

Socio-Economic and Health Status of Rag Pickers in the Dump Site of Mekelle City, Northern Ethiopia

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Abstract

A cross sectional survey on socio economic and health status among randomly selected rag pickers in the dump site of Mekelle city was done during 2020. The study showed that all rag pickers were 19 to 25 years old males; 60% of them were educated up to secondary level. They worked continuously for 12 hours but 2 to 3 days per week only, without using any personal protective equipment. They earned an average 400 Ethiopian birr per week. The study showed, of the 80% of the rag pickers who suffered from allergy symptoms, 70% had skin rashes, 66.66% asthma, 63.33% cough and 60% eye sickness, of course, some possessing more than one. Further all (100%) of the rag pickers were affected by cuts and lacerations, 63.33% injured from fire, 13.33% from dog bites, 76.66% respiratory problems, 73.33% gastrointestinal problems, 40% musculoskeletal problems and 40% suffered from nail infection. In total 86.66 % of rag pickers had one health problem or other, the study revealed. Considering the services by rag pickers like reduction of municipal waste burden and protection of the environment, the study suggests that measures shall be taken by the Government or society for their health care. Recommendations to improve their economic and health status are also given.

Keywords: Mekelle city; rag pickers; health problems; allergy; cuts and lacerations

List of Abbreviations: MSEs: Micro and Small Enterprises; MS: Micro Soft

Introduction

The term rag picker refers to people who collect rags or recyclable materials that can be sold for money. The rag pickers do the work in a polluted environment by searching, sorting and collecting recyclable items such as plastics, paper, glass bottles, rubber materials and ferrous and non-ferrous metals from dump sites and public containers of municipalities [1-3]. Rag picking requires no skill but is a source of income for a growing number of the urban poor [4]. Rag pickers help in protecting the environment by removing a portion of the wastes generated in the city and also indirectly reduce the cost borne by the municipal bodies responsible for solid waste management. They also contribute to urban ecological sustainability and resilience [1,4,5]. Illiteracy, poverty, unemployment, migration and break from family are the main causes for rag picking activity; there is also a growing global market for recycled materials [6,7].

Rag pickers work in filthy environments, surrounded by birds or dogs and under severe weather conditions without gloves or shoes. Often they eat the filthy food remnants they find in the garbage bins or in the dumping ground [3]. Rag pickers roam through mounds of rotten, unhygienic and germ rich sites and they pick up diseases along with the recyclable waste materials collected by them [6].

Recent studies from different countries have indicated that rag pickers are exposed to different diseases [2,6,8-10]. A study from Addis Ababa, Ethiopia on "The situation of scavenging children on the waste dumping sites of Addis Ababa" found that the life of the scavenging children was at absolute risk because of higher possibility for exposure to hazardous chemicals and vector diseases. The study added that economic problems, having vulnerable family background, parental death, and parental chronic sickness were some of the reasons which forced children for scavenging [11]. Except for this study, no work on the life of rag pickers, particularly on health aspect has been done in Ethiopia. Therefore the present study is intended to identify the socio economic and health status of rag pickers of Mekelle city of Ethiopia. Worth mentioning is the fact that education on safe waste management practices is given to the public through mass media such as radio and television. It needs to explore whether the rag pickers have access to information on such safe and efficient waste handling.

The study may provide a base line data for improving the status of rag pickers, particularly their health.

Methodology

Study Area

The study area is the land fill site of Mekelle city, located 6.5 kilometers west of Mekelle city known as Adi Qolomay [12]. It is the only open dump site of the city. It is fenced and guarded by security men. However, some local people trespass into the area. The site is active with scavenging animals like goats, cattle, birds and dogs. Rag pickers are engaged in collection of reusable and recyclable valuables from this site.

Study Design and Procedure

A cross sectional survey was done among rag pickers during April to June 2019. Data were collected by face to face interview with 30 randomly selected rag pickers out of the total 45 workers of Mekelle city, using a structured questionnaire. It consisted of questions on demographic and socio-economic status of rag pickers (gender, age, family status-single or married, number of children, level of education, working hours per day in the work place and income), safety and health aspects (health problems and morbidities of last one year, habit of smoking cigarettes and drinking alcohol, challenges faced at work places, usage of body protective devices,) and job satisfaction of rag pickers. The options for providing training and resources that enable rag pickers to transition into alternative, sustainable forms of income generation that are less hazardous to their health and well-being were also surveyed.

Data Analysis

The collected data through the questionnaire survey was interpreted using MS Excel and presented as tables and graphics.

Result

Dump Site

The rag pickers at the dump site are engaged by the local Micro and Small Enterprises (MSEs are private sectors spread over Ethiopia, working to provide self-employment, economic growth and equity in the country) for a period of two years in agreement with the municipality. The rag pickers are free to make their own earnings by selling the segregated materials but they had access to wastes that reached the site only. Guardsmen were on duty at the site. Searching of recyclables was allowed for the 45 rag pickers only. But it was observed that some of the people living near the site plucked grasses from the site and transported them on the back of donkeys to feed their cattle, others particularly women collected waste charcoal and wood for use as fuel and some unauthorized children were also found searching for recyclables. A large number of birds and goats, some cattle, donkeys and dogs were also observed at the dump site. Burning of waste and emission of smoke was another sight.

Rag pickers are a group of workers who go through refuse in the waste dump of Mekelle city to collect materials that yield an income to them. The participants in the present survey were 30 rag pickers (out of the total 45 population) of Mekelle city. By interviewing them it was understood that these 45 rag pickers are self-employed through MSEs and for working convenience they are divided into three groups of 15 each and each group worked for 2 to 3 days per week including Sunday. All of them were male workers belonging to an age group of 19 to 25 years. Most (93.33%) of them were single and others were (6.67%) married with 1 to 2 children.

Educational Qualification

It was understood that 60% of the rag pickers were educated up to secondary level, 30% were educated up to primary level but 10% were illiterate.

Working Hours and Income

Each group of 15 was reported to be engaged in work for about 12 hours per day starting from morning to evening. Income of rag pickers was depending on the amount of materials, particularly recyclables, collected by them and the price obtained by selling the recyclables to the concerned entrepreneurs near the site or in the city. It was heard from them that they earned on an average 400 Ethiopian birr per week which corresponds to about 57 birr per day.

Smoking and Drinking Habits

In response to the question on alcohol drinking and cigarette smoking habits of rag pickers, it was noted that none of them had smoking habit; only 20% had drinking habit and the rest 80% had no drinking habit.

Safety Precautions Taken by Rag Pickers

It was observed that the rag pickers had no practice of using any type of personal protective equipments during work. In fact proper waste segregation practices to minimize exposure to hazardous materials are needed within the site.

Injuries, Allergies and Health Related Problems Faced During the Past One Year by Rag Pickers

Table 1: Allergies, injuries and health problems faced by the rag pickers of Mekelle city

Type of health issues	Total number and percentage (%) of affected respondents
Allergy (Total)	24 (80%)
Skin rashes	21 (70%)
Asthma	20 (66.66%)
Cough	19 (63.33%)
Eye sickness	18 (60%)
Injuries (Total)	30(100%)
Cuts and lacerations	30(100%)
Burns from fire	19(63.33%)
Bites by dogs	4(13.33%)
Health problems (Total)	26 (86.66 %)
Respiratory problem	23 (76.66%)
Gastrointestinal problem	22(73.33%)
Dysentery	17 (56.66%)
Musculoskeletal problem	12 (40%)
Joint pain	9 (30%)
Low back pain	7 (23.33%)
Muscle sprain	5 (20%)
Nail infection	12(40%)

Table 1 and Fig.1 indicate the health issues of rag pickers such as allergies, injuries and other health problems during the past one year. It can be noted that 80% of the rag pickers had suffered from allergy symptoms such as skin rashes, asthma, cough and eye sickness. Of these 70% suffered from skin rashes and 66.66% from asthma. Similarly 63.33% and 60% suffered from cough and eye sickness respectively. Some rag pickers showed only one symptom of allergy but some others more than one symptom. It is possible that the smoke, dust, and various wastes in the dump site might have led to these allergies.

All (100%) the rag pickers were found to be affected by body injuries, the cuts and lacerations arising from constant contact with sharp objects of the waste dump during search. The "authors" noted that one rag picker had lost his one toe even. Other injuries were from fire and dog bites: 63.33% got injured from fire and 13.33% from stray dog bites.

The study also indicated that 86.66% of the rag pickers had suffered from different health problems such as respiratory, gastrointestinal, musculoskeletal disorders and nail infection: 76.66% had respiratory problems, 73.33% had gastrointestinal problems (56.66% had dysentery), 40% had musculoskeletal problems (30% joint pain, 23.33% low back pain and 20% muscle sprain) and 40% of rag pickers had nail infection. They were not using any protective gloves on hands, it was noted.

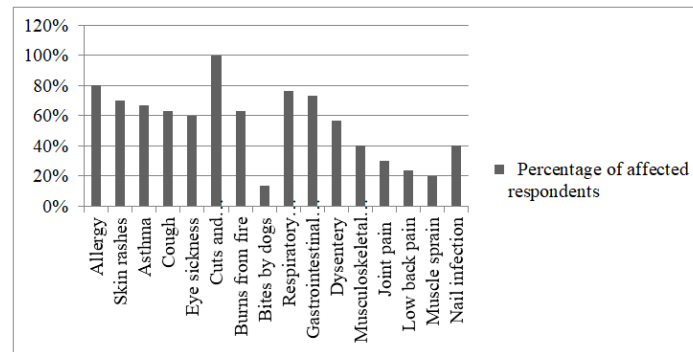


Figure 1: Allergies, injuries and other health problems faced by the rag pickers of Mekelle city

Challenges Faced At Work Places

The survey showed that all rag pickers faced serious challenges such as bad odor emitting from decaying wastes, the smoke, incidental injury, dog bites and heat of the sun. Protective devices such as mask and gloves were not used by them.

All (100%) the rag pickers expressed no interest to continue in the same job of rag picking.

Discussion

The study showed that all the rag pickers of Mekelle city were male workers and they belonged to the age group 19 to 25 years. A similar study conducted in India indicated that 53% were females, 22% males and 25% were children between the age group 10 to 15yrs [13]. Another study conducted in Allahabad city, India reported that the rag pickers belonged to both sexes and different age groups: whereas 53% were males and 47% were females; 22% of the rag pickers were of the age group (0 to 10 year), 39% of age group (10 to 20 year), 28% of (20 to 30 year) and the rest 11% were more than 30yrs of age [14]. It was quite significant to note that children below 19 as well as females were not engaged in such work in Mekelle city.

Another contrasting and important observation was on the educational profile of rag pickers of Mekelle city that only 10% were illiterate and the remaining workers (90%) had either primary or secondary level of education. This finding disagrees with the result of [15] that 72% of trash picking children was illiterate. Another study by [9] in Mumbai, India showed that 79% of rag pickers were illiterate, 14% educated up to primary school and only 4% and 3% were educated up to middle and secondary school respectively. In a similar study by [16] in Himachal Pradesh, India indicated that 100% of rag pickers of Mandi city were illiterate.

In the present study it was observed that none of the rag pickers had smoking habit and 80% of them had no alcohol drinking habit. This is in contrast to the study [13] in India that identified 70 to 80% of the rag pickers were addicted to smoking and alcohol, while 20-30% were addicted to alcohol. A similar study by [6] in Mumbai slums, India showed that most of the rag pickers had habits of tobacco-chewing and alcohol consumption and another study conducted in urban slums, India that 100% of the rag pickers had addictions of smoking and 69% had alcohol intoxication [17]. Ethiopia's legislation, the "Tobacco Control Directive No 28/2015" generally prohibits smoking in public places and work places. This restriction by law since 2015 might account for the non smoking habit of rag pickers in Mekelle.

The survey indicated that allergies, injuries and health problems were the common morbidities of the rag pickers. It showed that most of the rag pickers had suffered from allergy symptoms such as allergic skin rashes (70%), allergic asthma (66.66%), allergic cough (63.33%) and allergic eye sickness (60%). A study in Lobatse, Botswana indicated that 34.4% of rag pickers suffered from coughing and 31.3% suffered from common colds [18]. A similar study in Sidhi municipality, India also reported that 80% of rag pickers suffered from skin diseases and 2 % suffered from eye disease [3]. A recent study from Mumbai, India further revealed that the prevalence of eye infection was 29% compared to 18% of the comparison group [7] .

The study also revealed that all (100%) the rag pickers suffered from different body injuries like cuts and lacerations by contact with sharp objects and broken materials like cans, needles, blades, shavers, nails, broken cups, bottles, glasses and so on of the waste dump. This rate was higher than the study report from Sidhi, India that 80% of rag pickers had wounds or injuries [3]. A similar study in Ahmedabad city of India also revealed that 70% of injuries of female rag pickers were through needle/syringe, dog bites, harsh chemicals, metal scraps etc. as compared to only 26% control subjects [19]. A recent study from Latin America showed that out of the 68.70% of accidents among rag pickers 89.69% was related to sharp objects [20]. It was evidenced that none of the rag pickers of Mekelle city used gloves and boots and this may account for the highest incidence of cuts and lacerations.

In Adiqolomay it was also reported that 13.33% of the rag pickers were bitten by stray dogs. This rate is low compared to the study of [14] that reported 72% of dog bites. This might be because of the less number of stray dogs in the dump site as the surroundings of the site are less inhabited and the site itself is somewhat far away the city and also fenced.

The survey further indicated that 76.66% rag pickers of Mekelle city had suffered from respiratory problems. A study carried out in Mumbai, India reported that the prevalence of respiratory illness among rag pickers were 28% compared to 15% control groups [7]. It is likely that the smoke generated in the dump site might be the cause for the respiratory problems. It is recollected in this context that 63.33% of rag pickers got injured from fire from the continuous burning taking place in the dump site. Fire and smoke are common in dump sites as [21] also reported that 95% of the residents noticed smoke and fire in the Hyderabad city, India dump site.

Majority of rag pickers of the city (73.33%) had reported gastrointestinal problems, particularly dysentery for 56.66%. This result is comparable with the result by [22] that 20 % trash picking children had digestion problems and by [9] that more than 80% had gastro intestinal problems. A study conducted in Latin America found that episodic diarrhea and intestinal worms were 24.9% and 12.6% respectively among rag pickers [20]. Similarly another study conducted at Allahabad city, India by [14] reported 69% of the rag pickers had diarrhea. Naked hand separation of mixed solid waste consisting of fecal and disposable diapers, sanitary napkins, toilet papers, animal dung and subsequent contamination could lead to such gastrointestinal illnesses. In addition some of the rag pickers of Mekelle city have the habit of eating food remnants at the site. The present observation of high incidence of gastrointestinal problems through probable food contamination is supported by the study of [23] that 55.8% rag pickers ate foods found in the trash and by [18] that a number of the scavengers and employees ate at the landfill site with the high risk of contamination from dust and pathogens in the air. A similar study conducted by [24] in Faisalabad City, Punjab, Pakistan also reported that about one third percent of respondents ate food items (bread, fruit) from garbage heaps.

The present study revealed that over 40% of rag pickers were exposed to musculoskeletal problems. Of these 30% had suffered from joint pain followed by 23.33% and 20% low back pain and muscle sprain respectively. A similar study conducted by [4] reported that the prevalence of musculoskeletal disorders among waste pickers was 32% for the shoulder, 40% for the upper back, 54% for the lower back and 48% for the knee compared to 12%, 21%, 36% and 35%, respectively for the control groups. Another study conducted by [9] also reported that 100% rag pickers had the history of back/joint pain. Manual lifting and carrying reusables and recyclables for long distances were characteristic of the job of the rag pickers in Mekelle city and this might have led to musculoskeletal problems.

In order to alleviate musculoskeletal strains and injuries caused by manual lifting and carrying of waste materials, modern machineries like hydraulic lifting equipment are to be used so that rag pickers can do work more efficiently and comfortably without the risk of injury and other health issues.

Conclusion

The study indicated that rag pickers of Mekelle city were suffering from different occupational health hazards such as allergies (skin rashes, asthma, cough and eye sickness), injuries (cuts and lacerations, burn from fire and dog bites) and other different

health problems such as respiratory, gastrointestinal, musculoskeletal disorders and nail infection. These health hazards could be mainly linked to their negligence in using protective gears such as boots, face masks and gloves during work in spite of their higher literacy rate and age. They, in fact, formed a small group of 45 only in the city. Provision of protective gears can relieve them to a good extent of such health issues. Considering the indirect services of the rag pickers by way of reducing the municipal waste and protecting the environment, they deserve care and encouragement from the authorities and the society. The recommendations to improve the economic and health status of rag pickers include imparting environmental education to rag pickers on safe waste handling techniques, giving training to them on other forms of income generation which are less harmful to health and providing ergonomic aids to eliminate health hazards at work place.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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