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SOCIO–ECONOMICS OF CONTRACT LABOUR OF GREATER VISAKHAPATNAM MUNICIPAL CORPORATION

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ABSTRACT

Municipal solid waste collection schemes of cities in the developing world generally served only a limited part of the urban population. The Greater Visakhapatnam Municipal Corporation is divided into 6 zones with 72 wards. Based on the source of solid waste, 5 types has been identified which include Residential, Commercial, Institutional, Municipal, Industrial and Agricultural. Municipal solid waste collected from different areas of GVMC is segregated into dry waste, wet waste, bio-medical waste and e-waste. The waste is generated from the cleaning of the roads, footpaths, open places, collection of sweeping and other solid waste. Socio-economic aspects such as literacy level, size of the family, type of the family, income level, education level, social status, age, gender, skilled and unskilled and health problems of workers of GVMC (MSWW) were studied.

Key words: Solid waste, social status, economical status and bio-medical waste, e-waste, health hazards.

INTRODUCTION

Municipal solid waste is an outcome of economic productivity and consumption (Cointreau-Levine et al. 1998). Population growth and economic development collectively contribute to increasing amounts of solid waste to urban areas (Cointreau-Levine 2006). The sources of solid waste are households, commercial establishments, institutions, markets and industries (Porta et al. 2008; Athanasiou et al. 2010). Municipal solid waste management encompasses planning, engineering, organization,

administration, financial and legal aspects associated with generation, storage, collection, transfer and transport processing and disposal of municipal solid waste which includes household garbage and rubbish, street sweepings, sanitation residues, etc. (Joseph 2002). Municipal solid waste management is a vital activity in the context of protecting human health and environment. Waste collection activities involving collection, recycling and delivery of recyclables have been expanding quickly in recent years due to increasing urbanization and high levels of consumption. Waste management workers perform various tasks such as street sweeping, manually loading waste into waste collection vehicles and driving such vehicles. Such activities expose these workers to various occupational health risks associated with the characteristics of the waste they handle, the waste collection methods used and the state of the working environment (Ncube 2017). Municipal solid waste management, a critical element towards sustainable city or metropolitan development, comprises segregation, storage, collection, relocation, carriage, processing, and disposal of solid waste to minimize its adverse impact on environment (Joshi and Ahmed 2016). Solid waste management consists of a wide range of activities, namely, garbage collection, sorting recyclable materials, collection and processing of commercial and industrial waste (Cointreau-Levine et al. 1998). In the process of solid waste management, risks occur at every step from the point of collection at homes, during transportation and at the sites of recycling or disposal. The garbage collectors are exposed to occupational health and accident risk which are related to the content of the materials they handle, emissions from those materials, and the equipment's they use (Cointreau-Levine 2006). Waste management types include mechanized techniques used by some private companies and local authorities and rudimentary techniques used by individual waste pickers (Medina 2007). Workers who deal directly with waste picking or waste recycling generally are the poorest and most vulnerable. They include homeless people, elderly people, women, children, chemical dependents and ethnic minorities (Comaru and Werna 2013). Municipal workers are exposed to health risk and even serious injury because their work involves cleaning rubbish, debris, hazardous materials and health risk. Municipal workers, while clearing debris on the road have high risk of being hit by debris while clearing construction materials or

tree branches. In most cases when it involves hazardous materials, municipal workers are not informed of the risk. In this context, the person disposing the hazardous material may have no knowledge of the right way of disposal and packaging that required by law in the process, which leaves the municipal workers exposed to the risk. Health risk associated with the exposure of daily job can cause skin and blood infection if the workers are directly exposed to open wound. The other common health issues are respiratory tract infection caused from fumes and inhalation, higher risk of HIV, hepatitis B or C due to needle prick or working in an unhygienic environment. The workers working on or near exposed energized electrical conductors or circuit components operating at high voltage have the risk of being electrocuted and most likely causing death. During rainy season, the municipal authority has the big task of addressing the emergency response associated with flash floods, fallen trees, traffic congestion due to road works and rush hours traffic management. It is always a challenge for the local council to manage the health and safety issues concerning daily operations team, contractors, and subcontractors and finally the workers involved directly in the day to day operations (Sekhon and Karthigesu 2017). In developing countries, the waste discharged for collection is seldom stored in closed containers and is dumped on the ground directly, requiring that it be shoveled by hand, or left in an open carton or basket to be picked up by hand (Cointreau-Levine et al. 1998). In India, there has been little study of the health and injury incidence of solid waste workers. The working conditions for women sweepers are often very poor and they may have no protective wears or equipment's but few complain about the situation (Furedy 1990).

The GVMC has divided the corporation area into 72 wards which were again grouped into six zones - 1-6 wards under Zone 1, 7-18 wards under Zone 2, 19-30 wards under Zone 3, 31-49 wards under Zone 4, 50-65 wards under Zone 5 and 66-72 wards under Zone 6. Further, Anakapalli and Bhimili were also incorporated into GVMC and usually noted as 73 and 74 wards respectively.

The waste collected in the GVMC area was segregated into dry waste, wet waste, bio-medical waste and e-waste. The waste from fish/meat/poultry/vegetable markets and that from the commercial areas are separately collected by corporation vehicles. The waste generated from the cleaning of the roads, foot paths, open places, collection of sweeping and other solid wastes, transport of solid wastes, and disposal at the landfill sites are organized by the Public Health Section of GVMC. The GVMC made a contractual arrangement for regular collection of litter from all Beaches within its jurisdiction. Further, it also uses beach sand cleaning machines for cleaning the beaches where required. A private company by name, M/s. Maridi Eco is assigned the task of collecting biomedical waste from and treating it subsequently as per the norms of Pollution Control Board.

SCOPE AND METHODOLOGY OF THE STUDY

The study is based on both primary as well as secondary sources of data. It is proposed to organize the study through designing a well structured schedule covering socio-economic aspects such as details about social classification, literacy levels, size of family, type of family, number of living rooms, drinking water facilities, etc. Further, the questionnaire is also designed to include information relating to health, hygiene and sanitation aspects. Further, secondary data relating to health, hygiene and sanitation are drawn from Government Reports and Statistical Abstracts of GVMC. Distract Hand Book of Statistics, Visakhapatnam District, published by the Chief Planning Office, journals, periodicals constitute the secondary data sources and tapping various sites on the web.

SAMPLE DESIGN

The present study is a case study of Greater Visakhapatnam Municipal Corporation (GVMC) of Visakhapatnam district in Andhra Pradesh; the GVMC is purposively selected for study after carefully examining several wards in the GVMC. Further, 5% of the respondents in the GVMC accounting for 126 are selected for detailed analysis using simple random sampling technique. A well-structured questionnaire is prepared after making a pilot study with appropriate focus on group discussions.

METHODOLOGY

In order to pursue the objectives outlined earlier, the following methodology is used to analyze different aspects. The study is carried out with simple tools such as averages percentages and bar diagrams. Moreover, Chi-square of test of independence of attributes is employed to observe the association or relationship between various aspects relating to health, hygiene and sanitation.

Socio- economic statistical analysis:

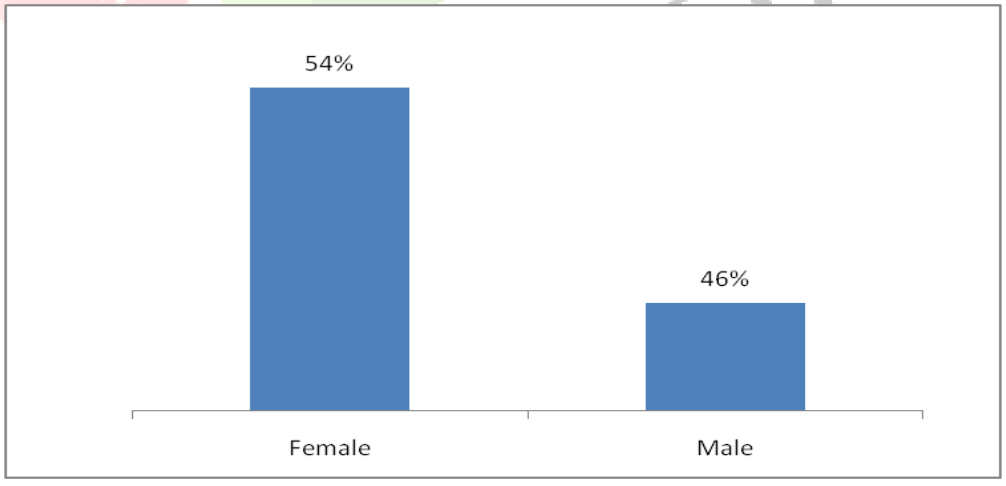
This chapter dwells with socio-economic characteristics of sample respondents. The details of demographic, social, economic, educational and other information was collected from the sample respondents and presented in this chapter.

1. **Gender:**

Table 1: Distribution of Respondents based on gender

Gender Status	Frequency	Percent
Male	58	46.0
Female	68	54.0
Total	126	100.0
Source: Primary data		

Figure 1: Distribution of Respondents based on gender



Data relating to the distribution of sample respondents based on gender is presented in Table 1. From the data, it may be observed that a significant majority of the respondents in the sample (54%) are

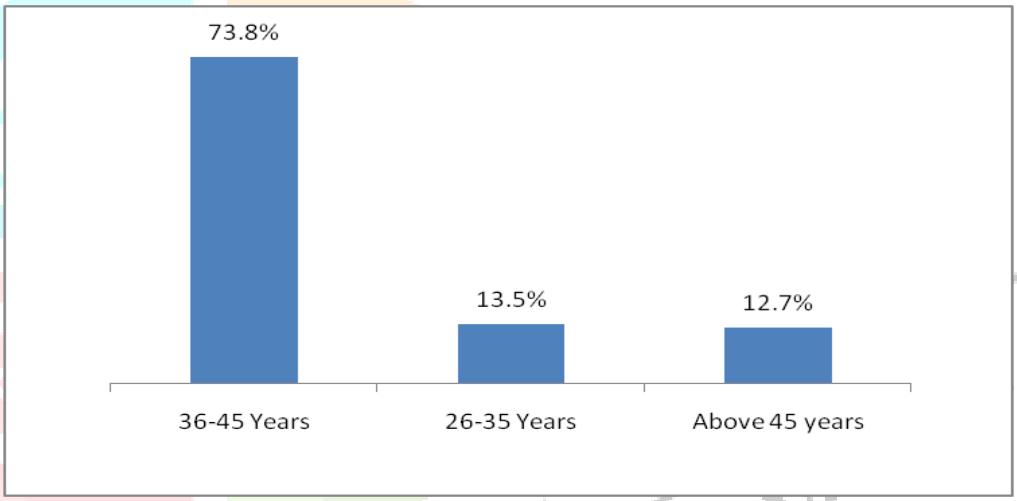
found to be females while only 46% are males. This clearly shows that females dominate as respondents in the sample area.

2. Age:

Table 2: Distribution of Respondents based on age

Age	Frequency	Percent
26-35 Years	17	13.5
36-45 Years	93	73.8
Above 45 years	16	12.7
Total	126	100.0
Source: Primary data		

Figure 2: Distribution of Respondents based on age



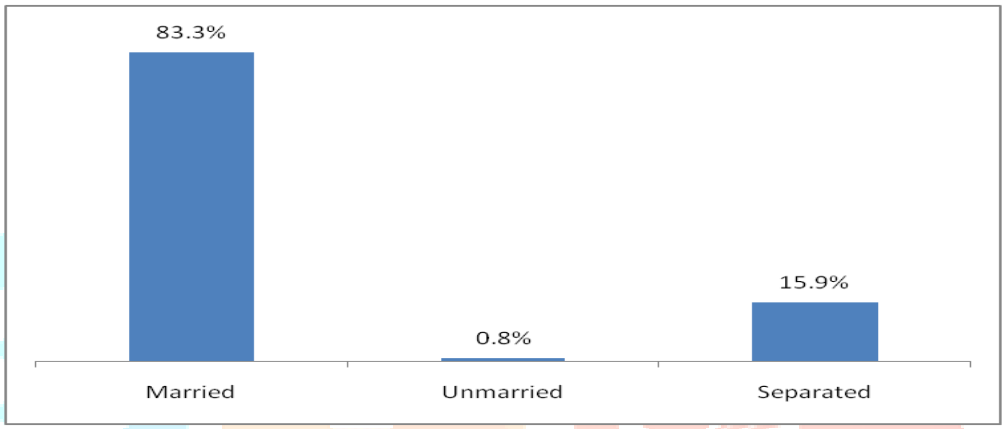
Data relating to the distribution of sample households based on age of the household are presented in Table 2. From the data, it may be observed that a majority of the households (73.8%) are aged 36-45 years while the remaining 13.5% are aged 26-35 years. From this, it may be inferred that young adults dominate as heads of the households in the area.

3. Marital Status

Table 3: Distribution of respondents based on marital status

Marital Status	Frequency	Percent
Married	105	83.3
Unmarried	1	0.8
Separated	20	15.9
Total	126	100.0
Source: Primary data		

Figure 3: Distribution of Respondents based on marital status



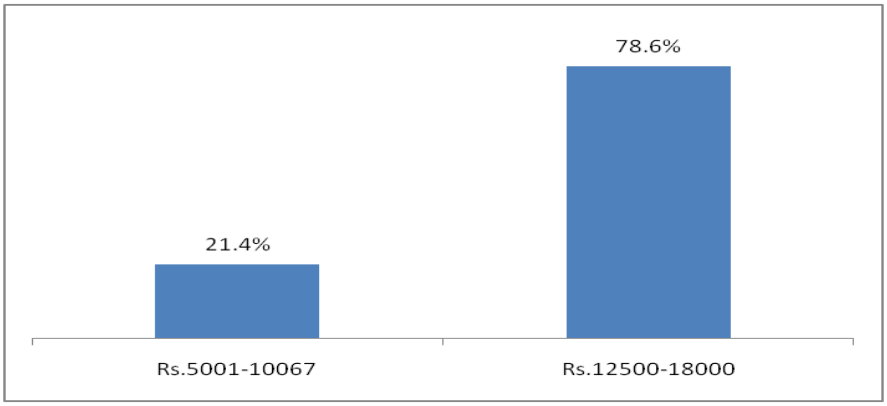
Data relating to the distribution of sample respondents based on marital status are presented in Table 3. From the data, it may be observed that a majority of the sample respondents (83.3%) are married while a meager 16% are widows/widowers. It is interesting to note that one respondent is found to be unmarried.

4. Income

Table 4: Distribution of respondents based on the income

Income	**Frequency**	**Percent**
Rs.5001-10067	27	21.4
Rs.12500-18000	99	78.6
Total	126	100.0
Source: Primary data		

Figure 4: Distribution of Respondents based on income



Data relating to the distribution of sample respondents based on income are presented in Table 4. From the data, it may be observed that a majority of the sample respondents (78.6%) are income getting Rs.12500-18000 while 21% are getting Rs. 5001-10067.

5. Education level

Table 5: Distribution of sample Respondents based on education

Education Status	Frequency	Percent
Illiterate	79	62.7
Literate	47	37.3
Total	126	100.0
Source: Primary data		

Figure 5: Distribution of sample respondents based on education

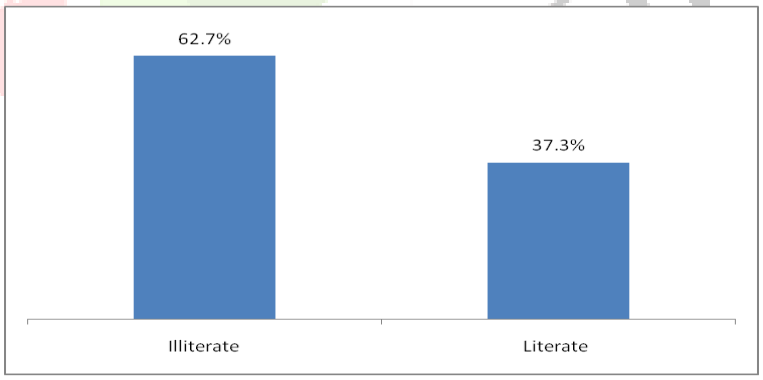
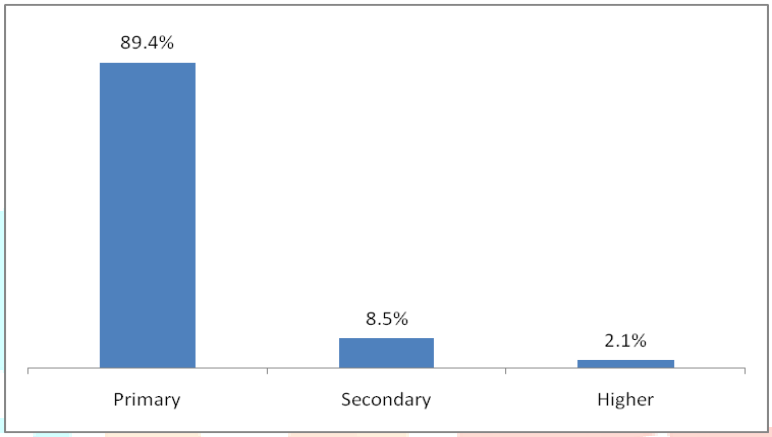


Table 5.1: Distribution of sample respondents based on education

Education Status	Frequency	Percent
Primary	42	89.4
Secondary	4	8.5
Higher	1	2.1
Total	47	100.0
Source: Primary data		

Figure 5.1: Distribution of sample respondents based on education



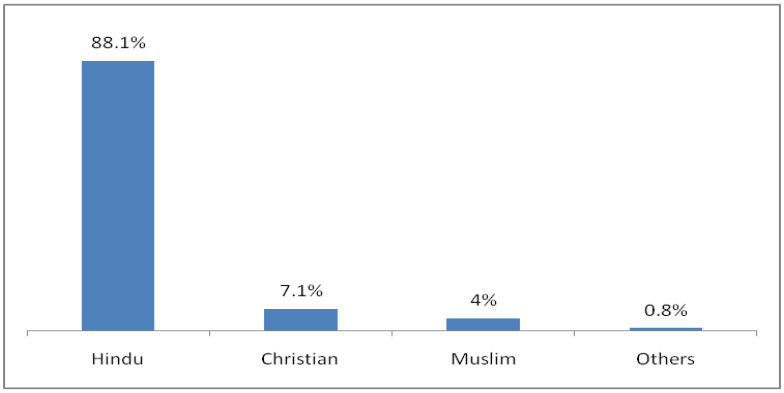
Data relating to the distribution of sample respondents based on level of education are presented in Table 5. From the data, it may be observed that majority (62.7%) is illiterate while 37% are literates. However, among the literate respondents of the village majority of the respondents (89.4%) belong to primary level of education followed by secondary level (8.5%) and higher level education (2.1%).

6. Religion

Table 6: Distribution of sample Respondents based on Religion

Religion	Frequency	Percent
Hindu	111	88.1
Christian	9	7.1
Muslim	5	4.0
Others	1	0.8
Total	126	100.0
Source: Primary data		

Figure 6: Distribution of sample respondents based on education



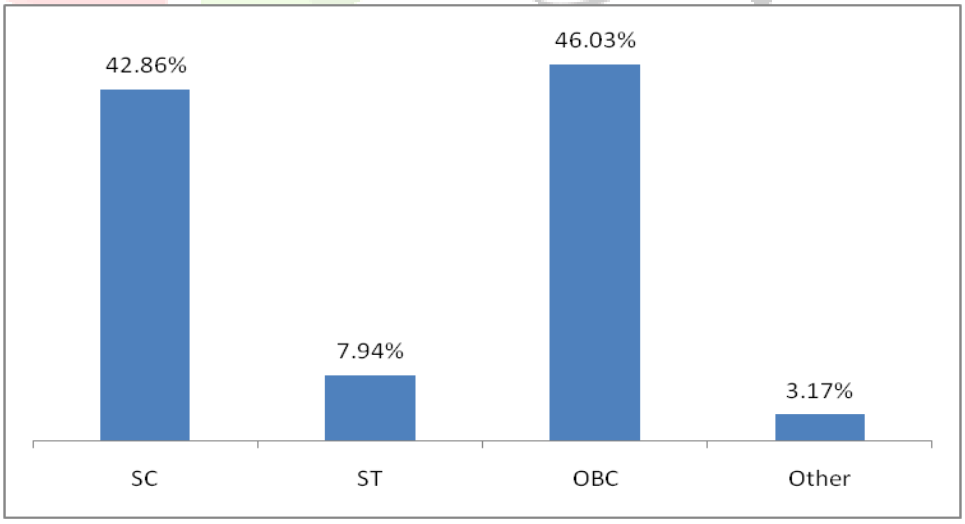
Data relating to the distribution of respondents based on religion is presented in Table 6. From the table, it is clear that 88% of the respondents belong to Hindu religion while 7% are Christian. This shows that the contract labour of GVMC is predominately Hindu religion.

7. Social Status

Table 7: Distribution of respondents by social status

Social Status	Frequency	Percent
SC	54	42.86
ST	10	7.94
OBC	58	46.03
Other	4	3.17
Total	126	100.00
Source: Primary data		

Figure 7: Distribution of sample respondents based on social status



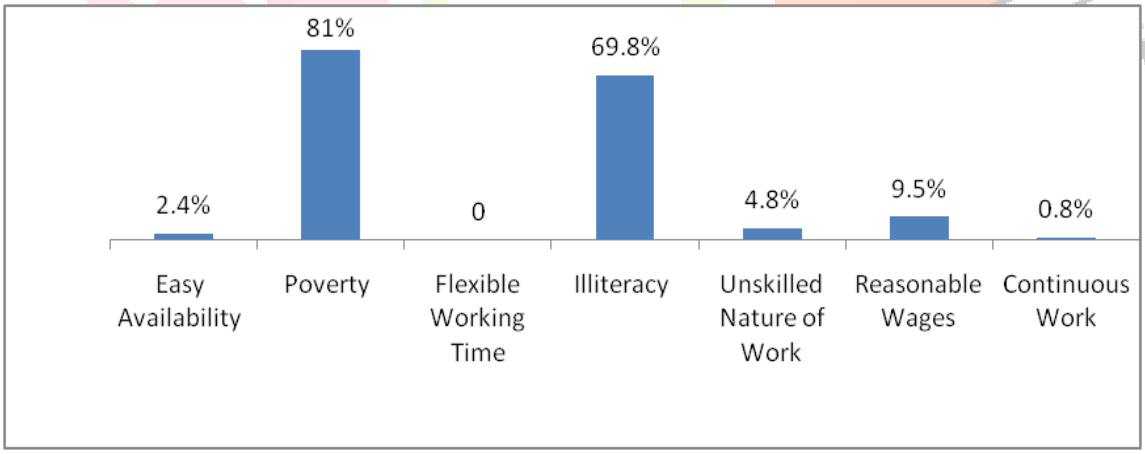
Data relating to the distribution of sample respondents based on Social Status is presented in Table 7. From the data, it may be observed that a significant majority of the respondents in the sample (46.03%) are found to be OBC, 42.86% are SC and 10% are ST category. This clearly shows that OBC category dominates the respondents in the sample area.

8. Influencing factors to become contract labor

Table 8: Distribution of respondents by influencing factors to become Contract labor

Influencing factors	Frequency	Percent
Easy Availability	3	2.4
Poverty	102	81.0
Flexible Working Time	0	0
Illiteracy	88	69.8
Unskilled Nature of Work	6	4.8
Reasonable Wages	12	9.5
Continuous Work	1	0.8
Source: Primary data		

Figure 8: Distribution of respondents by Influencing factors to become Contract labour



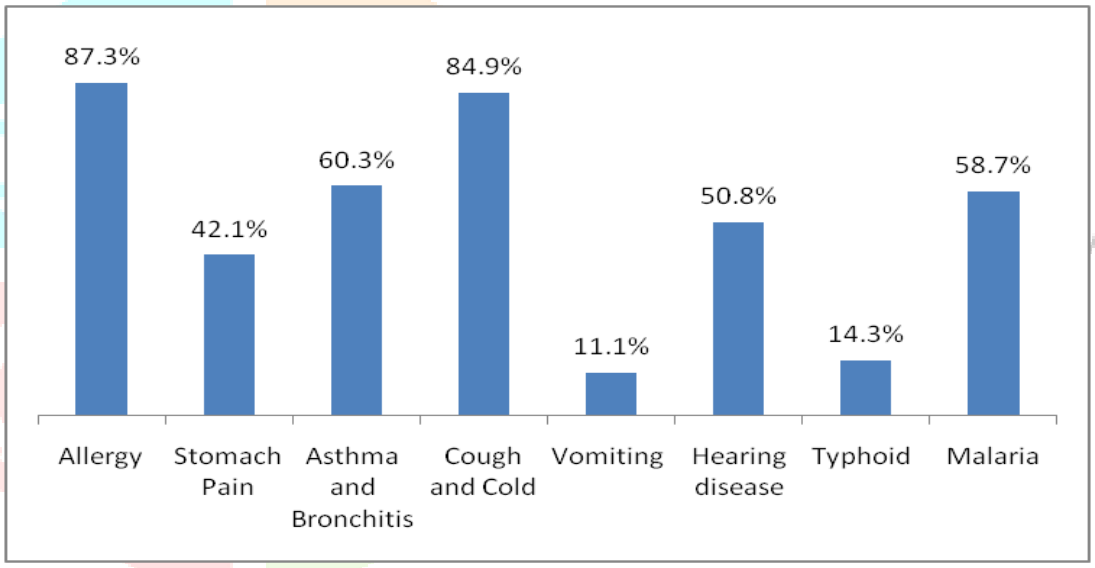
Data relating to the distribution of sample respondents based on Influencing factors to become, Contract labour is presented in Table 8. From the data, it may be observed that a significant majority of the respondents in the sample (81.0%) are found to be poverty, 69.8% are illiteracy and 9.5% are Reasonable Wages. This clearly shows that poverty factor dominates to become contract labour in the sample area.

9. Health problems in solid waste workers after work

Table 9: Distribution of respondents by Health problems in solid waste workers after work

Influencing factors	Frequency	Percent
Allergy	110	87.3
Stomach Pain	53	42.1
Asthma and Bronchitis	76	60.3
Cough and Cold	107	84.9
Vomiting	14	11.1
Hearing disease	64	50.8
Typhoid	18	14.3
Malaria	74	58.7
Source: Primary data		

Figure 9: Distribution of respondents by health problems in solid waste workers after the work



Data relating to the distribution of sample respondents based on health problems in solid waste workers after work is presented in Table 9. Nearly 87.3% of respondents suffered from Allergy followed by 84.9% from Cough and Cold, about 60.3% from Asthma and Bronchitis, 58.7% from Malaria, 50.8% from Hearing disease and 42.1% from Stomach Pain.

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