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## Research Article

### A STUDY TO ASSESS THE AWARENESS AND PRACTICES REGARDING HOUSEHOLD SOLID WASTE MANAGEMENT AMONG THE RESIDENTS OF PUNE

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#### ABSTRACT

Management of solid waste is always serious problem for developed and developing countries. The quantity of waste is increasing at an alarming rate in India due to rapid urbanization and high population growth. The objective of the present study is to assess the practices and awareness regarding household solid waste management. Investigator has used a structured questionnaire to collect the data regarding awareness and practices on household solid waste management. Cross sectional research design was used with 150 sample size by using systematic random sampling technique. The findings revealed that system of waste management of Pune Municipal Corporation (PMC) is much better. The descriptive analysis also pointed out that the residents of urban community were satisfied with services of PMC. However, with the application of sustainable environmental education greater success ratio can be achieved.

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#### INTRODUCTION

Globally, solid waste management is one of the greatest environmental health challenges and continues to overwhelm local authorities and national government as urban population continue to rise and consumption pattern change. Cities generate about 1.3 billion tonnes of solid waste per year, a volume expected to rise to 2.2 billion times by 2025, a more than double increase for developing countries. This has led to overcrowding and the development of slums that are inadequately provided with basic infrastructure and services characterized by poor solid waste management. This leads to numerous environmental and health risk including contamination of surface and ground water, eco system degradation and soil pollution as well as greenhouses gas emissions by anaerobic decomposition of waste.

Municipal solid waste collection is currently one of the most critical lacking public services in slum areas in Pune and its low coverage has cost public outcry. Factors that affect solid waste management in slums include inaccessibility, unaffordability where the service is expected to be paid for, and poor sanitation. The generation of solid waste is influenced by family size, education level and income among other factors. The environment of communities has a direct bearing on

effective solid waste management and so do their awareness and practices.

Pune generates about 1600 tons of solid waste per day. 160 trucks collect waste door-to-door, collecting an average of 198 tons per day. 847 containers and 116 compactor buckets dispersed around Pune.

##### Need for the study

Solid waste could be defined as non-liquid and non-gaseous products of human activities, regarded as being useless (Baba Yemi and Dauda, 2009). According to the Municipal Solid Waste (MSW) rules 2000, MSW includes commercial and residential waste generated in a municipal or notified area, in either solid or semi-solid form, excluding industrial hazardous wastes, but including treated bio-medical wastes (Toolkit for Solid Waste Management, 2012). Management of such solid waste is one of the major environmental issues as urban population growth and economic development lead to increasing generation of MSW (Waste Composition Study, 2009).

##### Solid waste management plans by Pune Municipal Corporation

- Expansion of door step collection and sources

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- segregation to entire city and for different waste streams.
- Strengthen transport system (feeder, community, bin pick).
- Create visible improvement in street cleanliness levels.
- Ensure timely commissioning of waste processing and recovery capacity.
- Stock holder participation and communication.
- Establish robust complaint tracking and resolution system.

**Pune Municipal Corporation-Swach Model (How it works)**

1. A pair services door to door waste collections for 300-400 households.
2. Segregated wastes expected but not always received from generators.
3. Waste pickers further segregate waste and sell recyclables.
4. Non-recyclables waste delivered to feeder point.
5. Also provide compost services.

The results of our previous research revealed that residents of our urban community had positive attitude and adequate concern regarding household solid waste management. Investigator has decided to conduct the study to assess the awareness and practices of residents at urban community.

**Objectives**

- To assess the awareness regarding household solid waste management
- To assess the practices regarding household waste management.

**METHODOLOGY**

**Setting of the study**

The proposed study was conducted in the urban community of Pune

**Research design**

Cross sectional research design was used.

**Research approach**

A descriptive survey study was selected by the researcher in which an interview was conducted with the residents.

**Population**

Population under study includes residents in the urban community of Pune.

**Variables**

**Research variables**

Awareness and practices regarding household solid waste management.

**Attribute variables**

Age, Gender, No. of people in the household, education, qualification, occupation, religion and family's average income.

**Sampling procedure**

Subjects were randomly selected from the list of households provided by the municipality with a geographical map. The subjects were the residents at the selected family household. The written permission was obtained from corporate of urban community.

**Sample size:** In this study, the sample consisted of 150 residents of urban community.

**Inclusion criteria**

Residents above 20 years age group.

**Tool:** A structured questionnaire was used to assess the awareness and practices.

**Tools and instruments**

The questionnaire was divided into 3 parts

1. Part I: Demographic data of the residents that consists of 5 items.
2. Part II: Assessment of awareness among the residents regarding solid household waste management that consists of 5 items.
3. Part III: Assessment of practices among the residents regarding solid household waste management that consists of 19 items.

**Data collection method**

1. Permission was obtained from Municipal corporator.
2. Informed consent was obtained from subjects.
3. Purpose of conducting the study was explained to the subjects.

**Data was collected using**

- Structured awareness questionnaire.
- Structured practices questionnaire.

**Findings and interpretations**

**Section I: Description of personal characteristics**

**Table 1: Analysis of data related to the gender of the samples**

	Gender	Frequency	Percentage
Valid	MALE	28	18.8
	FEMALE	123	81.2
	Total	150	100

Majority of 81.2% of the residents were female while 18.8% residents were male.

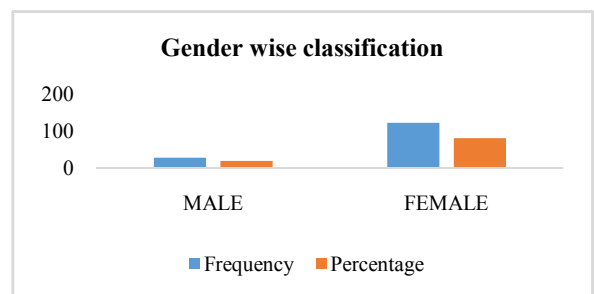


Figure 1

Age wise classification of residents

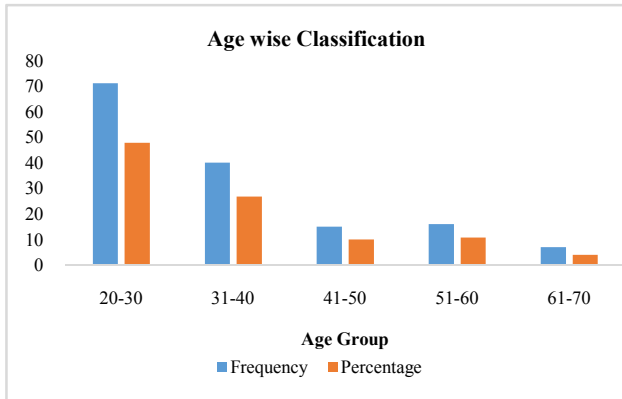


Figure 2

Table 3 Employment Wise Classification

Employment	Frequency	Percent
Employed	90	60.4
Not employed	31	20.8
Valid Student	5	3.4
Retired	11	7.4
Not working	13	8.1
Total	150	100

Majority of 60.4% residents are employed, 20.8% are unemployed, 5% are students, 7.4% are retired and 8.1% are not working at all.

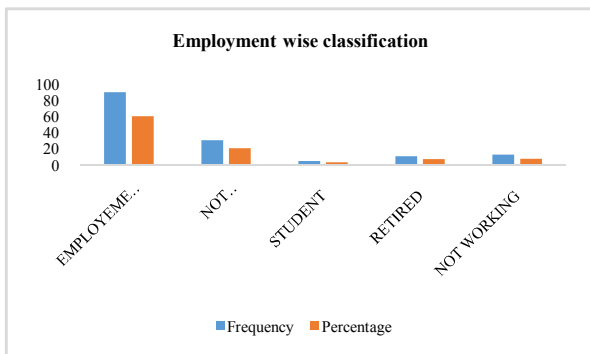


Figure 3

Section III: Assessment of awareness regarding solid household waste management among Pune residents.

51% residents use open container as dustbins and 8.7% use closed container. 79.2% use garbage truck for garbage disposal. 49% know the principle of waste minimization. 89.3% of the residents think that local authorities have a role to play in household solid waste management.

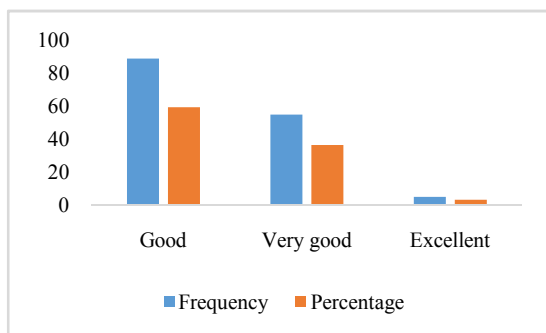


Figure 4 Method of household garbage storage

Table 3 Assessment of awareness regarding solid household waste management among Pune residents

Sr No.	Content	Frequency	Percentage
Method of household garbage storage			
1.	1. Closed container	13	8.7
	2. Open container	76	51
	3. Plastic	31	20.8
	4. bags	30	19.5
	Total	150	100.0
Method of household garbage disposal			
2.	1. Burn	16	10.7
	2. Dump in yard	5	3.4
	3. Dump on road	2	1.3
	4. Garbage truck	118	79.2
	5. Recycle	1	0.7
	6. Reuse	2	0.7
	7. Compost	5	3.4
Total	150	100.0	
3.	Do you know the principle of waste minimization?	Yes No	65 43.0
		Don't Know	73 49.0
	Total	150	100.0
4.	Do you think that local authorities have a role to play in the management of house hold waste?	Yes No	134 89.3
		Don't Know	12 8.1
		Total	150 100.0
	5.	Do you know about segregation of waste?	Yes No
		Don't Know	23 15.4
Total		150	100.0

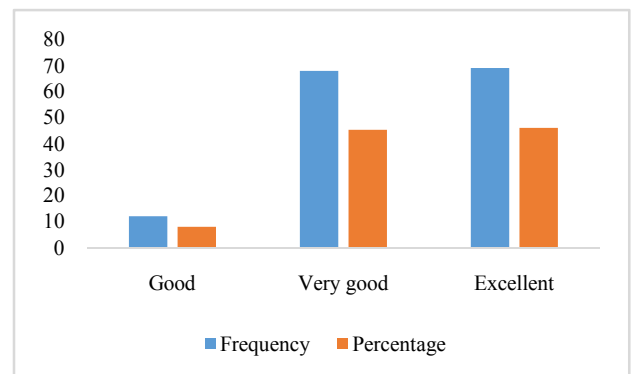


Figure 5 Method of household garbage disposal

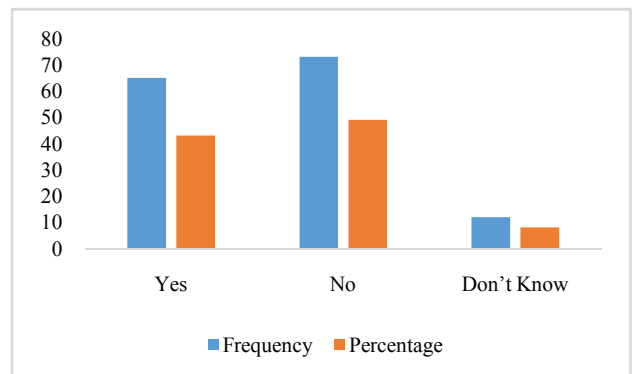


Figure 6 Do you know the principle of waste minimization?

Section III: Assessment of practices regarding solid household waste management among Pune residents.

**Table 4** Assessment of practices regarding solid household waste management among Pune residents

Sr no.	Question	Content	Frequency	Percentage
1.	What type of dustbin do you use?	Metal	22	14.7
		Paper	3	2
		Plastic	79	52.7
		Plastic bag	46	30.7
		Total	150	100.0
2.	Where do you place your waste?	In house	56	37.3
		Outside house	94	62.7
		Total	150	100.0
3.	Do you cover the waste while in house?	Yes	132	88
		No	18	12
		Total	150	100.0
4.	How often do you dispose your waste?	Daily	121	80.7
		Thrice a week	1	0.7
		Twice a week	21	14
		Weekly	7	4.7
		Total	150	100.0

52.7% use plastic dustbins, 62.7% place the waste in house, 88% cover the waste while in house, and 80.7% dispose the waste daily.

## DISCUSSION

The finding of the present study has been discussed with reference to the objectives and assumptions. The finding of the study shows that the knowledge level of residents is good and they do not have good attitude towards solid house hold waste management.

Similarly a study was conducted by Dr. Jigna Trivedi and Dr Bindiya Soni in May 2015 on household waste management practices in Gandhinagar. According to the study, the residents of Gandhinagar rated Gandhinagar Municipal Corporation's waste collection and disposal services as good. The waste management technique adopted by GMC was commendable and could be replicated by GUDA in treating waste. It was noted that GUDA and non-GUDA areas, waste lifters did not insist on separation of waste and the knowledge among the residents was also average.

## CONCLUSION

Finally we would like to conclude that residents in Pune have to improve the practices of household solid waste management and also to increase awareness about it. Therefore present investigators would recommend health care professionals like community nurses to explore the health education to the community regarding household waste management.

## Recommendations

The same type of the study can be done in the form of quasi-experimental study by using pre-test and post-test measuring instrument.

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## CONCLUSION

Waste management activity is crucial to keep the environment clean and people healthy. According to descriptive qualitative analysis the residents of urban community rated PMC's waste collection and disposal services as good. The waste management technique adapted by PMC is commendable. It was noted that in urban community, waste lifters insisted on waste separation. The descriptive analysis also pointed out that the residents of urban community were satisfied with services of PMC. However, with the application of sustainable environmental education greater success ratio can be achieved.

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