

KNOWLEDGE AND PRACTICE REGARDING DOMESTIC WASTE MANAGEMENT AMONG MOTHERS IN A SELECTED COMMUNITY, AIZAWL, MIZORAM : A DESCRIPTIVE STUDY

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Abstract : Proper domestic waste management is essential for maintaining a clean and healthy environment and for preventing the spread of diseases. However, improper waste management can lead to various problems affecting individuals, communities, and the environment. The study was conducted to evaluate the knowledge and practice regarding domestic waste management among mothers in a selected community in Aizawl, Mizoram. The objectives of the study were to assess knowledge and practice regarding domestic waste management among mothers, to determine the association between knowledge scores and selected demographic variables, and to explore the association between practice scores and selected demographic variables. A descriptive research design was used. The sample comprised 188 mothers who were selected using a purposive sampling technique. A self-administered structured questionnaire was used to collect the data. The findings revealed that 65.4% of mothers had adequate knowledge, 18.6% had moderate knowledge, and 16% had inadequate knowledge with mean $\pm$ standard deviation 12.03 ± 2.75 . regarding domestic waste management. Similarly, 65.4% had adequate practice, 32.4% had moderate practice, and 2.1% had inadequate practice with mean $\pm$ standard deviation 47.13 ± 7.78 . A significant association was found between knowledge and age, educational qualification, and occupation. Likewise, a significant association was observed between practice and age, educational qualification, and occupation. The study highlights the need for further health education and awareness programmes to improve knowledge and practices regarding domestic waste management.

Keywords : Knowledge, practice, domestic waste management, mothers

INTRODUCTION

Waste refers to a materials that are no longer wanted and are thrown away after their main purpose, or those that are valueless, damaged, and unusable. Millions of tons of waste are produced every day as a result of regular household activities. It can be generated by numerous human activities occurring daily across the world.^[1]

The Indian Government's Swachh Bharath initiative seeks to make India a clean nation. The official launched of this campaign aimed to attain the goal of sanitation and cleanliness. Individuals and the community's health is determined by a clean environment, areas free of open defecation, individual personal hygiene practices, appropriate solid and liquid waste management, and the availability of sufficient safe drinking water. When waste materials like toxins are improperly disposed of, they can have extremely harmful effects on human or animal health. Certain waste materials, like plastic containers, serve as mosquito breeding grounds. Mosquitoes are responsible for spread of malaria and dengue fever. In addition, houseflies spread germs responsible for stomach upsets and other illness.^[2]

Public health and environmental sustainability depend on effective waste management. Effective waste management protects public health by minimizing contact with dangerous substances and contaminants. Proper segregation and management of waste can stop the spread of diseases and reduce health hazards for people residing near waste disposal areas. Involving the community is essential to the success of waste management initiatives.^[3]

NEED OF THE STUDY

Approximately 2.6 billion people, or 39% of the world's population, do not dispose of their waste properly. Some 1.1 billion people still disposed of waste in the open places. Millions of people worldwide perish each year as a result of improper waste management and waste disposal. Approximately 2.4 billion people are at risk of preventable illness and death due to inadequate sanitation. Waste production is predicted to rise by 70% from 2016 levels to 3.40 billion tons in 2050 due to rapid urbanization and population growth. These practices have detrimental effects on the environment, public health, and safety.^[4]

A report from The Energy and Resources Institute (TERI) indicates that India produces more than 62 million tons (MT) of waste annually. Out of all the waste produced, only 43 MT are collected, 12 MT are treated before being disposed of, and the remaining 31 MT are just dumped in waste yards. According to a recent forecast by the Indian Central Pollution Control Board (CPCB), waste production in India is expected to rise to 165 MT annually by 2030.^[5]

Mothers were selected for this study on domestic waste management as they play an active role in carrying out daily household responsibilities, including activities such as waste segregation, recycling, and reduction. Their practices directly influence the cleanliness of the home environment and the overall health of the family. With the aim of promoting healthy living conditions and minimizing environmental harm, the present study seeks to examine the knowledge and practices of mothers regarding domestic waste management in a selected community of Aizawl, Mizoram. The findings of this study are expected to provide valuable insights into the existing level of knowledge and practices among mothers. This will help in identifying specific areas that require improvement and assist healthcare professionals and policymakers in developing appropriate educational and intervention strategies.

OBJECTIVES OF THE STUDY

1. To assess the knowledge regarding domestic waste management among mothers in selected community.
2. To evaluate the practice regarding domestic waste management among mothers in selected community.
3. To determine the association between knowledge scores and selected demographic variables.
4. To explore the association between practice scores and selected demographic variables.

HYPOTHESES

H₁ : There is a significant association between the knowledge scores of mothers with the selected demographic variables.

H₂ : There is a significant association between the practice scores of mothers with the selected demographic variables.

ASSUMPTIONS

1. There may be a difference in the knowledge and practice regarding domestic waste management among mothers.
2. There may be a need for improvement in domestic waste management practices among mothers.

CONCEPTUAL FRAMEWORK

Knowledge and practices regarding domestic waste management among mothers in a selected community, Aizawl, Mizoram is the focus of the present study. This study is based on J. W. Kenny's Open System Model (1991).

J. W. Kenny's Open System Model is a conceptual framework that consists of the concepts of input, throughput, output, and feedback. The model is derived from the modified General System Theory, which emphasizes wholeness and aims to integrate scientific thinking across different disciplines. Kenny's Open System Model explains how input is processed through throughput to produce output, which is then evaluated through feedback.

The following are the concepts of the theory:

Input → Throughput → Output → Feedback

Input: Input refers to the resources such as people, information, and materials that an organization receives from its external environment, which are used to produce the system's output.

In this study input refers to demographic variables such as :

1. Age in years
2. Educational Qualification
3. Occupation
4. Types of family
5. Socio – Economic Status

Throughput : Throughput refers to the internal processes where inputs are transformed through activities such as production, decision-making, and coordination. It is the process in which matter, energy, and information are converted or modified within a system.

In this study throughput refers to assessment of knowledge regarding Domestic Waste Management among Mothers through structured questionnaire. Assessment of practices regarding Domestic Waste Management among Mothers through practice questionnaire.

Output : Output refers to the transformed resources that are released into the environment in the form of products, services, or waste.

In this study output refers to a result of knowledge and practices some have adequate knowledge and practices, some mothers belong to moderate knowledge and practices and some mothers belongs to inadequate knowledge and practices.

Feedback : Feedback is an important component of the model that involves monitoring the outputs and processes of an organization and making necessary adjustments to inputs or processes based on the information received. It helps the organization to adapt and improve its performance.

In this study feedback is not include.

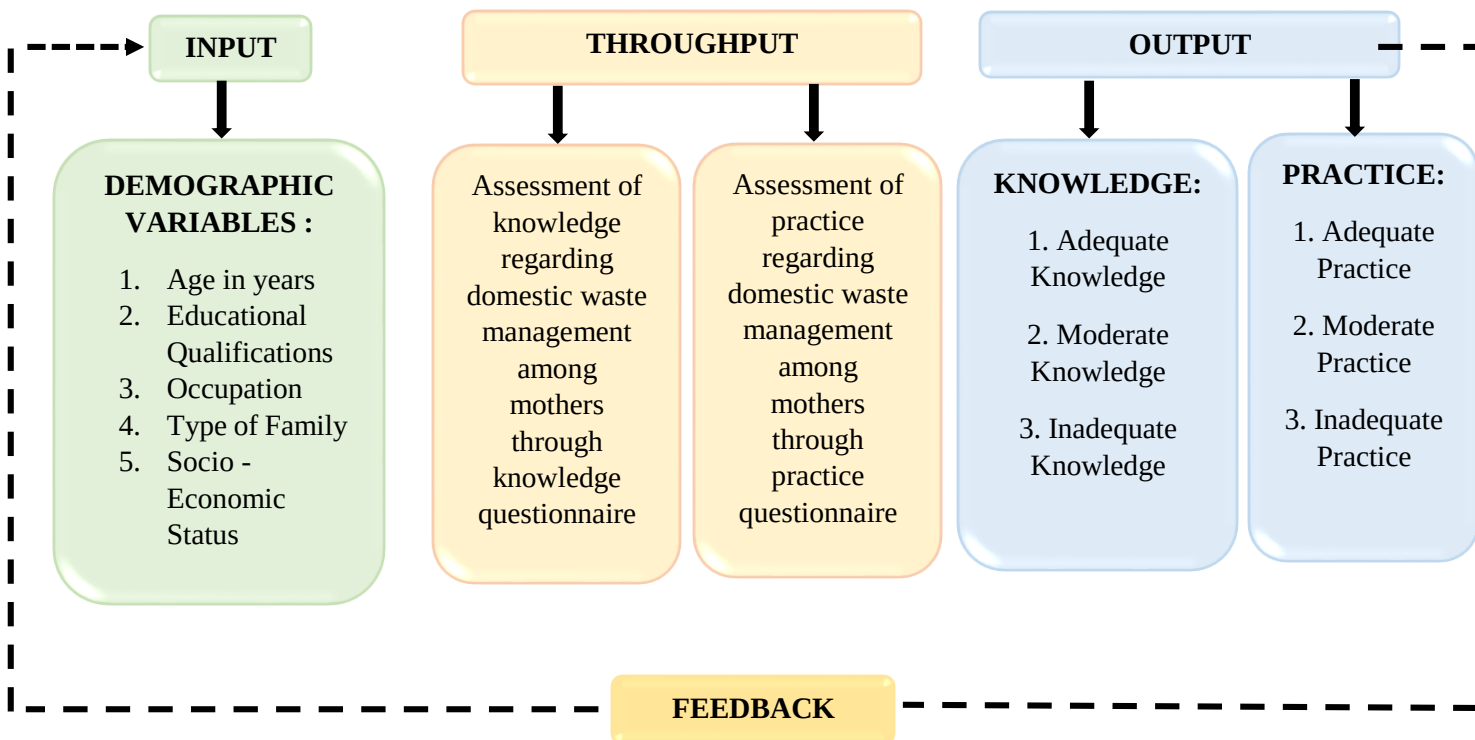


Figure 1 : Conceptual framework on knowledge and practice regarding domestic waste management among mothers based on J.W. Kenny's Open System Model.

RESEARCH METHODOLOGY

Research approach : Quantitative Research Approach.

Research design : Descriptive Research Design.

Setting: Bawngkawn South, Aizawl, Mizoram

Population : Mothers

Sample : Mothers residing in selected community, Bawngkawn South, Aizawl, Mizoram and who fulfil the inclusion criteria.

Sample Size : 188

Sampling technique : Purposive sampling technique.

Sampling criteria :

Inclusion criteria

- Mothers who belong to the age group of 21–60 years.

- Mothers who are able to read and write Mizo language.
- Mothers who are willing to participate in the study.

Exclusion criteria

- Mothers who are suffering from chronic illness affecting their ability to manage waste.
- Mothers who are mentally challenged.
- Mothers who have already participated in a similar study related to domestic waste management.

Description of the tool

The self-administered structured questionnaire was divided into two :

Tool – 1 : Demographic proforma of mothers

This section includes 5 items related to demographic variables such as age, education, occupation, types of family, socio – economic status.

Tool – 2 : It consists of two sections :

Section – A : Self – administered structured knowledge questionnaire.

The tool consists of 15 closed – ended multiple choice questions to assess the knowledge regarding domestic waste management among mothers.

Section – B : Self – administered structured practice questionnaire.

The tool comprised of 15 structured closed – ended multiple choice questions to assess the practice regarding domestic waste management among mothers.

Data collection procedure

Ethical approval for the study was obtained from the Institutional Ethics Committee (IEC) of RIPANS, followed by permission from the Chairman of the Local Council, Bawngkawn South, Aizawl. The data collection was carried out within the community setting using a house-to-house approach over a period of eleven days, from 7th April to 18th April, 2026. Participants were selected based on the inclusion criteria using a purposive sampling technique. Each eligible participants was approached individually, and the study details were explained in a simple and understandable manner. Participants were informed that their participation was voluntary and that they could withdraw from the study at any point without facing any consequences. Assurance was given that the study would not cause any harm, discomfort, or financial burden. Written informed consent was obtained prior to participation, and confidentiality along with anonymity of responses was strictly maintained. A self-administered structured questionnaire prepared by the researcher, consisting of multiple-choice questions, was used for data collection. The tool was distributed directly to the participants, and they were asked to complete it independently. On average, data were collected from about 18 – 20 mothers per day, with each participant taking approximately 10 - 15 minutes to complete the questionnaire. After completion, the filled questionnaires were collected immediately to ensure completeness and accuracy. This process continued systematically until the required sample size of 188 mothers was achieved.

RESULTS AND DISCUSSION

Table 1: Frequency and percentage distribution of socio - demographic characteristics of mothers regarding domestic waste management.

n = 188

Demographic characteristics	Frequency (f)	Percentage (%)
Age (in years)		
21 – 30 years	23	12.2
31 – 40 years	60	31.9
41 – 50 years	65	34.6
51 – 60 years	40	21.3
Educational Qualification		
Primary school	7	3.7
Middle school	23	12.2
High school	50	26.6
Higher secondary	55	29.3
Graduate and above	53	28.2
Occupation		
Government service	39	20.7
Private service	18	9.6
Self employed	60	31.9
Retired	7	3.7
Homemaker	64	34
Type of family		
Nuclear family	134	71.3
Joint family	31	16.5
Extended family	23	12.2
Socio – Economic Status		
Upper Class	0	0
Upper Middle Class	122	64.9
Lower Middle Class	36	19.1
Upper Lower Class	30	16
Lower Class	0	0

Table 1 shows the demographic characteristics of mothers. With regard to age, the largest group belonged to 41–50 years (34.6%), followed by 31–40 years (31.9%). Participants aged 51–60 years made up 21.3%, while only a small number were in the age group of 21–30 years (12.2%). In terms of education, most participants had completed higher secondary education (29.3%), followed by graduates and above (28.2%) and those with high school education (26.6%). Only a small proportion of middle school (12.2%) and primary school (3.7%). Regarding occupation, the majority of participants were homemakers (34.0%), followed by self-employed individuals (31.9%). Government employees accounted for 20.7%, while 9.6% were working in private jobs. A very small number were retired (3.7%). With respect to family type, most participants belonged to nuclear families (71.3%). Joint families accounted for 16.5%, while extended families made up 12.2%. In terms of socioeconomic status, the majority of participants belonged to the upper middle class (64.9%). The rest were from the lower middle class (19.1%) and upper lower class (16.0%).

n = 188

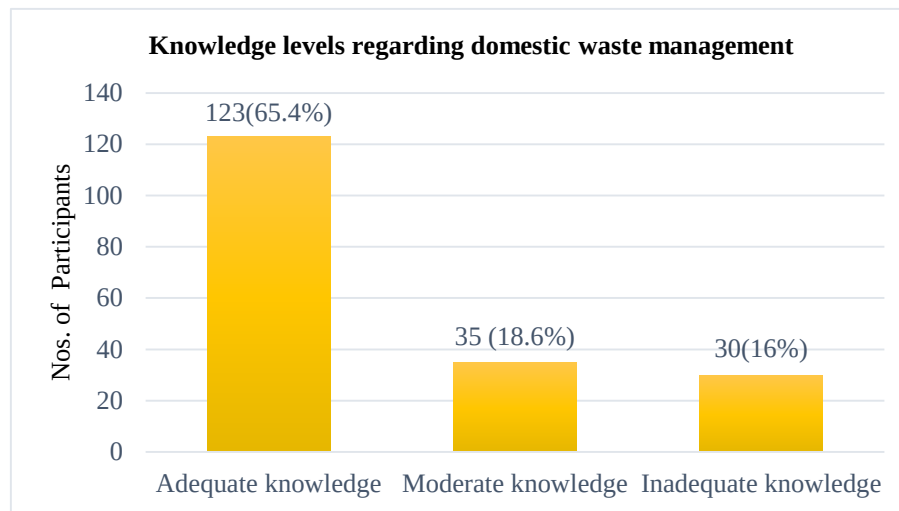


Figure 2 : Bar diagram showing frequency and percentage distribution of levels of knowledge regarding domestic waste management among mothers.

Figure 2 shows the distribution of participants according to their level of knowledge regarding domestic waste management. It was found that the majority of mothers, 65.4% (123 out of 188), had adequate knowledge. However, 18.6% (35 participants) had a moderate level of knowledge and 16% (30 participants) had inadequate knowledge.

Table 2 : Mean and standard deviation of knowledge scores regarding domestic waste management among mothers.
n = 188

Descriptive Statistics	Mean	S.D.	Max.	Min.	Range
Knowledge Score	12.03	2.75	15	5	10

Table 2 illustrates the descriptive statistics of knowledge scores for the study participants (n = 188). The mean score was found to be 12.03, reflecting a generally adequate level of knowledge among the respondents. The standard deviation of 2.75 indicates a moderate degree of dispersion, which suggest that although many participants scored close to the average, some variability in knowledge levels was present.

n = 188

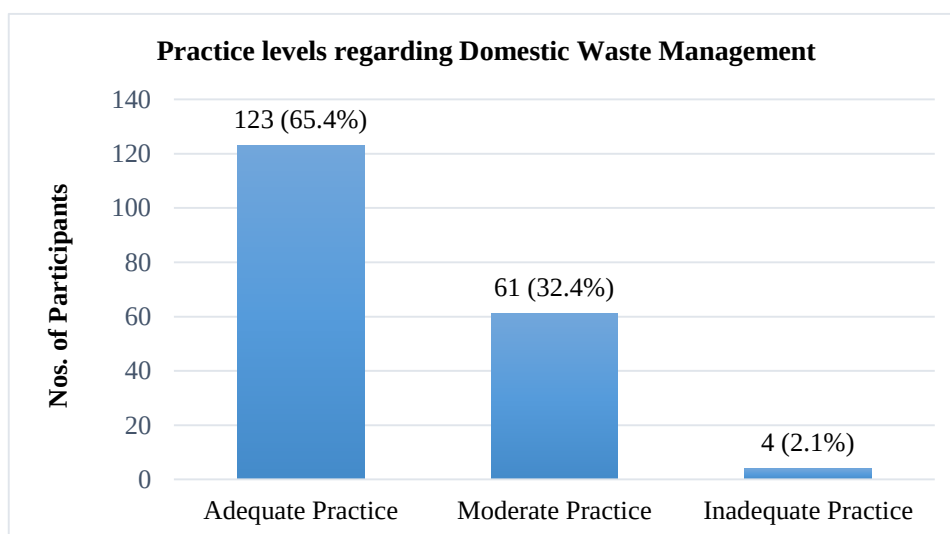


Figure 3 : Bar diagram showing frequency and percentage distribution of levels of practice regarding domestic waste management among mothers.

Figure 3 shows the distribution of participants according to their level of practice regarding domestic waste management. Majority of participants, 65.4% (123 out of 188) had adequate practice. 32.4% (61 participants) had a moderate level of practice. Only a very small number, 2.1% (4 participants), had inadequate practice.

Table 3 : Mean and standard deviation of practice scores regarding domestic waste management among mothers.

n = 188

Descriptive Statistics	Mean	S.D.	Max.	Min.	Range
Practice Score	47.13	7.78	59	21	38

Table 3 illustrates the descriptive statistics of practice scores for the study participants (n = 188). The mean score was found to be 47.13, reflecting a generally adequate level of practice among the respondents. The standard deviation of 7.78 indicates a moderate degree of dispersion, suggesting that while many participants scored around the mean, there was some variability in their practice levels.

Table 4 : Findings related to association between knowledge with selected demographic variables regarding domestic waste management among mothers.

n = 188

Demographic Variables	Knowledge scores			p – value
	Inadequate	Moderate	Adequate	
Age (in years)				
21 – 30	2	5	16	0.445
31 – 40	12	15	33	
41 – 50	10	8	47	
51 – 60	6	7	27	
Educational Qualification				
Primary school	3	1	3	0.0001***
Middle school	8	6	9	
High school	11	10	29	
Higher secondary	7	15	33	
Graduate and above	1	3	49	
Occupation				
Government service	0	4	35	0.002**
Private service	3	3	12	
Self employed	10	10	40	
Retired	2	3	2	
Homemaker	15	15	34	
Type of family				
Nuclear family	20	25	89	0.935
Joint family	6	5	20	
Extended family	4	5	14	
Socio – Economic Status				
Upper Class	0	0	0	0.0001***
Upper Middle Class	9	15	98	
Lower Middle Class	11	11	14	
Upper Lower Class	10	9	11	
Lower Class	0	0	0	

** p < 0.01 (highly significant), *** p < 0.001(very highly significant)

The table 4 shows that the calculated ‘p’ values for the association between knowledge scores regarding domestic waste management among mothers and selected demographic variables such as educational qualification (p – value = 0.0001), occupation (p – value = 0.002), and socio-economic status (p – value = 0.0001) were less than 0.05. Therefore, the null hypothesis was rejected for these variables.

Also, the table 4 shows that the calculated ‘p’ values for variables such as age (p – value = 0.445) and type of family (p – value = 0.935) were greater than 0.05. Therefore, the null hypothesis was not rejected for these variables.

Table 5 : Findings related to association between practice with selected demographic variables regarding domestic waste management among mothers.

n =188

Demographic Variables	Practice scores			p – value
	Inadequate	Moderate	Adequate	
Age (in years)				
21 – 30	1	8	14	0.498
31 – 40	2	22	36	
41 – 50	0	22	43	
51 – 60	1	9	30	
Educational Qualification				
Primary school	2	3	2	0.003**
Middle school	1	9	13	
High school	1	18	31	
Higher secondary	0	21	34	
Graduate and above	0	10	43	
Occupation				
Government service	0	7	32	0.028*
Private service	0	5	13	
Self employed	1	17	42	
Retired	0	5	2	
Homemaker	3	27	34	
Type of family				
Nuclear family	2	45	87	0.449
Joint family	2	8	21	
Extended family	0	8	15	
Socio – Economic Status				
Upper Class	0	0	0	0.002**
Upper Middle Class	0	33	89	
Lower Middle Class	2	13	21	
Upper Lower Class	2	15	13	
Lower Class	0	0	0	

* p < 0.05 (significant), ** p < 0.01 (highly significant)

The table 5 shows that the calculated ‘p’ values for the association between practice scores regarding domestic waste management among mothers and selected demographic variables such as educational qualification (p – value = 0.003), occupation (p – value = 0.028), and socio-economic status (p – value = 0.002) were less than 0.05. Hence, the null hypothesis was not accepted for these variables.

Also, table 4.5 shows that the calculated ‘p’ values for variables such as age (p – value = 0.498) and type of family (p – value = 0.449) were greater than 0.05. Thus, the null hypothesis was not rejected for these variables.

DISCUSSION

In this section, the findings of the present study are compared and discussed with the results obtained by other researchers in similar studies:

The findings related to knowledge regarding domestic waste management among mothers revealed that out of 188 mothers, the majority, i.e., 123 (65.4%), had adequate knowledge, 35 (18.6%) had moderate knowledge, and the remaining 30 (16%) had inadequate knowledge regarding domestic waste management.

The findings of the present study is consistent with those reported by Singh (2019), who found that the majority 64% of women had adequate knowledge regarding household waste management, while 20% had average knowledge and 16% had inadequate knowledge.^[6]

The findings related to practice regarding domestic waste management among mothers revealed that out of 188 mothers, the majority (65.4%) had adequate practice, 32.4% had moderate practice, and 2.1% had inadequate practice regarding domestic waste management.

A similar study was conducted by Shenbagaprabha et al. (2023) in a selected community area to assess knowledge and practice regarding the disposal of household waste among women. The findings revealed that out of 94 women, the majority (53%) had adequate practice, 36% had moderate practice, and only 11% had inadequate practice regarding household waste disposal.^[2]

The findings related to association between knowledge scores of mothers and selected demographic variables showed a significant association between knowledge and selected demographic variables such as educational qualification, occupation, and socio-economic status.

A similar study conducted by Sandhu (2020) on knowledge regarding domestic waste management among women, which reported a significant association between knowledge and demographic variables such as education and occupation.^[7]

The findings related to association between practice scores of mothers and selected demographic variables showed a significant association between practice and selected demographic variables such as educational qualification, occupation, and socio-economic status.

A similar study conducted by Krishna et al. (2025), titled “A Cross-Sectional Study to Assess Household Solid Waste Management Practices Among Residents of an Urban Slum Area in Mumbai”, reported a statistically significant association between practice and educational status.^[8]

IMPLICATIONS

Nursing Practice : The nurses can provide health education to mothers and strengthen awareness on domestic waste management, including proper waste segregation, safe disposal, and hygienic handling of household waste.

Nursing Education : Nursing education should place greater emphasis on environmental health, particularly domestic waste management, by including content on safe waste disposal and its impact on individual and community health.

Nursing Administration : Administrators can organize in-service education programmes for nurses and community health workers to enhance their knowledge and skills on safe waste segregation, proper disposal, and prevention of related health problems.

Nursing Research : The findings of the present study indicate the need for further research on domestic waste management among mothers in different community settings.

RECOMMENDATIONS

- A similar study can be replicated on a larger sample.
- The study can also be conducted among different populations.
- A similar study can be conducted in more communities for generalization of the study findings.
- A comparative study can be conducted between urban and rural areas to compare knowledge and practices of domestic waste management.

CONCLUSION

From the present study, it can be understood that most mothers had adequate knowledge and practices regarding domestic waste management in the selected community of Aizawl, Mizoram. However, a proportion of mothers still had moderate and inadequate levels, indicating that gaps in awareness and practice exist. The findings suggest that although many mothers are following proper waste management practices, there is still scope for improvement. Regular health education, community awareness programmes, and simple educational materials such as pamphlets and booklets can help strengthen knowledge and practices. Community health nurses can play an important role in providing guidance and support. With continued efforts, this can contribute to improved environmental sanitation, reduce health risks, and help prevent the spread of diseases, leading to a healthier and safer community environment.

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CONFLICT OF INTEREST

The authors declare no conflict of interests.

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