# **Original Research Article**

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# An epidemiological cross sectional study to assess the socio demographic profile of rag pickers in an urban slum

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#### **ABSTRACT**

**Background:** Most studies report that waste pickers constitute disadvantaged and vulnerable segments of the population. Third World waste pickers face multiple hazards and problems. Due to their daily contact with garbage, waste pickers are usually associated with dirt, disease, squalor, and perceived as a nuisance, a symbol of backwardness, and even as criminals. They survive in a hostile physical and social environment. Sometimes scavengers face extreme animosity and violence. The present study was carried out to assess the demographic distribution and assess health profile and health status of rag pickers in an urban slum.

**Methods:** The cross-sectional study includes 240 adult population from the urban slum of one of the metropolitan city in India and study was carried out over a period of one year from January 2014 to December 2014.

**Results:** It was seen that out of 240 people interviewed for the study majority were females (60%) and the rest were males. The majority of the subjects were illiterate (83.7%) and a majority of them were Buddhists (58%) by religion. Most of them belonged to the lowest socio-economic class (85.2%). Most of them complained of the following problems like inadequate sanitation, addictions of smoking (100%), alcohol intoxication (69%).

**Conclusions:** From the following study it was seen that the majority of the rag pickers were illiterate, malnourished, most of them worked in this occupation only for monetary basis, lived in conditions of bad sanitation, and had many requirements from the government like good sanitation and rehabilitation to other jobs.

Keywords: Waste pickers, Urban areas, Health status

#### INTRODUCTION

"Waste pickers contribute to the economy and benefit the environment. However they are socially disadvantaged, discriminated against and harassed by the public, ignored and treated as a nuisance by the government".

Despite spending 30 to 50% of their operational budgets on waste management, Third World cities only collect between 50 to 80% of the refuse generated.<sup>2</sup>

"In the west, they recycle because they know that doing so is essential for conserving our planet's resources. However, for some of the poorest people in the developing world, recycling often isn't a choice, but a necessity of life".<sup>3</sup>

#### Situation in India

India's booming urbanization brings the problem of waste management. As more people are migrating towards the cities, the amount of waste is increasing at a high pace and waste management is likely to become a critical issue in the coming years.

Mumbai, for example, generates nearly 9200 tons of waste on a daily basis, the sad thing though is that this trash is from officially recognized areas of the city and leaves out thousands of more tons of waste from informal slums.<sup>4</sup>

# Who are the rag pickers?

A Rag-picker, or Chiffonnier, was a 19th- and early 20th-century term for someone who made a living by rummaging through refuse in the streets to collect material for salvage. The rag-pickers did not recycle the materials themselves; they would simply collect whatever they could find and turn it over to a "master rag-picker" (usually a former rag-picker) who would, in turn, sell it generally by weight to wealthy investors with the means to convert the materials into something more profitable <sup>5</sup>

Rag-picking is still widespread in third World countries today, such as in Mumbai, India

# Health hazards associated with occupation of rag picking

Rag picking is probably one of the most dangerous and dehumanizing activity over the world.

## Health hazards for waste pickers

Direct environmental hazards

Carrying heavy loads of materials over long distances may be associated with muscular/skeletal problems.

Waste provides an ideal habitat for disease vectors including flies, other insects, and rats.

In their work waste pickers are in direct competition with dogs for the waste materials; this sometimes leads to dog bites and the associated threat of rabies.

Indirect environmental hazards

Weather conditions can be problematic during the wet season when flooding may lead to faecal materials getting washed into domestic waste in the street.

#### Mumbai

Deonar is the largest dumping ground in Mumbai. It starts from the Deonar Creek and ends at Baba Nagar. For years Deonar has been the largest garbage bin for the entire Mumbai city and today is also is a home for thousands of migrants who live in the worst of conditions, lacking even the most basic amenities.

The land filling carried out in Mumbai is open dump tipping. At present, there are 3 landfill sites in Mumbai. These are: Deonar, Mulund and Gorai.<sup>6</sup>

#### The situation in Deonar (Govandi)

The inadequacy of the most basic civic services, depleting ecology, a large influx of people into slum rehabilitation buildings and poor social and physical standards of living are among the many problems faced by a large percentage of the populace living in M East ward. Described by its residents as the 'most neglected' ward of the city, it entails the suburbs of Govandi, Mankhurd, and parts of Chembur. Large slum settlements at the infamous Shivaji Nagar and Bainganwadi areas in Govandi, the Deonar dumping ground, the adjoining RafiqNagar settlement, Mandala and Chitta Camp areas in Mankhurd and acres of central government land under the Bhabha Atomic Research Centre and Naval installations and civil townships of companies such as RCF, BPCL and Tata Power make up most of the ward. The ward is located on the north-eastern limits of Mumbai, with a long stretch along the Thane creek, where mangroves (Mangroves are various types of trees up to medium height and shrubs that grow in saline coastal sediment habitats in the tropics and subtropics) are being destroyed each day for reclaiming more land for slums to come up.

Slum settlements account for about 79 percent of the total area of 33 sq. km of this ward, which is the highest percentage among all 24 wards. The human development index of the ward according to the Human Development Report published in 2009 is the lowest amongst all wards at 0.05 as compared to the city average of 0.6. It also has the largest marginal population and the average life term of a person in just 39 years as compared to the city average of 53 years.

The Rafiq Nagar slums are where about 1.4 lakhs persons live on the fringes of the Deonar dumping ground, the place where around 6,000 tons of solid untreated waste is dumped daily. Toxic liquids from here not only enter the creek but also the homes of the nearby residents.

#### **Objectives**

- To study the socio-demographic variables of Rag pickers.
- 2. To study the environmental variables of Rag pickers.

#### **METHODS**

#### Study area

The study area was one of the dumping grounds of the Mumbai city which was selected by stratified sampling out of the three dumping areas which are located in the suburbs of the city.

#### Study population

There are four NGO'S which maintain the registry of the rag pickers and cater to the various needs of the rag pickers in the selected dumping area. Out of the four NGO'S, one NGO was selected randomly which had 1200 registered rag pickers

#### Study design and study period

The present study is a descriptive epidemiological community-based study.

The study was conducted for a period of one year starting from January 2014 To December 2014

#### Sample size calculation

A sample of 20 % of rag pickers i.e. 240 rag pickers which were done by convenient sampling were included for the study

- A. Administrative approval- The necessary approvals were obtained from the following authorities to carry out the study.
  - The Dean of Parent Medical College
  - Ethics committee of Parent Medical College
  - Professor and Head, Department of Community Medicine
  - In Charge of the Urban Health Centre
- B. No objection certificate (NOC) was taken from the NGO which maintained the registry of the study subjects.
- C. A detailed pre-structured preformed questionnaire including their personal socioeconomic and demographic data was prepared.

By taking inclusion and exclusion criteria into consideration, a total of 240 rag pickers were interviewed, who were willing to participate in the study.

The necessary information regarding the sociodemographic variable was recorded with the help of pretested semi-structured questionnaire after taking written informed consent from the study subjects at the urban health center at Shivaji Nagar (Govandi). Each subject was interviewed for about half an hour and necessary information was collected.

# Study method

Systematic sampling with a random start.

## Inclusion criteria

Inclusion criteria were those who have been engaged in this work for more than six months; registered rag pickers engaged in rag picking at the dumping ground; those who are willing to participate in the study

#### Exclusion criteria

Exclusion criteria were rag pickers who are unregistered; rag pickers who have been engaged in rag picking for less than six months; those who are not willing to participate in the study

#### Plan of analysis

Data collected in the study was entered into the computer using Microsoft Excel 2007 and statistically analysed. Qualitative variables were represented in frequency and percentage.

#### **RESULTS**

Table 1: Distribution of study subjects according to age groups (N=240).

Age group	Female (%)	Male (%)	Total (%)
18 – 28	29 (20.4)	15 (15.3)	44 (18.3)
29 – 39	62 (43.7)	22 (22.5)	84 (35)
40- 50	30 (21.1)	36 (36.7)	66 (27.5)
>50	21 (14.8)	25 (25.5)	46 (19.2)
Total	142 (59.1)	98 (40.9)	240 (100)

29 (20.4%) of study subjects belonging to age group of 18-28 years are females whereas 15 (15.3%) are males.62 (43.7%) study subjects belonging to the age group of 29-39 years are females while 22 (22.5%) are males. 30 (21.1%) study subjects who belong to age group of 40-50 years are females whereas 36 (36.7%) of them are males. 21 (14.8%) study subjects belonging to the age group of greater than 50 years are females and 25 (25.5%) of them are males.

Table 2: Distribution of study subjects according to level of education (N=240)

Level of education	Female (%)	Male (%)	Total (%)
Illiterate	112 (78.9)	82 (83.7)	194 (80.8)
Primary school	23 (16.2)	8 (8.1)	31 (12.9)
Middle school	7 (4.9)	4 (4.1)	11 (4.6)
Secondary school	0 (0.0)	4 (4.1)	4 (1.7)
Total	142 (59.1)	98 (40.9)	240 (100)

112 (78.9%) of study subjects who are females and 82 (83.7%) who are males are illiterate .23 (16.2%) study subjects who are females and 8 (8.1%) who are males have completed education till primary school. 7 (4.9%) study subjects who are females and 4 (4.1%) who are males have completed middle school.0 (0.0%) study

subjects who are females and 4 (4.1%) who are males have completed secondary school.

Table 3: Distribution of study subjects according to religion (N=240).

Religion	Female (%)	Male (%)	Total (%)
Hinduism	43 (30.3)	15 (15.3)	58 (24.2)
Buddhism	82 (57.8)	74 (75.5)	156 (65)
Islam	17 (11.9)	9 (9.2)	26 (10.8)
Total	142 (59.1)	98 (40.9)	240 (100)

Out of the 142 females 43 (30.3%) were Hindus, 17 (11.9%) were Muslims and 82 (57.8%) were Buddhists. Out of the 98 males 15 (15.3%) were Hindus, 9 (9.2%) were Muslims and 74 (75.5%) were Buddhists.

Table 4: Distribution of study subjects according to hours of work (N=240).

Hours of work	Female (%)	Male (%)	Total (%)
More than 8 hours	48 (33.8)	68 (69.4)	116 (48.3)
Less than 8 hours	94 (66.2)	30 (30.6)	124 (51.7)
Total	142 (59.1)	98 (40.9)	240 (100)

Out of the 142 females 75 (52.8%) worked more than 8 hours and 67 (47.2%) worked less than 8 hours. Out of the 98 males 41 (41.8%) worked more than 8 hours and 57(58.2%) worked more than 8 hours.

Table 5: Distribution of study subjects according to socio economic status (N=240).

SE status according to modified BG Prasad classification	Female (%)	Male (%)	Total (%)
Class 4	21 (14.8)	11 (11.2)	32 (13.3)
Class 5	121 (85.2)	87 (88.8)	208 (86.7)
Total	142 (59.1)	98 (40.9)	240 (100)

Out of the 142 females, 21 (14.8%) belonged to class 4 SE class and 121 (85.2%) belonged to class 5 SE class. Out of the 98 males 11 (11.2%) belonged to class 4 SE class and 87 (88.8) belonged to class 5 SE class.

Table 6: Distribution of study subjects according to the age of starting work (N=240).

Age at starting work 18 -25 yrs	Female (%) 117 (82.4)	Male (%) 39 (39.8)	Total (%)
More than 25 years	25 (17.6)	59 (60.2)	84 (35)
Total	142 (59.1)	98 (40.9)	240 (100)

Out of the 142 females 117 (82.4%) started working in the age limit of 18-25 years and 25 (17.6%) started working at the age of more than 25 years. Out of the 98 males 39 (39.8%) started working in the age limit of 18-25 years and 59 (60.2%) started working at the age of more than 25 years.

Table 7: Distribution of subjects according to cause for work: (N=240).

Monetary benefit	Female (%)	Male (%)	Total (%)
Yes	142 (100)	98 (100)	240 (100)
No	00 (00)	00 (00)	00 (00)
Total	142 (59.1)	98 (40.9)	240 (100)

Out of the 142 males in the study 142 (100%) have chosen this job for monetary needs. Out of the 98 females in the study 98 (100%) have chosen this job for monetary needs and no one has chosen this job for non-monetary needs.

Table 8: Distribution of subjects according to adequacy of sanitation (N=240).

Sanitation	Female (%)	Male (%)	Total (%)
Adequate	112 (78.9)	46 (46.9)	158 (65.9)
Inadequate	30 (21.1)	52 (53.1)	82 (34.1)
Total	142 (59.1)	98 (40.9)	240 (100)

Out of the 142 females 112 (78.9) gave history of adequate sanitation and 30 (21.1) have given history of inadequate sanitation. Out of the 98 females 46 (46.9%) gave history of adequate sanitation and 52 (53.1%) have given history of inadequate sanitation.

Table 9: Distribution of subjects according to expectations from the Government / NGO / Community (N=240).

Expectations	Total	Percentage (%)
Good sanitation	198	82.5
Housing	212	88.3
Employment	231	96.2
Rehabilitation to other jobs	187	77.9

It was seen from the table that out of the total study population of 240, 198 (82.5%) expected good sanitation, 212 (88.3%) expected better housing, 231 (96.2%) expected government employment and 187 (77.9%) expected rehabilitation to other jobs if possible.

#### **DISCUSSION**

For socio demographic profile of the rag pickers, As per NFHS III urban slums have 70.6% of Hindus and 18.1% of Muslim population and the survey of approximately 2000 women was conducted by professional social

workers and volunteers of the SMS (Stree Mukti Sanghatana-NGO) revealed that Rag pickers ages ranged from 7 to 70 years; rag picking was a caste and gender based activity in that 95 % of all the rag pickers were women and from scheduled castes (Dalits) and 98% of rag pickers were illiterate; <sup>8</sup> these findings are consistent with present study.

For hours of work it was found that around 28% of rag pickers worked for more than 8 hours a day and 7 % of them worked for around 8 hours a day, these findings are also consistent with the present study.

Majority of the rag pickers 77% travelled a distance between 1-5 km; 15% travelled a distance between 5 - 10km and 8% travelled a distance of above 10 km to collect the waste. These findings are consistent with this study

Out of the 98 males 39 (39.8%) started working in the age limit of 18-25 years and 59 (60.2%) started working at the age of more than 25 years. One study showed that most of the rag pickers take up rag picking in the age group of 11-20 years and it also shows that most of his study subjects had taken this job in the last 5 years. These findings are consistent with the present study

One study showed that 97 % of the study subjects were not satisfied with their job because of the low remuneration and it was seen that 3% were satisfied with their job. An empirical study on Rag pickers (children and women) in Delhi, India showed that it is because of illiteracy, poverty, and indebtedness of their family are the main cause for the poor children and women opting for rag picking activity. These findings are also consistent with this study.

In Manila, more than 35 diseases have been identified in waste picker communities and areas that lack refuse collection and sanitation, including diarrhea, typhoid fever, cholera, dysentery, tuberculosis, anthrax, poliomyelitis, skin disorders, pneumonia and malaria. A study on Women Rag pickers and their Health showed that all of them were found to be living in slums with inadequate amenities. They collect water from public taps and use public toilets or open spaces. Study conducted by Sarkar, Papiya titled "Solid Waste Management in Delhi –A Social Vulnerability Study showed that most of them suffer from ulcers and stomach problems. These findings are consistent with the present study.

The reason for the expectations from government and NGO's was that the rag pickers had a feeling that they were a neglected lot of the population and they would like to live a better and dignified life like others.

#### Limitations

There were some limitations encountered due to its being a cross-sectional study; the results we got here cannot be applied to the entire general population. As age and sex structure of the different urban slum areas were different thus it was difficult to apply these results to other urban slum areas.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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