

# Solid Waste Disposal Practices in an Urban Slum Area of South India

| KEYWORDS   | Solid waste, urban slum, practices. |   |  |  |  |
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**ABSTRACT** Background and Objectives: Urban slum area has many problems and issues with respect to Municipal Solid Waste Management. To understand the solid waste disposal practices regarding household waste, a study was undertaken among families of urban slum area of Nalgonda town. A community based cross-sectional study was undertaken during 2011-12 among 127 households of the urban slum selected by multistage systematic sampling. The information was gathered by one to one interview of adult respondents available at the time of house visit. Mean age of the study subjects was observed to be 42.32 years (±SD 11.09). Mean per capita per day waste generation was 125 grams. Majority of respondents i.e. 54.3% were having poor knowledge levels regarding segregation of solid waste. The most common problems for waste disposal reported were non availability of dust bin (36.2%) and municipal van (30.7%) for regular collection of solid waste.

## Introduction:

Method of handling waste i.e. storage, collection and disposal of waste determines risk to environment and public health. In urban slum areas of developing counties like India, problems and issues of Municipal Solid Waste Management are of immense public health importance. Municipal boards and health care providers are facing major challenges in the management and recycling of solid waste especially in urban slums.

In India as per municipal solid waste rule 2000, Local Administrative Body (LAB) has the responsibility of municipal solid waste management. Each LAB must provide the facilities with respect to collection, storage, segregation, transport, treatment and disposal of municipal solid waste.<sup>1</sup> Urban health resource center recommended to map facilities in urban slum and make existing public and private sector services available and accessible to the urban slum families<sup>2</sup>. Kjellstrom et al in their study concluded that Basic sanitation, safe water and proper solid waste management are the key health equity interventions in deprived urban areas.<sup>3</sup>.

This study was undertaken to understand the solid waste disposal practices regarding household waste among families of urban slum area of, Nalgonda town.

## Materials and Methods:

Study area constitutes 3 out of 36 wards of Nalgonda town which is an urban slum area and field practice area under department of community medicine. Total population of the area is 14,352 with 4,254 households. A community based cross-sectional study was undertaken among 127 households selected by multistage systematic sampling. A Pilot study was undertaken for validation of questionnaire and estimation of sample size. The information was gathered by one to one interview of adult respondents available at the time of house visit. Pre-tested semi-structured questionnaire was used for data collection. Data was compiled and analyzed using SPSS package version 19.

#### Results:

Mean age of the study subjects was observed to be 42.32 years (±SD 11.09). Average family size was 3.98 ((±SD1.38) and majority of families i.e. 92.9% belonged to nuclear family. Majority of the subjects were Hindu by religion (92.9%) and belonged to backward class (53.5%). Out of 127 subjects, 66 i.e. 52% subjects were educated upto secondary level. Mean per capita per day waste generation was 125 grams.

Dust bin was present in 56 (44.1 %) of households but only 24(18.9%) were having separate dust bins for dry and wet refuse. Most of respondents i.e. 43.3% were having no knowledge regarding segregation of solid waste. Only 22% of the respondents had knowledge about recycle and reuse of household waste and 18% actually practicing it [Table 1].

Dumping the waste outside the house indiscriminately was preferred by majority (66.1%) of the families. Only 38.8 % of families admitted that municipal vehicle is collecting their solid waste. The most common problems for waste disposal reported were non availability of dust bin (84.5%) and municipal van (22.6%) for regular collection of solid waste. [Table 2]

| Table 1:- | Knowledge | and | practice | about | handling | of | sol- |
|-----------|-----------|-----|----------|-------|----------|----|------|
| id waste. | (N=127)   |     |          |       |          |    |      |

|                                | Responses    |              |  |
|--------------------------------|--------------|--------------|--|
|                                | YesNumber    | No Number    |  |
| Knowledge & Practice           | (Percentage) | (Percentage) |  |
| Knowledge about segregation    | 72(56.7)     | 55 (43.3)    |  |
| Availability of dust bins      | 24(18.9)     | 103 (81.1)   |  |
| Practice of segregation        | 22(17.3)     | 105 (82.7)   |  |
| Knowledge about reuse& recycle | 28(22)       | 99 (78)      |  |
| Practice of reuse & recycle    | 23(18.1)     | 104 (81.9)   |  |

# Table 2: Reasons for improper disposal of solid waste (N=84)

| Reasons  | Number | Percentage |
|--|--------|------------|
| Non availability of<br>single/two dustbins                 | 71     | 84.5       |
| Non availability of<br>municipal vehicle/ irregular visits | 19     | 22.6       |
| Availability of open dumping space                         | 05     | 6          |
| Total  | 99*    | 117.9*     |

\* Multiple responses

#### Discussion:

Average per capita per day waste generation in present study was 0.12 kg. Study done by NEERI which is sponsored by central pollution control board on Assessment of status of municipal solid waste management in metro cities and state capitals revealed that waste generation rate varies from 0.12 to 0.60 kg per capita per day<sup>4</sup>. Rapid urbanization and changing consumption pattern among people living in developing countries like India there will be fast increase in the generation of municipal solid waste<sup>5</sup>. Though 56.7% of the respondents in present study had knowledge about segregation of waste but only 18.9% reported to have separate dustbins and 17.3% were actually practicing it. Kaundal et al in their study reported that 39.8% subjects suggested making separate dustbins available for segregation of waste and proper disposal of household waste<sup>6</sup>. Knowledge (22%) and practice (18.1%) about reuse and recycle of the waste was very poor. For minimization of waste and reduction in the demand for landfill families needs to practice recycling of household waste and NGOs can play important role in promoting recycling of waste 7. In our study only 38.2% families were disposing their household waste through municipal vehicle. Reasons put forth by majority of them were non availability of separate dustbins and municipal waste collection vehicle. Also some families reported availability of open dumping space and common practice as the reasons for not following scientific methods of waste disposal. Kamath et al in their study in Udupi taluk of Karnataka observed that families in urban areas were disposing solid waste through municipal waste collection vehicles (88%) and in rural area by burning (75.8%)<sup>8</sup>. Study done by Karwasara Sonu on mode of garbage disposal by families of Hisar city of Haryana found that 60% of the families dispose the household waste collected in the bin directly outside the home9. Puri Avinash et al in their study done in Jalandhar city observed that solid waste is not segregated and dumped indiscriminately by the families. This reflects the need to create awareness in the community on the need for segregation, recycling and proper disposal of solid waste. Resources like separate dust bins should be provided to the community and regular house to house collection of solid waste should be

done on regular basis to follow the practice of proper solid waste disposal.

#### Conclusion:

Non availability of dust bins, irregular visits of municipal vans for household waste collection and lack of knowledge regarding importance of segregation of waste were observed to be the principal problems in the practice of solid waste disposal by urban slum families.

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