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Comparative Study to Assess the Knowledge and Practice of Household Waste Disposal among Homemakers at Selected Urban and Rural Areas in Puducherry



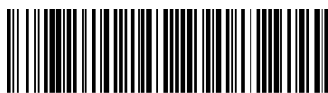
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ABSTRACT

Background: The waste is generated as a consequence of household activities. There is no proper segregation of organic, inorganic, and recyclable wastes at the household level. Still, the public is not disposing of the waste properly and a lack of awareness about improper disposal of waste exists. **Objectives:** To assess the level of Knowledge and Practice of Household waste Disposal among Homemakers in selected urban and rural areas in Puducherry. To compare the Knowledge and Practice of Household waste Disposal between Homemakers in selected urban and rural areas in Puducherry. To find out the correlation between the Knowledge and Practice of Household waste Disposal among Homemakers at selected urban and rural areas in Puducherry. To identify the association between the level of Knowledge and Practice with selected demographic variables. **Materials and Methods:** The Research approach used in this study was a descriptive cross-sectional research design with a sample size of 300 Homemakers by Convenience sampling technique. Data was collected by structured knowledge questionnaire to assess the knowledge and checklist for knowledge on the practice of Household Waste Disposal. The data were analyzed through descriptive and inferential statistics. **Results:** The result showed that in an urban area, the majority of the Homemakers 114(76%) had moderately adequate knowledge, whereas, in the rural area, the majority of the Homemakers 100(66.67%) had moderately adequate knowledge, and in the urban area, most of the Homemakers 74(49.33%) had average practice, Whereas in the rural area, most of the Homemakers 117(78%) had a poor practice of Household Waste Disposal. **Conclusion:** The researcher concluded that when the knowledge level on Household Waste Disposal increases their practice level also increases.

INTRODUCTION:

The Increasing population growth, urban development, and expanding metropolises have led to an increasing amount of waste generation. It is not only a human problem but both human and environmental health is at risk. Also, the risk of non-sanitary waste disposals, which is one of the major problems in the country can, in turn, threaten the health of human communities as a whole. One of the main origins of waste generation is domiciliation around residential areas. The major part of household wastes is the animal and vegetable wastes such as vegetables, fruit and animal skin, bones and wastes of meat, poultry, and fish which are called putrescible wastes. Paper and cardboard including newspapers, books, notebooks, and packed papers are another important part of wastes, which is called trash. The percentage of waste generated in domiciliation contains hazardous materials that require special management to eliminate potential contamination. [1, 2]

The waste is generated through household activities such as cleaning, cooking, repairing empty containers, packing, huge use of plastic carry bags. There is no standard system of organic, inorganic, and recyclable waste segregation at the household level. Inappropriately managed waste streams can cause significant risk to health and the environment. Improper waste management leads to substantial negative environmental impacts for example Pollution of air, soil, and water. [3]

Biodegradable and non-biodegradable waste harm humans, animals, and their environment. Therefore, proper management of wastes disposal has to be initiated. This is not only the responsibility of the Government, every individual can contribute. The three Rs- Recycle, Reuse, and Reduce are the simplest steps that can be by the public. This can save energy and other resources as well. Another step is to separate biodegradable from non-biodegradable at home. [4]

In India, the global solid waste generation report says that in the year 2010 people produce 3.5 million tons of waste per day. In 2025 it will increase to around 6 million tons of waste per day.

Out of the total municipal waste collected, on average 94 percent is dumped on land and 6 percent is composted. According to the world health organization, an average of Rs.6500 per person was lost in India due to cleanliness. [5]

Current global solid waste generation levels are approximately 1.3 billion tons per year and are expected to rise to 2.2 billion tonnes by 2025. Ineffective waste management has serious consequences on health and the environment and can be most effectively tackled through an integrated approach consisting of 3 Rs [5]. According to the world health organization, an average of Rs.6500 per person was lost in India due to cleanliness.

Puducherry has been rated as the second city in India has the highest per capita income next to New Delhi, thus the per capita waste generation is also proportionally higher than the national average. It has been estimated that per capita waste generation in Puducherry is nearly 500 tons of municipal solid waste. In the year 2020, it is estimated to be 1600 tons of municipal solid waste.

The Government is giving priority for clean India by providing street dust bins, door to door households waste collection, conducting awareness rally on waste management and awareness programs for the people, still, people in many remote places are not aware of proper waste disposal practice due to lack of awareness about emerging health problems related to improper waste disposal practice. So the Investigator selected this study and felt that it would greatly benefit the Homemakers for proper Household Waste Disposal practice.

MATERIALS AND METHODS:

The Research approach used in this study was a descriptive cross-sectional research design. With a sample size was 300 Homemakers by Convenience sampling technique [6, 7, 8]. The tool used in the study was a structured questionnaire. It included 3 sections. Section A consists of demographic variables with 10 questions and section B consisted of a Knowledge questionnaire regarding household waste disposal with 20 questions and section C consists of a checklist for assessing the knowledge on the practice of household waste disposal. The data were analyzed through descriptive and inferential statistics [9].

RESULTS:

Considering the distribution of a demographic variable, in an urban area concerning age, the majority 65(43.34%) of the Homemakers belongs to the age group of 31–40 years. Concerning religion, the majority 134(89.33%) of Homemakers were Hindus.150 (100%) were residing in an

urban area. With regards to the educational status of Homemakers, the majority 58(38.67%) had up to primary education. Regarding marital status, 138(92%) were married. Regarding the monthly income of the family, the majority 58(38.67%) were earning between incomes of Rs.5000 – Rs.10000. Concerning the type of family, 102(68%) belonged to a joint family. Regarding the number of family members, 69(46%) had 4 members in their family. Regarding the source of information, 84(56%) received health information through Newspapers/TV.

Whereas in the rural area, with regard the age, the majority 71(47.33%) of the Homemakers who belong to the age group of 31–40 years. Concerning religion, the majority 139(92.67%) of Homemakers were Hindus. 150(100%) were residing in a rural area. With regards to the educational status of Homemakers, the majority 61(40.67%) had up to secondary education. Regarding marital status, 144(96%) were married. Regarding the monthly income of the family, 60(40%) were earning between incomes of Rs.5000 – Rs.10000. Concerning the type of family, 96(64%) belonged to a joint family. Regarding the number of family members, 68(45.33%) had 4 members in their family. Regarding the source of information, 58(38.66%) received health information through Newspapers/TV.

Table no 1: Level of knowledge on Household waste disposal among Homemakers in an urban and rural area. N = 300(150+150)

Knowledge level of Homemakers	Inadequate (0-35%)		Moderately Adequate (36-70%)		Adequate (70-100%)	
	No.	%	No.	%	No.	%
Urban Area	24	16.0	114	76.0	12	8.0
Rural Area	39	26.0	100	66.67	11	7.33

Table 1 shows that in the urban area, most of the Homemakers 114(76%) had moderately adequate knowledge, 24(16%) had inadequate knowledge and 12(8%) had adequate knowledge on Household Waste Disposal. Whereas in the rural area, most of the Homemakers 100(66.67%) had moderately adequate knowledge, 39(26%) had inadequate knowledge and 11(7.33%) had adequate knowledge on Household Waste Disposal.

Table No. 2: Level of Knowledge on the practice of Household waste disposal among Homemakers in an urban and rural area. N = 300(150+150)

Knowledge on Practice level of Homemakers	Poor Practice (0-35%)		Average Practice (36-70%)		Good Practice (71-100%)	
	No.	%	No.	%	No.	%
Urban Area	71	47.34	74	49.33	5	3.33
Rural Area	117	78.0	30	20.0	3	2.0

Table 2 reveals that in the urban area, most of the Homemakers 74(49.33%) had average practice, 71(47.34%) had poor practice and 5(3.33%) had a good practice on Household Waste Disposal. Whereas in the rural area, most of the Homemakers 117(78%) had poor practice, 30(20%) had average practice and 3(2%) had a good practice on Household Waste Disposal.

Table No. 3: Comparison of Knowledge and Knowledge on Practice of Household Waste Disposal between Homemakers in the urban and rural area. N = 300(150+150)

Variables	Area	Mean	S.D	Mean Difference Score & %	Unpaired 't' Test Value
Knowledge	Urban Area	12.63	2.55	0.64 (3.2%)	t = 2.075 p = 0.039, S*
	Rural Area	11.99	2.79		
Practice	Urban Area	10.39	2.54	2.31 (11.55%)	t = 6.848 p = 0.0001, S***
	Rural Area	8.09	3.25		

***p<0.001, *p<0.05, S – Significant

Table 3 portrays that the mean score of knowledge among Homemakers in the urban area was 12.63±2.55 and the mean score in a rural area was 11.99±2.79. The mean difference score was 0.64 i.e., 3.2%. From the above findings, it is inferred that Homemakers in the urban area had more knowledge of Household waste disposal in the rural area. The calculated unpaired test value of t = 2.075 was found to be statistically significant at p<0.05 level in the level of Knowledge on Household Waste Disposal between Homemakers in the urban and rural area.

Table 3 also shows that the mean score of practice among Homemakers in the urban area was 10.39 ± 2.54 and the mean score in a rural area was 8.09 ± 3.25 . The mean difference score was 2.31 i.e., 11.55%. From the above findings, it is inferred that Homemakers in the urban area had more knowledge on the practice of Household waste disposal in the rural area. The calculated unpaired t test value of $t = 6.848$ was found to be statistically significant at $p < 0.0001$ level in the level of knowledge on the practice of Household Waste Disposal between Homemakers in the urban and rural area.

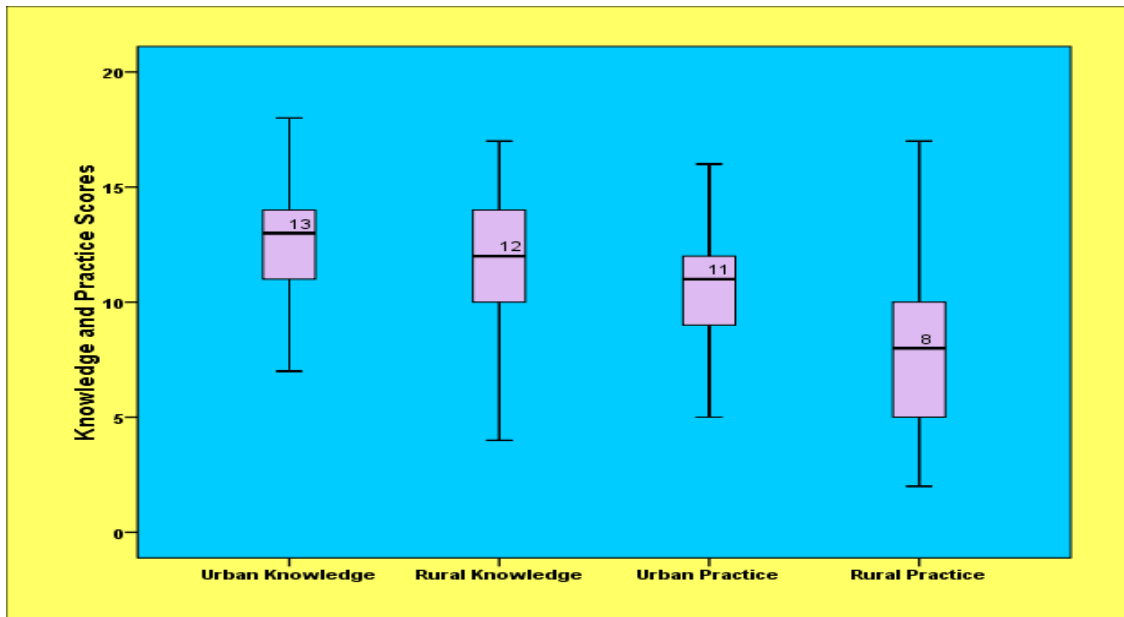


Figure No. 1: Comparison of Knowledge and Knowledge on Practice of Household Waste Disposal between Homemakers in the urban and rural area.

Table No. 4: Correlation between Knowledge and Knowledge on Practice of Household Waste Disposal among Homemakers in an urban and rural area. N = 300(150+150)

Area	Variables	Mean	S.D	Karl Pearson's 'r' Value
Urban Area	Knowledge	12.63	2.55	r = 0.386 p = 0.001, S***
	Practice	10.39	2.54	
Rural Area	Knowledge	11.99	2.79	r = 0.139
	Practice	8.09	3.25	p = 0.091, N.S

*** $p < 0.001$, S – Significant, N.S – Not Significant

Table 4 depicts that the mean score of knowledge among Homemakers in the urban area was 12.63 ± 2.55 and the mean score of practice was 10.39 ± 2.54 . The calculated Karl Pearson's Correlation value of $r = 0.386$ shows a positive correlation which was found to be statistically significant at $p < 0.001$ level. This infers that when the knowledge on household waste disposal increases their practice level also increases.

Table 4 also depicts that the mean score of knowledge among Homemakers in the rural area was 11.99 ± 2.79 and the mean score of practice was 8.09 ± 3.25 . The calculated Karl Pearson's Correlation value of $r = 0.139$ shows a positive correlation that was not found to be statistically significant.

DISCUSSION:

The results show that in the urban area, most of the Homemakers 114(76%) had moderately adequate knowledge, 24(16%) had inadequate knowledge and 12(8%) had adequate knowledge on Household Waste Disposal. Most of the Homemakers 74(49.33%) had average practice, 71(47.34%) had poor practice and 5(3.33%) had a good practice on Household Waste Disposal. Whereas in the rural area, most of the Homemakers 100(66.67%) had moderately adequate knowledge, 39(26%) had inadequate knowledge and 11(7.33%) had adequate knowledge on Household Waste Disposal. Most of the Homemakers 117(78%) had poor practice, 30(20%) had average practice and 3(2%) had a good practice on Household Waste Disposal. A study by John JV *et al.* (2014) shows that the Homemakers 77.4% had average knowledge and 75% had average practice about the waste disposals. A study by Ambrin Shahzadi *et al* shows most of the respondents (52%) had poor practice [10].

The calculated unpaired t' test value of $t = 2.075$ was found to be statistically significant at $p < 0.05$ level and this indicates that there was a statistically significant difference in the level of knowledge on Household Waste Disposal among Homemakers in the urban and rural area.

In urban, the demographic variables educational status and source of health information had shown statistically significant association with the level of knowledge on Household Waste Disposal among Homemakers in the urban area at $p < 0.05$ level and source of health information had shown statistically significant association with the level of practice of Household Waste Disposal among Homemakers in the urban area at $p < 0.05$ level. In rural, the demographic

variables educational status and age had shown statistically significant association with the level of knowledge on Household Waste Disposal among Homemakers in the rural area at $p < 0.001$ and $p < 0.05$ level respectively, and the other demographic variables had not shown statistically significant association with the level of knowledge on Household Waste Disposal among Homemakers in the rural area. In a study by Henry O. Addo *et al.* (2017) the results show that age ($p < 0.02$) had a statistically significant association in the level of practice. [11] That none of the demographic variables had shown a statistically significant association with the level of practice of Household Waste Disposal among Homemakers in the rural area.

CONCLUSION:

This study explored the importance of household waste disposal for sustainable development with the concern of a new development process. Hence from the present study, it can be generally concluded that people have moderate knowledge and average practice on Household Waste Disposal and that when the knowledge level of the people on Household Waste Disposal increases their practice level also increases.

RECOMMENDATION

- Replication of the study may be done with a large sample in different settings to generalize the study findings.
- Future studies can find out the effectiveness of interventional strategies with waste disposal.
- A descriptive study on knowledge, attitude, and practice on waste disposal among household members.

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