



RESEARCH ARTICLE

**SWEEPING PRACTICE AND KNOWLEDGE ABOUT OCCUPATIONAL SAFETY AND HEALTH HAZARDS OF SWEEPERS**

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**ABSTRACT**

Street sweepers play an important role in maintaining the health and hygiene in the cities. This job exposes street sweepers to a variety of risk factors such as dust, volatile organic matter and mechanical stress, which makes them susceptible to certain occupational diseases. The aim of this study was to assess the awareness and knowledge on health and safety conditions of sweepers. The study was also conducted to investigate the health problems among street sweepers of shyamoli area in Dhaka city. Quantitative methods were used on this research. Occupational safety and health of sweepers revealed that the potential health effects of waste. As they were not provided any personal protective equipment, cut in hands and legs were very common that caused them long term infection. Most of sweepers were suffering from various infectious diseases although there were no official statistics; proper investigation and research is therefore key demand for sweeper's occupational health and safety net. The total respondents of research were 105. According to research, among 105 respondents 56% respondents age were 20-40 years, 65% respondents were male, 69% respondents were illiterate, 32% respondents income more than five thousand, 86% were muslim and 55% respondents were married. During work 67% respondents faced problem, 96% respondents do not have any idea about hygienic, 79% respondents do not use protective equipment, 51% respondent's works 10 hours per day in the work place, 53% respondents not injured during work in the past year, 9% respondents injured once to twice, 20% respondent injured three to five, 11% respondents injured six to ten and 7% respondents injured more than ten times. According to results 81% respondents faced health problems like skin disease, 85% told about fever, 64% complains about Hypertension & eye problems, on the other hand 61% respondents told about Low Back Pain & joint pain (where multiple answer is included).

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**INTRODUCTION**

Street sweepers play an important role in maintaining the health and hygiene in the cities. This job exposes street sweepers to a variety of risk factors such as dust, bioaerosols, volatile organic matter and mechanical stress; make them susceptible to certain occupational diseases. The important morbid conditions detected in these workers include the diseases of the respiratory system and eye, accidents, injuries, cuts and wounds, skin infections, animal bites, etc. At present, the standards and norms for the management of municipal solid wastes in industrialized countries have substantially reduced the occupational health impacts. However, in developing countries, the health related underpinnings of solid waste management still need to be addressed.

Workers manually collect the wastes. There is little, if any, protection to workers from direct contact and injury and virtually no dust control at the workplaces. Solid waste collectors are exposed to large amount of dusts, microorganisms, toxins and diesel exhaust pollution than the recommended norms<sup>8</sup>. Sweepers are exposed to dust while cleaning the streets and roads. The dust raised by street sweeping consists of a complex mixture of soil, sand particles, dust, motor vehicle tear and wear particles, bioaerosols, plant particles etc. Exposure to these dusts irritates the respiratory tract leading to varying degrees of respiratory symptoms and airway obstruction. Dhaka City Corporation (DCC) is formally responsible for urban waste management. Usually Sweeper's do this work in inhuman and hazardous conditions. Their dignity, health and mortality are in inhumanly compromised because of their conditions of work. Sweepers are performing their hereditary profession by sweeping, removing night-soil

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and cleaning of latrines, removal of filth, dead cattle, sweeping of houses and roads and clearing clogged sewerage lines. The whole operating system of sweeping, however, does not operate in an environmentally friendly manner. They became ill due to un-protective way of sweeping. (Dcc, 1999). As because of poor living conditions and nature of their work, they face tremendous health and safety risks. The shanties in their colonies are not hygienic as a result their children have been suffering from different type of diseases. On the other hand the sweeper's are working and spending most of their working hours at the dump site, little attention and resources are allocated for their occupational health and safety. It is pity that no single attempt was made for these Dalit's occupational safety and health that were devoting their days and nights for the city dwellers. (Das *et al.*, 2008) Work related safety and health hazards are a major health concern worldwide and are under-researched especially in low and middle income countries. In Bangladesh, the situation of work-related safety and health hazards is problematic and the risk of health hazards varies among different working groups. Sweepers of Dhaka City are a working group who play an integral role in solid waste management and are exposed to a high number of risk factors during their works. Moreover, their occupational safety and health hazard has been crucial since they played an important role for maintaining the hygiene and health of the city through their routine physical appearance at workplaces. There are about 3.5 to 5.5 million sweepers in Bangladesh today. About 300 years ago sweepers were brought to this country by the British colonial rulers. They were mainly from Madras, Kanpur, Hyderabad and some other places of South India. They were the low caste peoples among the Indian Hindu communities and were generally very poor people, and came here with a hope for better life. They were given jobs which involved cleaning public places, removing human sludge from pit latrines etc. Because it is their only profession, it has become their traditional job. Someone born in a sweeper family has no other choice than becoming a sweeper. (Daize, Ayeshasiddequa: 2012)

Waste is an unavoidable by product of human activities Economic development, urbanization and improving living standards in cities, have led to an increase in the quantity and complexity of generated waste. Rapid growth of population and industrialization degrades the urban environment and places serious stress on natural resources, which undermines equitable and sustainable development. Inefficient management and disposal of solid waste is an obvious cause of degradation of the environment in most cities of the developing world. Municipal corporations of the developing countries are not able to handle increasing quantities of waste, which results in uncollected waste on roads and in other public places. The key activities and role for managing solid wastes of Dhaka City are performed by several groups of people. The five main types of actors in this process are:

- a. The Municipal Government (DCC).
- b. The Formal Private (Commercial) sector, in their role as potential solid waste function contractors like, Waste Concern, Bangladesh.
- c. The informal private sector, including individuals, small entrepreneurs, and micro entrepreneurs, already working

with waste materials or having the potential to do so. Like Tokai, Vangari shops (Waste retailers).

- d. Community based organizations, (CBO's) either idealistically motivated or working for social welfare like, Bangladesh Poribeshbadi Andolan (BAPA) and
- e. Non-paid (From Government) non-governmental organizations (NGO's) usually in pursuit of their own idealistic goals. (Waste Concern Consultants: 2008),

## Objectives

### General Objectives

- To know the occupational safety and health hazard of sweepers.

### Specific Objectives

- To explore the current sweeping practice.
- To identify the types of occupational injuries and diseases of sweepers associated with the process of waste.
- To assess the socio- economic condition of sweepers.

## Literature Review

Street sweeping and waste collecting exposes these workers to a variety of risk factors such as dust, bioaerosols, volatile organic matter and mechanical stress, which make them susceptible to certain occupational diseases. (Dutkiewicz, 1997; Krajewska *et al.*, 2002) Poor sanitation is a multidimensional problem that comprises a wide variety of infrastructural and daily human activities including improper waste disposal. In developing countries, the wastes and refuse still comprise a major public health threat; and many of the health problems experienced by residents of different communities are traceable to the poor sanitary environment. (Bernardo, 2008) There is no authority to look after the sweeper who passes their nights only to wake up in the morning to clean dirties and city garbage. They have been working for 365 days of the year but their reserved colonies are being occupied one after another by musclemen. They have been deprived of all types of civil facilities including education and health care services. They have been passing their days in unbearable sorrows and sufferings without electricity, pure drinking water and supply of gas. (Masud, 2006)

The professional sweepers are facing hard times as mainstream people are gradually replacing them in their only profession that is cleaning the city. "The job of cleaning the city wastes is now a matter of competition. With the increase of population and competition, thousands of able candidates from the community are sitting idle. On the other hand, it is very difficult for these people to change profession or get regular jobs even if they are educated and qualified. (Parveen 2008). One job that has contributed greatly to human health by reducing the risk of several diseases like typhoid fever or cholera is waste collecting, therefore, street sweepers and waste collectors are considered by the people and government as responsible for this task. (Kuijjer *et al.*, 2010) No authority is there to look after the sweeper who passes their nights only to wake up in the morning to clean the city garbage. They have been working for 365 days of the year but their reserved

colonies are being occupied one after another by musclemen. They have been deprived of all types of civil facilities including education and health care services. They have been passing their days in unbearable sorrows and sufferings without electricity, pure drinking water and supply of gas. The recruitment of sweepers in government jobs has also been decreased. The shanties in their colonies are not hygienic so that their children have been suffering from different type of diseases. The female sweepers are being raped and oppressed frequently during their work in the night. The City Corporations and police stations are not taking actions against the culprits despite repeated complaints; rather, they are being oppressed by the authorities. (MuziburRahmanMasud, Daily Jugantor, Bangladesh)

In Bangladesh, the situation of work-related safety and health hazards is problematic and the risk of health hazards varies among different working groups.<sup>6</sup> Street sweepers of Dhaka City are a working group who play an integral role in solid waste management and are exposed to a high number of risk factors during their works. Moreover, their occupational safety and health hazard has been crucial since they play important role for maintaining the hygiene and health of the city through their routine physical appearance at workplaces. The daily activities of street sweepers in Dhaka include removal of debris from streets, solid waste collection, disposal and recycling waste materials. Although the exact occupational risk factors are not known among Bangladeshi street sweepers, existing literatures show that sweeping activities in other countries are often require exposure to large amount of dust, bio-aerosol, volatile organic matter, airborne particulates, bacteria, noise, and ergonomic stress while working.<sup>8-12</sup> The susceptibility to develop many occupational health problems increases throughout their lives. The usual sweeping practices, perceived occupational risk factors and level of knowledge about health safety of street sweepers in Dhaka are not known although the need for protection and promotion of health and safety at workplaces has been the focused in a number of policy documents, such as the WHO constitution, Alma Ata Declaration, and Health for All strategies.<sup>13-15</sup> Therefore, better understanding of street sweepers' knowledge, perceptions concerning occupational safety and related health hazards has become crucial for designing appropriate programs for the overall improvement of their health condition. This study will explore current sweeping practice, perception the level of knowledge, of a group of street sweepers in Dhaka city. (Kabir A et al. *Int J Community Med Public Health*. 2015 Aug;2(3):237-243)

## MATERIALS AND METHODS

This study is a cross sectional study conducted among street sweepers of shyamoli area in Dhaka city. Data were collected through face to face interview of the respondents by using a semi-structured questionnaire. Study Population was purposively. One structured interview schedule was used as data collection tool. A pretest was done to collect the data. After completion the pretest the final interview was done.

### Findings of the study

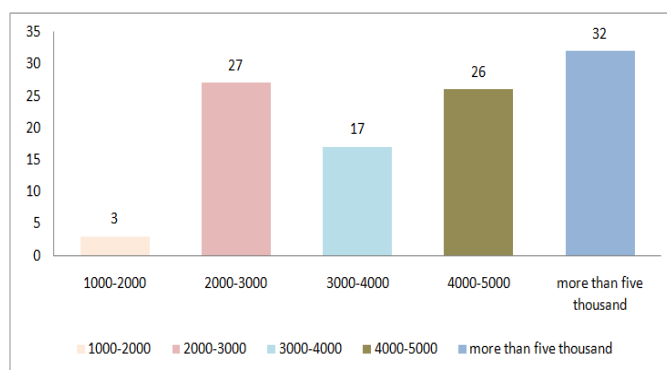
In this study, a range of issues related to the collection of data on socioeconomic status of the respondents, the standard of

living, educational qualifications etc. this study shows the sweepers working environment, their income and most importantly health problems of the sweepers. That have come to know all of the information to be presented are:

**Table 1. Demographic Information of the respondent**

Variables	Measuring Group	Frequency	Percentages
Age	10-20	25	24%
	20-30	30	28%
	30-40	29	28%
	40-50	21	20%
Sex	Male	68	65%
	Female	33	35%
Level of Education	Primary(I-V)	32	30%
	Secondary(VI-X)	1	1%
	Illiterate	72	69%
Religion	Islam	90	86%
	Hindu	15	14%
No. of Family Members	3	4	4%
	4	25	24%
	Above 4	76	72%
	Marital Status	Married	58
With living at present	Unmarried	37	35%
	Divorce	5	5%
	Widow	5	5%
	Husband	19	18%
	Parents	30	29%
With living at present	Relatives	42	40%
	Friends	14	13%
	Total	105	100%

Table shows that, 24% respondents are in age group 10-20, followed in age group 20-30 (28%), and followed age group 30-40 (28%), 20% respondents are in age group 40-50. 65% respondents are male & 35% are female. 30% respondents are belong to level of education from 1-5, 1% respondents level of education from 5-10 and 69% respondents are Illiterate. 86% respondents are Muslims, 14% respondents are Hindu. 4% family has 3 members, 24% family has 4 members and 72% respondents have more than four family members. 55% respondents are married, 35% respondents are unmarried, 5% respondents are widow and 5% respondents are divorce. 18% respondents living with husband, 29% respondents living with parents, 40% respondents are living with relatives and 13% respondents living with friends.



From the Figure it appears that, monthly income of respondents varies. 32 respondent's income more than five thousand. 27 respondent's income in (2000-3000), 26 respondents incomes in (4000-5000), 17 respondents income in (3000-4000) and 3 respondents income in (1000-2000). This table shows that most of the people (32) monthly income is more than five thousand.

**Figure 1. Distribution of respondents by income**

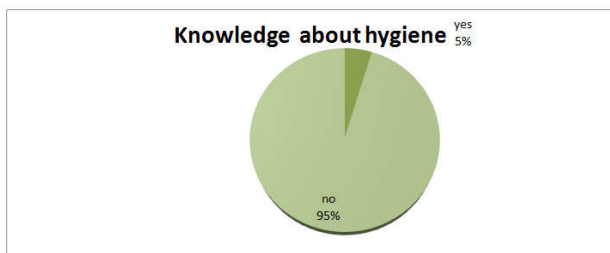


Figure show that, 95% respondents do not know about hygiene, and 5 respondents know about hygiene.

**Figure 2. Distribution of respondents by having knowledge about hygiene**

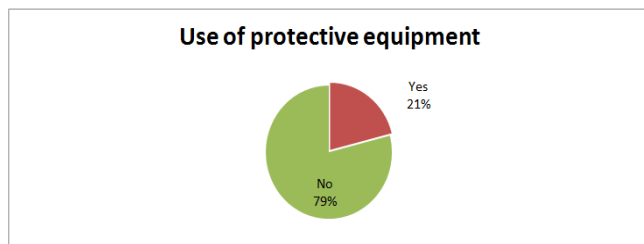


Figure show that, 21% respondents use protective equipment and 79% respondents do not use protective equipment.

**Figure 3. Distribution of respondents by Using of protective equipment**

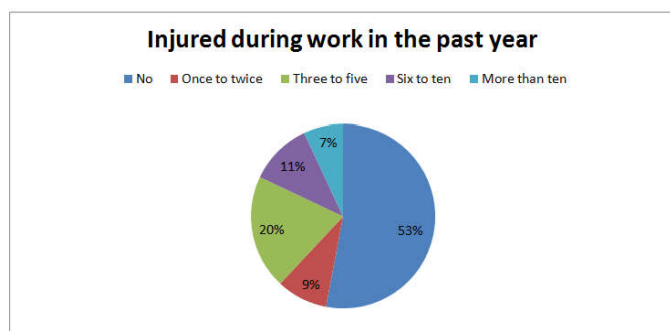


Figure shows that,53% respondents not injured during work in the past year,9% respondents injured once to twice,20% respondent injured three to five, 11% respondents injured six to ten and 7% respondents injured more than ten times.

**Figure 4. Distribution of respondents by facing injury during work in the past year**

**Table 2. Distribution of respondents by working hours per day**

Hours	Number of respondent	Percentage
6	9	9%
8	25	24%
10	54	51%
12	17	16%
Total	105	100%

**Table 3. Distribution of respondents by facing Health problems**

Health problems	Number of respondents	percentage
Low Back Pain & joint pain	64	61%
Headache	52	49%
Fever	89	85%
cold and cough	37	35%
chronic bronchitis	54	51%
Hypertension & eye problems	67	64%
skin disease	85	81%

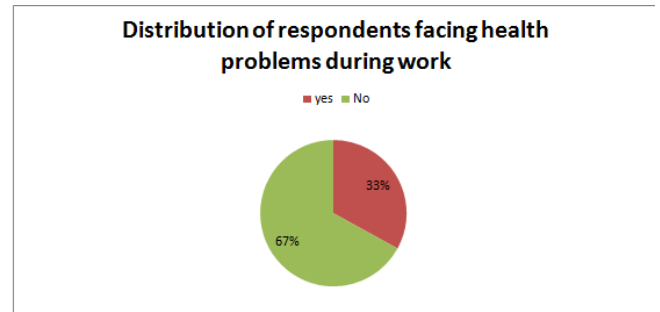


Figure shows that 33% respondents face health problems in times of work; On the other hand 67% respondents do not face health problems in times of work.

**Figure 5. Distribution of respondents facing health problems during work**

Table shows that 9% respondents work 6 hours in a day, 24% respondents work 8 hours in a day, 51% respondents work 10 hours in a day and 16% respondents work 12 hours in a day. Table shows that, There are some important problems face by respondents in times of their work. 61% respondents face Low Back Pain & joint pain, 49% respondents face Headache,85% respondents face fever, 35% respondents suffer cold and cough, 51% respondents face chronic bronchitis,64% respondents face Hypertension & eye problems and 81% respondents face skin disease.

**Conclusion**

Majority of street sweepers perceive that work related health risks are prevalent though few safety measures are taken in practice. Most street sweepers have little knowledge about the possible ways of transmitting infections and diseases. The study results revealed that these people lives in unhygienic conditions and the nature of their occupational exposure lead them to the spread of various diseases. These scavengers believe that washing and bathing is an essential part of health and hygiene but they are unable to do so due to the lack of facilities. Though City Corporation has promoted waste management services as a strategy of achieving better cleanliness of Dhaka City. But, the sweepers who are responsible for cleanliness of Dhaka city they earn below the national minimum wage, although they work under difficult working conditions.

**Recommendations**

In this study, only one area was visited within a short period. There are some essential steps for sweepers are given below.

- Safety measures distribution: It is important that the government should distribute health and safety materials including necessary equipments like mask, hand gloves, boots, aprons, garbage collecting tools, to the scavenger.
- Occupational health services and Monitor safety practices: Sweepers ought to be benefited from occupational health services, which should include periodic health monitoring and hospital services.
- Training and Health Care Centre establishment: It is important to establish a training centre on every sweeper’s colony. Where they can get motivation and inspiration to

use PPE at work. Prevention is more effective and less costly than treatment and rehabilitation.

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