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# Knowledge, attitude, practice and socio-economic factors influence on households waste management practices

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**Abstract**
Due to the increasing population and lifestyle changes, the generation rate of household solid waste has increased significantly, resulting serious problems on public health and the environment. There is a need for every single person to act responsibly to protect environment and safeguard human health by following proper waste management practices. This paper aims to study the impact of knowledge, attitude and practices of household solid waste management with socio-economic variables. The data was collected from a sample of 60 selected households using questionnaire survey. Both qualitative and quantitative methods were used to analyse the data including generation of percentages and descriptive statistics. The results show that socio-economic factors and other variables have strong influence on the waste management practices of households.

**Keywords:** Waste, sustainability, climate change, environmental concern, knowledge, attitude, practices, waste management, human behaviour

## Introduction
The rapid urbanization and change life style has increased the waste load and thereby pollution loads on the urban environment to unmanageable and alarming proportions. The existing waste dumping sites are full beyond capacity and under unsanitary conditions leading to pollution of water sources, proliferation of vectors of communicable diseases, foul smell and odors, leachate generation etc. There is a difficulty to get new dumping yards in every region. Increase in population, Environment destructions, Lifestyle modifications, Awareness and knowledge on waste management practices, implementation of government policies are the major factors of increase in waste generation around the world. Hence, there is a need to study the underlying factors and consequences to understand the concept of solid waste management.

## Review of literature
The respondents perception towards solid waste management is a key entity for the sustainable management of the household wastes. Understanding the significance of waste management helps in reducing the generation of waste and better management to protect health and environment. Studies by Otchere *et al*., (2014) [12] reported that a proper understanding of sustainable waste management plays a significant role in how the waste is collection, transportation and disposal.
Padi *et al*., 2015 [13] in their study explained that the age of the Household have influence on the improved waste collection service. Compared to the older ones, young generation could be more educated and be aware about the importance of proper waste management.
Roy and Deb (2013) [14] in their study found that, the more the number of person living in the house, the more waste will be generated and might become difficult to manage. (Bhattarai, 2015; Nkansah *et al*., 2015) [6, 11] also felt household size directly impacts on the waste generation and positively influence the improved waste collection service among households.
Hoornweg and Bhada-Tata (2012) [9] found out that rapid increase of population, lifestyle modifications, income level are the factors of solid waste generation. Proper management of waste helps in reducing the risk of health issues and protect environment. Xu *et al*. (2017) [18] explained that low income household are more likely to recycle than higher income household. Ramachandra *et al*. (2018) [15] in their study stated that the higher the income of a household,

the higher its purchasing power, and this can be the reason for income to play a major role in waste generation.

Gu *et al*. (2015) [7] in his study found out that the higher education is not related with high level of awareness on environmental issues. Households participation in awareness campaign, training programs on waste management and recycling activities can help in the improving the waste management crisis.

Improper solid waste management is a serious threat to the individuals health and the environment. This gives rise in insects and rodents breeding which potential disease transmitters (Yemaneh *et al*., 2017).

Tuladhar and Spuhler (2016) [17] through their study explained that managing household waste at source level can be cost effective approach. It also helps in minimizing the waste generation and improves overall efficiency of waste management protecting the environment.

Thirumarpan *et al*., 2015 [16] Stated that proper disposal of waste is very essential. Contamination of environment and spreading of contagious diseases among the peoples are due to poor waste disposal practices. Practices can be enhanced by providing knowledge and awareness regarding household waste disposal through various communication channels (Adogu *et al*., 2015) [1].

Manya *et al*., (2017) [10] in their study, solid waste management was divided into four levels: to estimate the respondents' level of knowledge towards Excellent knowledge, Good knowledge, satisfactory knowledge and poor knowledge. The result of this study showed that 13.0% is excellent, 58.0% is good, 17.0% is satisfactory and 12.0% is poor. In regard to the type of knowledge the study found majority of the respondents 58.0% had good knowledge towards solid waste management. Similar study was conducted in Malaysia city it showed that best knowledge level of respondents were 64% at highest.

Awopetu *et al* (2013) [3] focused on public attitudes towards reducing, reusing and recycling solid waste in the Makurdi Metropolitan area of Nigeria. The researchers found that local authority 11 strategy towards a sustainable hierarchy and federal government funding be forthcoming to make necessary infrastructure improvements and embrace public attitudes to solid waste reduction, reuse and recycling Hamer, (2018) [8] stated that there is a need to bring change in the attitudes of the residents regarding the threats associated with open throwing of waste material. Previous numerous studies found that people living habits, household income, family size, level of educational attainment, religious and cultural beliefs, and social and public attitudes highly influence the generation and disposal of solid waste.

A study carried out by Banga and Margerat (2013) [5] reveals that households knowledge, attitudes and practices on the separation and recycling of solid waste indicated that although the public is aware of solid waste separation and recycling practices, they did not participate in such initiatives awareness and knowledge of waste disposal is influenced by many factors in the study of Banga and Margerat (2013) [5].

## Materials and Methods

Present study was conducted in Hyderabad region of Telangana state, India. General profile of the respondents including age, education, type of family, size of the family, occupation, details were collected to know the socio-demographic and other variables related to the respondents. Keeping in mind the objectives of the study an interview schedule cum observation sheet was developed to validate the schedule an. The data thus collected in 60 selected households were tabulated and analyzed through frequencies and percentages to draw meaningful inferences from the results of the study.

## Results and discussion

The socio-economic profile helps in understanding the perspective of the respondents, it is a combination of socio-personal and economic environment. Respondents age, marital status, family size, family type were classified as socio-personal environment, while education, income and occupation were under economic environment. Analyzing the socio-economic factors and other variables such as knowledge, attitude and practices of households helps in understanding the respondents concern towards environment and the surroundings towards waste management.

### Socio-economic factors of the respondents

**Table 1:** Socio-demographic profile of the Respondents, (n=60)

| S. No | Particulars | Frequency (f) | Percentage ( % ) |
|---|---|---|---|
| **1.** | **Age group** | | |
| | Below 30 | 25 | 41 |
| | 30-40 | 15 | 25 |
| | 40-50 | 12 | 20 |
| | 50-60 | 4 | 7 |
| | 60 above | 4 | 7 |
| **2.** | **Education** | | |
| | Illiterate | 3 | 5 |
| | primary | 9 | 15 |
| | Diploma | 13 | 22 |
| | Graduate | 23 | 38 |
| | P.G | 12 | 20 |
| **3.** | **Marital status** | | |
| | Married | 58 | 97 |
| | Unmarried | 2 | 3 |
| **4.** | **Family type** | | |
| | Nuclear | 42 | 70 |
| | Joint | 18 | 30 |
| **5.** | **Family size** | | |
| | Small (upto 4 members) | 17 | 28 |
| | Medium(5-6 members) | 24 | 40 |
| | Large( 7& above) | 19 | 32 |
| **6.** | **Annual income** | | |
| | Low (Up to 25,000) | 20 | 34 |
| | Middle (25,000-50,000) | 26 | 43 |
| | Above 50,000 | 14 | 23 |
| **7.** | **Family occupation** | | |
| | Labor | 6 | 10 |
| | Private sector | 24 | 40 |
| | Business | 9 | 15 |
| | Government service | 10 | 17 |
| | Caste occupation | 2 | 3 |
| | Un employed | 9 | 15 |

**Age of the respondents:** The research data shows that 42 percent of the respondents were in the age group of Below 30 years fig.1, followed by those having age between 30-40 with 25 percent and remaining 14 percent of the respondents belong to above 50 years of age.

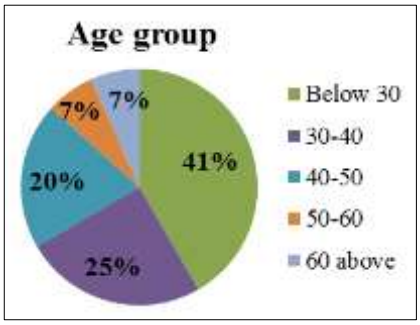


**Fig 1:** Age Group

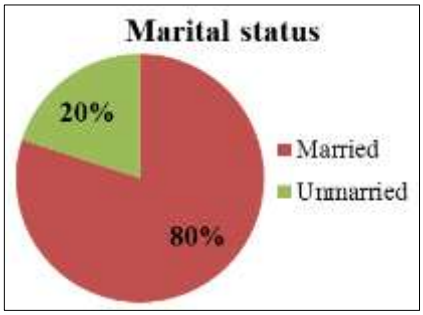


**Fig 2:** Marital Status

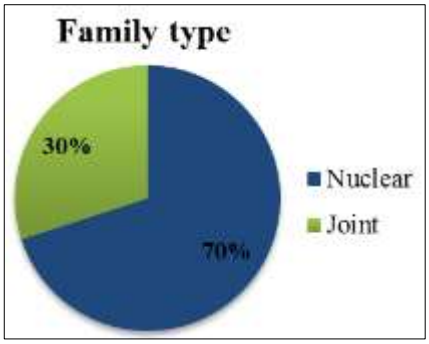


**Fig 3:** Family type

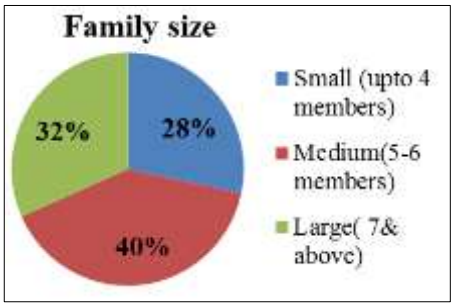


**Fig 4:** Family size

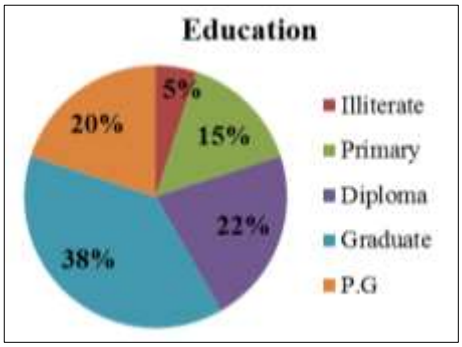


**Fig 5:** Education

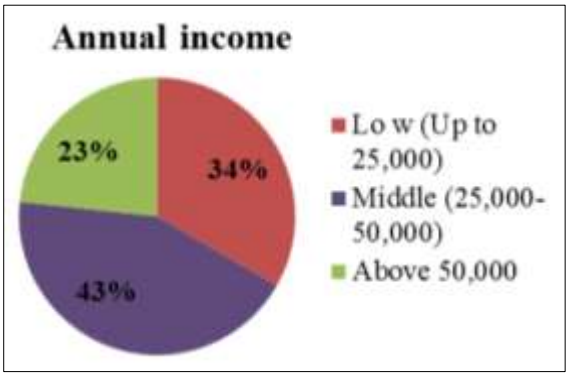


**Fig 6:** Annual Income

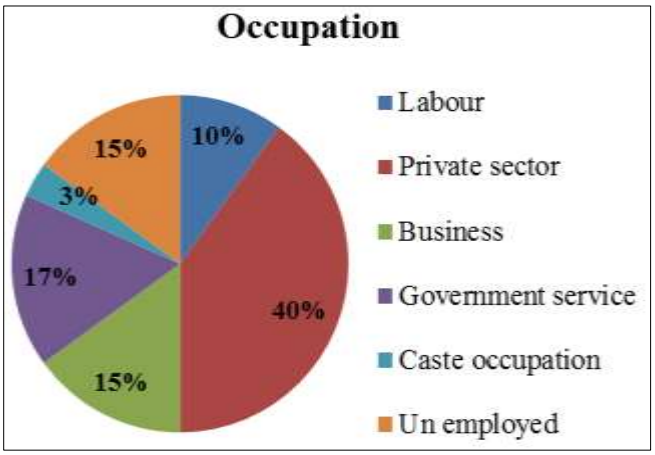


**Fig 7:** Occupation

**Marital status:** The data regarding marital status of the respondents fig.2 points out that majority percent were married and very less percent of the respondents were unmarried.

**Type of family**: Regarding type of family, a majority of about 64 per cent, belonged to nuclear family with an exemption of about 36 per cent of the respondents fig.3 belonging to nuclear family.

**Family size:** The data indicated that the respondents with 40 percent had medium size family with 5-6 members fig.4 followed by large family having above 7 members with 32 percent and 17 percent belonging to small family i.e., upto 4 members.

**Family income:** The standard of living of households is mostly based on its family income which would affect the economic status of the families. Middle income groups with 43 percent families were earning between 25,000-50,000/annum fig.5 followed by lower and upper income groups.

**Educational status:** Majority of the respondents were graduates with 38 percent followed by 20 percent of post graduates and 22 percent fig.6 of senior secondary education. Awareness of cleanliness, environmental management are likely to be influenced by the educational status.

**Family occupation:** The data revealed that nearly half of the respondents majority were working under private sector with 24 percent, fig.7 followed by 10 percent of government services and remaining were either business holders,

unemployed or home makers.

Management of household waste is much easier in both rural and urban areas of India. And the above socio economic factors are responsible for waste generation. Waste generation, Waste sorting, Waste Collection, Waste treatment and Waste disposal are major components of household solid waste management which requires prior attention thus helping in reduction and minimization of waste in landfills table.2. Along with socio-economic factors other variables like knowledge, attitude and practices of the respondents were tabulated.

**Table 2:** Waste management process at household level

| Waste Generation | Waste Sorting | Waste Collection | Waste Treatment | Waste Disposal |
|---|---|---|---|---|
| • Kitchen waste<br>• General waste<br>• Garden waste<br>• Medical waste<br>• E-waste<br>• Domestic Hazardous waste<br>• Total amount of waste | • Waste segregation<br>• Wet waste<br>• Dry waste<br>• Recyclable<br>• Non-recyclable<br>• Waste composition | • Day to day collection<br>• Door to door collection<br>• Private and local collection<br>• Collection transport<br>• Cost of collection<br>• Duration of collection | • Composting<br>• Recycling<br>• Reusing<br>• Reducing<br>• Incineration<br>• Landfill<br>• Selling<br>• Treatment | • Volume of waste<br>• Dumping<br>• Composting<br>• Burning<br>• Regulation<br>• Illegal disposing |

### 1.2 Respondents Knowledge, Attitude and Practices on waste management practices

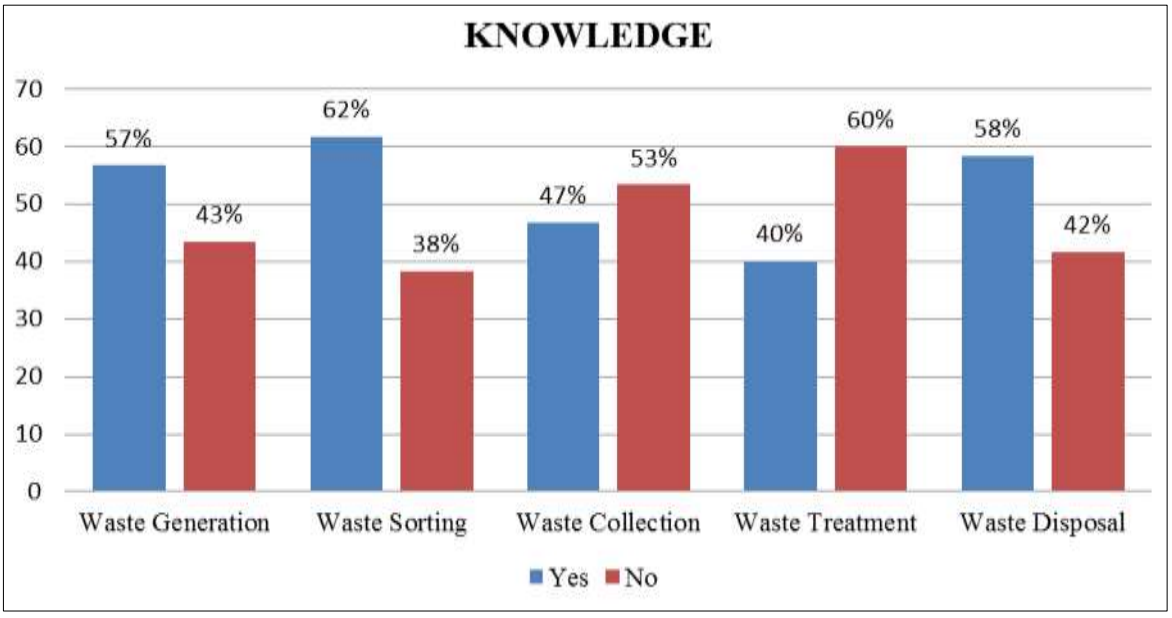


**Fig 8:** Knowledge

Data reveals that more than half of the respondents have knowledge on Waste generation (57 percent), Waste sorting (62 percent), and Waste disposal (58 percent). Remaining respondents have low knowledge on waste collection and waste treatment i.e, handling of waste, practicing 3Rs comparatively. It is worrying that majority of the respondents in the study area have knowledge on solid waste management but poor understanding on improper disposal of waste and treatment have encouraged the problems of solid waste management.

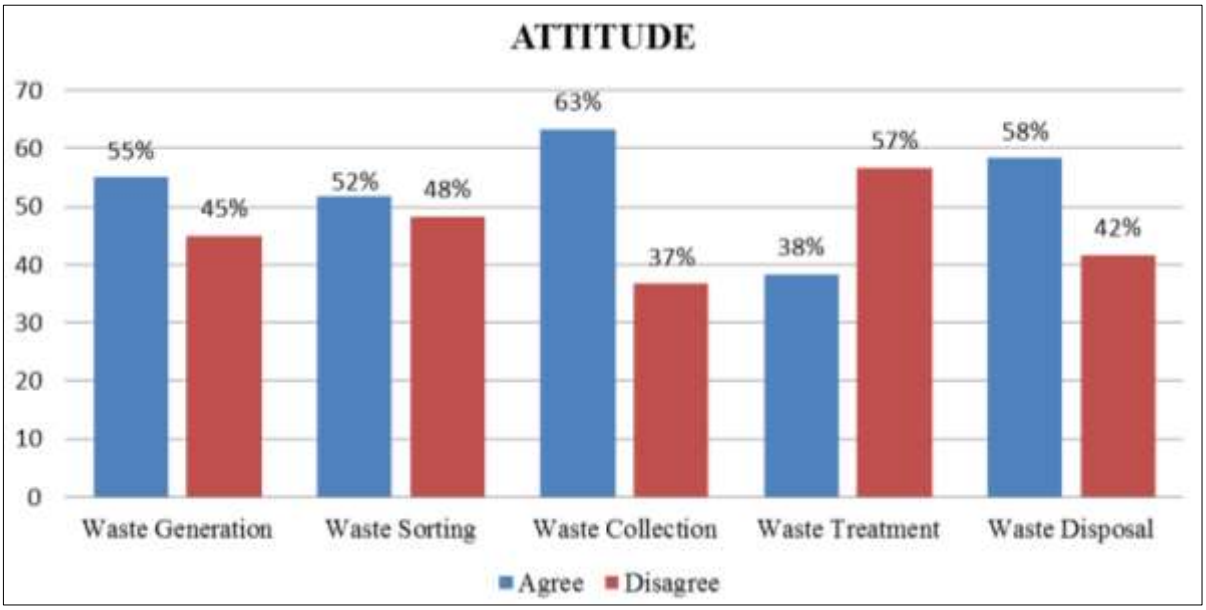


**Fig 9:** Attitude

More than half of the respondents agree that the Waste generation (55 percent), Waste sorting (52 percent), Waste Collection(63 percent), Waste treatment(58percent) and Waste disposal(58percent) practices helps in reducing the waste at household level. Respondents also agree that strong policies are needed to effectively implement programs and schemes that helps in dealing the household solid waste problems.

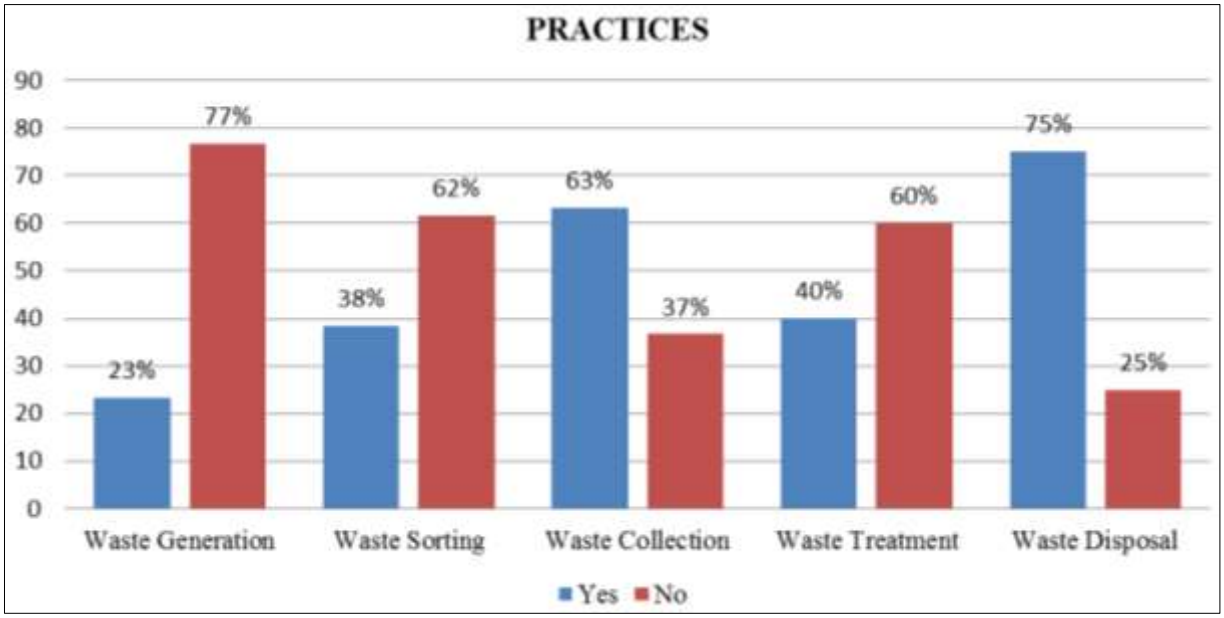


**Fig 10:** Practices

Results reveal that the practicing the waste management at household level is very less due to several underlying factors like lack of time, awareness, environmental concern etc. It is also evident that practicing waste management at household level requires knowledge on handing the waste at individual level. The data also stated that waste generation (77 percent) and waste disposal (75 percent) are the common practices that are followed by the majority respondents.

Waste management has become a subject of concern globally and nationally. The More advanced the human settlements, the more complex the waste management. There is a continuous search for sound solutions for this problem but it is increasingly realized that solutions based on technological advances without human intervention cannot sustain for long and it in turn results in complicating the matters further.

## Conclusion

To conclude in this study it is observed that among the socio-economic factors, family size, education and income are important indicators to analyze the waste generation at household level. There was a challenge of solid waste segregation, sorting, collection, practicing recycling, reusing, reducing, composting, and disposal of waste individual level as well as community level. To attain proper waste management it is collaboratively government and individual responsibility. There is an underlying gap between the knowledge and practices of the respondents, more efforts are required in creating the awareness about waste management practices in order to protect human beings as well as the environment to attain sustainable living.

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