levels concerning proper household waste disposal among house helpers. The findings reveal that 15 participants (50%) possessed poor knowledge, another 15 (50%) demonstrated average knowledge, and none (0%) exhibited good knowledge in this area.

Table 3 Association between perceived knowledge regarding proper disposal of household waste among house helpers and selected demographic variables (n=30)

Demographic Variables	Fishers X^2 Value	df	p-value	Remarks
1. Age	0.722	2	P=0.697	Not significant
2. Gender	1.677	1	p = 0.195	Not significant
3. Educational Status	7.624	2	p = 0.022	Significant at p < 0.05
4. Working experience of house helpers in years	0.715	2	p = 0.699	Not significant
5. House type	4.001	2	p = 0.135	Not significant
6. Previous knowledge regarding disposal of household waste	0.159	1	p = 0.690	Not significant

***p<0.001, **p<0.01, *p<0.05, S – Significant, N.S – Not Significant

NS – Not significant, S – Significant, df – Degree of freedom

Table 3 illustrates the correlation between house helpers' knowledge of proper household waste disposal and various demographic variables, analyzed using the chi-square or Fisher's exact test. The findings indicate a significant association with educational status at $p < 0.05$. However, other demographic factors, including age, gender, years of work experience, house type, previous knowledge of waste disposal, and information sources, demonstrated no significant association with knowledge of proper waste disposal, as evidenced by $p>0.05$.

DISCUSSION

A study on household waste management among slum dwellers in Kamrup Metro, Assam, revealed that 70.4% of respondents had average knowledge and 53.1% had average waste management practices. A correlation coefficient of r=0.132 was observed between knowledge and practices. Significant associations were found between knowledge and gender (χ^2=6.497, p=0.039) as well as occupation (χ^2=16.125, p=0.013). Practices were significantly associated with religion (χ^2=10.284, p=0.036) and income (χ^2=17.045,

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p=0.030). Overall, the study indicates that the slum dwellers possess average levels of both knowledge and practices regarding household waste management.[6]

A study investigated domestic waste management knowledge and its health effects among homemakers in rural Mehsana District using a quantitative non-experimental descriptive survey design. Findings showed that 10% had poor knowledge, 58% average knowledge, and 32% good knowledge scores. Statistical analysis indicated significant associations between marital status, educational qualification, family type, income, house type, and prior knowledge, all at the 0.05 significance level. Overall, participants demonstrated average understanding of the topic.[7] A study in Pune City evaluated 300 homemakers' knowledge of Domestic Waste Management and its health effects. Findings indicated that 60% had average knowledge, 34% poor, and 6% good knowledge of waste management. On health effects, 61% had average knowledge, 28% poor, and 11% good. A significant association was found between education level and knowledge scores ($p < 0.05$).[8]

CONCLUSION

In conclusion, the study revealed that 50% of the house helpers possess poor knowledge, while another 50% have average knowledge. It was determined that the demographic variable of educational status (calculated value = 7.624, tabulated value = 0.022) has a statistically significant association with knowledge at the 0.05 level.

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Limitations:

Ethical policy and institutional review board statement: Taken

Financial support and sponsorship: The study was self-funded.

Conflicts of interest: There are no conflicts of interest.

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