

Health Status of Sanitary Workers of Municipal Corporation of Aurangabad City

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Abstract

Introduction: Sanitation workers are the backbone of the civic cleaning system. In a developing country, like India, with limited resources, most of the cleaning process in urban localities is done manually. With improper segregation of waste materials at the source and all types of garbage being disposed on the streets, these workers are exposed to dirt, infective organisms, and other hazardous materials like chemicals, animal excreta, and sharp objects. As a result of this, they suffer from various morbidities. *Aim and Objectives:* The study was carried out to study the morbidity profile and knowledge and practices regarding use of personal protective equipments amongst sanitary workers in Aurangabad Municipal Corporation. *Material and Methods:* The present Cross sectional study was conducted by Dept. of Community Medicine MGM Medical College, Aurangabad during January 2016 – June 2016 including all the sanitation workers in Aurangabad Municipal Corporation. Data was collected by personal interview technique using pre-tested semi- structured questionnaire & clinical examination and laboratory investigations. Permission was obtained from the institutional ethical committee for conduction study. *Results:* Out of total 182 workers, 78 (42.85%) were in the age of 36 to 45 years, 115 (63.18%) were males and 136 (74.71%) workers were educated above middle class. Injuries caused during working was most common morbidity 89 (48.9%), followed by musculoskeletal complaints 86 (47.25%). Other common complaints were indigestion (65.3%), worm infestation (24.5%), the eye problems 54 (29.67%) workers, 34 (18.68%) presented with respiratory problems like a cough (17.3%), breathlessness (15.2%), 26 (14.2%) workers presented with dermatological disorders. A total of 151 (82.96%) workers didn't use any protective devices while working. Out of 182 workers, 64 (35.16%) workers were not immunized against hepatitis B and 35 (19.24%) didn't receive injection TT in recent past. 138 (75.82%) workers were addicted to one or the other addiction like tobacco, alcohol, gutkha, and smoking. *Conclusion:* It was concluded that the sanitary workers are suffering from various morbidities because of lack of knowledge and practices of safety devices. The health status should be reviewed on regular basis and continued health education and counseling must be made available.

Keywords: Sanitation; Workers; Corporation; Health Status; Occupational.

Introduction

Sanitation workers are the backbone of the civic

cleaning system. In India, we have nearly about 1.2 million sanitation workers.¹ In a developing country, like India, with limited resources, most of the cleaning process in urban localities is done manually. With improper segregation of waste materials at the source and all types of garbage being disposed on the streets, these workers are exposed to dirt, infective organisms, and other hazardous materials like chemicals, animal excreta, and sharp objects. As a result of this, they suffer from skin diseases, respiratory and

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gastrointestinal problems, eye and ear infections and accidental injuries. Most of these diseases (Water borne, air born, Contact) are found to have exposure pathways and most injuries have contact pathways (hepatitis B virus [HBV], human immunodeficiency virus [HIV] and Tetanus) [2].

The working conditions of the sanitary workers have remained virtually unchanged for over a century. Using only a stick broom and a small tin plate, the sanitary workers clear feces from public and private latrines onto baskets or other containers, which they then carry on their heads to dumping grounds and disposal sites. A few, however, are provided with wheelbarrows or carts by the municipal authorities. Apart from the social atrocities that these workers face, they are also exposed to certain health problems by virtue of their occupation. These health hazards include exposure to harmful gases, cardiovascular degeneration, musculoskeletal disorders, infections, skin problems and respiratory system problems [1].

A survey was done by the Occupational Health and Safety Centre (1988) [3] in Mumbai to study the occupational health hazards and working conditions of 200 workers from the Main Sewer Department of the BMC. It revealed that 60% of the workers had complaints of shortness of breath and persistent cough. 30% of the workers complained of itching all over the body, especially hands and feet. 53% of the workers had burning, redness of eyes and photophobia. 44% of the workers complained of diminished vision.

Studies in several countries have postulated a relationship between working at open dumps and increased respiratory illness and abnormal lung function tests. The increased risk of respiratory disease is related to exposure to organic dust containing high concentrations of bacteria and fungi, biologically active agents, gases, bioaerosols [4]. Waste collection is conducted in high traffic density, and in developing countries, vehicle emissions are not controlled. This occupation is physically strenuous, resulting in high pulmonary ventilation and requiring workers breathing through their mouth rather than the nose. Studies have shown that relative energetic loads, expressed as oxygen consumption, are significantly higher for waste collectors than recommended limits [5]. The waste pickers of Calcutta experienced a 71% incidence of respiratory disease, compared to only 34% in the control group [6] and in Mumbai, 25% of the waste workers had coughs and 26% experienced dyspnea [7].

Therefore considering these facts the present study was carried out to assess the morbidity profile and

their prevalence among sanitary workers in Aurangabad city.

Aim and Objectives

1. To study the morbidity profile of sanitary workers in Aurangabad Municipal corporation.
2. To study the practices regarding use of personal protective equipments.

Material and Methods

The present Cross sectional study was conducted by Dept. of Community Medicine MGM Medical College, Aurangabad. The present study was conducted during January 2016– June 2016 including all the sanitation workers in Aurangabad Municipal Corporation. A total of 182 workers participated in the study. The informed consent was obtained from all the participants. Data was collected by personal interview technique using pre-tested semi-structured questionnaire & clinical examination. The variables included were general information, socio-demographic profile, acute morbidity if any in past 3 months, chronic morbidities and practices regarding personal protective equipments. Physical examination and necessary investigations were done after taking informed consent. Blood investigations like random blood sugar, Haemoglobin were done free of cost from the center.

Ethical Issues

Permission was obtained from the institutional ethical committee for conduction study. The information collected was used only for the purpose of the study and strict confidentiality was maintained throughout the study.

Data Analysis

Data was coded and entered in MS Excel and analyzed using SPSS.

Results

Table 1 shows that out of total 182 workers, 36 (19.78%) workers were in the age group of 25-35 yrs, 78 (42.85%) were in the age of 36 to 45 years while 68 (37.32%) were aged more than 45 years. The mean age was 42.97 ± 7.16 years. Out of the 182 workers, 115

(63.18%) were males and 67 (36.82%) were females. 158 (86.81%) workers were married and 136 (74.71%) workers were educated above middle class, none of the workers was a graduate. The majority of the workers 137 (75.27%) were in service for more than 10 years.

Table 1: Distribution of workers according to their Socio-demographic factors

Socio-Demographic Factors	No. of Sewage Workers	Percentage
Age		
25 - 35 yrs	36	19.78
36- 45 yrs	78	42.85
46- 55 yrs	54	29.67
56yrs& above	14	7.69
Gender		
M	115	63.18
F	67	36.82
Marital status		
Married	158	86.81
Unmarried	24	13.19
Education		
Illiterate	9	4.94
Primary school	37	20.32
Middle school	116	63.73
High school	20	10.98
Duration of service (in years)		
01 - 10	45	24.72
11 - 20	70	38.46
21- 30	49	26.92
31-40	18	9.89
Total	182	100

Table 2: Distribution of workers according to their morbidity profile

Morbidities	No. of sewage workers (N-182)	Percentage
Injuries	89	48.90
Musculoskeletal Problems	86	47.25
Gastrointestinal Problems	72	39.56
Fever	62	34.06
Eye Problems	54	29.67
Respiratory Diseases	34	18.68
Skin Problems	26	14.2
ENT Problems	22	12.08
Hypertension	17	9.34
Neurological Problems	12	6.5
Diabetes Mellitus	09	4.9
Ischemic Heart Disease	08	4.3
Psychiatric disorder	05	2.74

*multiple responses

On clinical examination, the workers were found to be suffering from various morbidities (Table 2). Morbidity pattern in workers could be because of occupational exposure to unhygienic working conditions, lack of use of protective measures or due to personal habits like smoking, alcoholism etc. Injuries caused during working was most common morbidity 89(48.9%), followed by musculoskeletal complaints 86(47.25%) like fatigue/weakness and low backache. In gastrointestinal disorders, most common was indigestion (65.3%), flatulence (38.4%), worm infestation (24.5%) and diarrhoea (22.2%). While 62 (34.06%) workers had a fever, the eye

problems were seen in 54 (29.67%) workers (including redness, irritation, and watering of eyes). 34 (18.68%) presented with respiratory problems like a cough (17.3%), breathlessness (15.2%), bronchitis (08.1%). 26 (14.2%) workers presented with dermatological disorders like pyoderma, pigmentation/rash, and itching. Other morbidities were diabetes 9(4.9%), IHD 8(4.3%) and psychiatric disorders 5(2.74%) like depression, anxiety.

Table 3 shows that 151(82.96%) workers didn't use any protective devices while working, making them vulnerable to various health hazards. The reason for not using the devices was nonavailability, not aware

Table 3: Distribution of workers according to immunization status

	Workers	Percentage
Use personal protective devices at workplace		
YES	31	17.04
NO	151	82.96
Immunization against Hepatitis B		
YES	118	64.84
NO	64	35.16
Immunization with Tetanus Toxoid		
YES	147	80.76
NO	35	19.24
Any addictions		
YES	138	75.82
NO	44	24.18
Total	182	

of such devices, found it difficult to work with devices on. Out of 182 workers, 64(35.16%) workers were not immunized against hepatitis B and 35(19.24%) didn't receive injection TT in recent past or were not fully immunized against Tetanus. It was observed that 138 (75.82%) workers were addicted to one or the other addiction like tobacco, alcohol, gutkha and smoking. The high prevalence of alcohol and smoking may be attributed to peer pressure, low educational level or mere way to keep awake and attentive during the night shifts.

Discussion

In the present study out of 182 workers, 78 (42.85%) were in the age of 36 to 45 years and 68 (37.32%) aged more than 45 years. The mean age was 42.97±7.16 years. Out of the 182 workers, 115(63.18%) were. 158 (86.81%) workers were married and 136(74.71%) workers were educated above middle class. The majority of the workers 137 (75.27%) were in service for more than 10 years. Similarly In a study by Prabhakumari Chellamma [2] (2015) found that among 601 workers 53.6% were males and in a study by Thayyil Jayakrishnan [8](2013) the mean age was 42.5±7.2 years. In a study by N Sherrin Sophia [9] (2017), found that 30% were in the age group of 31 to 40 years of age, 40% were Hindus, 32% had secondary level of education, 92% were married, 30% had 11 to 16 years of work experience, 63% were not interested in sanitary work, 58% preferred wearing safety measures during work and similar findings were also observed by N. Rajavel (2015) [10].

On clinical examination, the workers were found to be suffering from various morbidities. The present morbidity pattern in workers could be because of occupational exposure to unhygienic working

conditions, lack of use of protective measures or due to personal habits like smoking, alcoholism and gutka chewing. Injuries caused during working was most common morbidity 89 (48.9%), followed by musculoskeletal complaints 86 (47.25%) like fatigue/ weakness and low backache. In gastrointestinal disorders, most common was indigestion (65.3%), flatulence (38.4%), worm infestation (24.5%) and diarrhoea (22.2%). While 62 (34.06%) workers had a fever, the eye problems were seen in 54 (29.67%) workers (including redness, irritation, and watering of eyes). 34 (18.68%) presented with respiratory problems like a cough (17.3%), breathlessness (15.2%), bronchitis (08.1%). 26 (14.2%) workers presented with dermatological disorders like pyoderma, pigmentation/rash and itching. Other morbidities were diabetes 9 (4.9%), IHD 8 (4.3%) and psychiatric disorders 5 (2.74%) like depression and anxiety.

In a similar study in Mumbai by Prabhakumari Chellamma [2] (2015) on morbidity profile of sewage workers in Mumbai city found that a large proportion of workers suffered from work related symptomatic morbidities mainly of the eye, respiratory, musculoskeletal system, gastrointestinal and skin. 34.4% workers presented with one acute illness and only 79.2% sought medical help. 43.26% had chronic morbidities and 83.86% opted modern medicine.

Also in a study by P Giri [11] (2010), found that the eye problems were most predominant, seen in 70.6% workers followed by musculoskeletal problems (68.0%), while 58.0% workers presented with gastrointestinal and 52.6% with respiratory ailment, with obstructive pattern observed in 38 (48.1%) subjects being the major finding. Fifty-two percent workers had skin problems and injuries were observed in 39 (26.0%) workers including minor injuries such as cuts, abrasions, and lacerations.

Thayyil Jayakrishnan [8] (2013) observed that the morbidity like respiratory diseases, eye diseases, dermatological problems, nail infections were high ranged from 21% to 47%. The reported prevalence of occupation related morbidities like falls (63.6%), accidents (22%), injuries (73.2%), and water-vector borne disease (7.1%) were high. The current prevalence of musculoskeletal morbidities showing that all major joints are involved (17-39%). And N Sherrin Sophia [9] (2017) in their study stated that 70% had several health issues such as gastrointestinal diseases, orthopedic, skin related issues, asthma.

Studies in several countries have postulated a relationship between working at open dumps and increased respiratory illness and abnormal lung function tests. The increased risk of respiratory disease is related to exposure to organic dust containing high concentrations of bacteria and fungi, biologically active agents, gases, bioaerosols [4]. Waste collection is conducted in high traffic density, and in developing countries, vehicle emissions are not controlled. This occupation is physically strenuous, resulting in high pulmonary ventilation and requiring workers breathing through their mouth rather than the nose. Studies have shown that relative energetic loads, expressed as oxygen consumption, are significantly higher for waste collectors than recommended limits [5]. The waste pickers of Calcutta experienced a 71% incidence of respiratory disease, compared to only 34% in the control group [11] and in Bombay 25% of the waste workers had coughs and 26% experienced dyspnea [7].

Thayyil Jayakrishnan [8] (2013) found that 36.4% had any skin lesion, which may be due to allergic (Dermatitis, eczema) or infectious causes (Bacterial, fungal) and infected ulcers directly caused by organic or chemical wastes and injuries. This was similarly reported from Bombay and from other countries [6]. 47% had nail infection of either fingers or toes of which most were due to fungal infection (Paronychia). As reported by [4], here also washing facilities were not provided for them at the work intervals or at the end of the day. The containers, vehicles, temporary storage points, treatment yard has to be washed daily and the washed water collected in septic tanks, which was not done anywhere in the state. The relationship between exposure to solid waste and increased health risk is greatest where the contact between the solid waste worker and waste is greatest and the level of protection least [4]. 78.5% complained that they were getting unsegregated mixed wastes from the houses. In developing countries, solid waste workers and waste pickers routinely touch the waste while collecting and sorting without wearing gloves and,

stepping on waste wearing only sandals. Most of the eye problems were burning sensation, watering redness, and itching of the eyes. Nine cases of typhoid (3%), five cases of hepatitis (1.6%) Hepatitis A Virus (HAV) were reported among them. Through aerobic and anaerobic microbial action the waste decomposes to form leachate which has low pH and because of their sensitivity to the low pH most of the fecal bacteria and viruses die-off. Enteric bacteria were isolated more frequently in flies from refuse dumps. According to a published review paper, no individual case reports of contracting hepatitis or increased risk of hepatitis among solid workers were reported from any part of the world. Absence of regular bathing after job have found to be significant statistical association with skin diseases ($P = 0.041$), jaundice ($P = 0.043$), diarrhoea ($P = 0.001$).

Waste collection work is characterized by heavy weight lifting, which affects major joints. There is a substantial risk for low back pain and musculoskeletal disorders of the neck, shoulders, and arms. Several studies on waste collection movements have demonstrated that mechanical loads on the skeleton frequently exceeded maximum acceptance limits recommended; throwing waste bags resulted in high shear forces on the spine and carrying loads resulted in excessive torque to the shoulder resulting in increased incidence of the musculoskeletal problem [12,13]. The joints affected in the order of predilection are the knee, back; shoulder, elbow, ankle, and neck (range 39-17%). The Higher joint problem was also reported from Indian cities Bombay, Calcutta, and Bangalore. The strength of association as relative risk for musculoskeletal problems was reported to be in the range 1.9 to 4 [13]. Review of the global literature provide strong evidence that low-back disorders are associated with work-related lifting and forceful movements with high odd ratios ranging from 2.2 to 11. The musculo skeletal problems are worsened by in appropriate ergonomics, the non-availability of worker friendly and women friendly tools and equipments [8].

Sukanya Rangamani [15] (2015) in their study at Chitradurga town in Karnataka found that Injuries were the most commonly reported illness by men. Bruises, cuts, lacerations, and haematomas occurred while they entered drains and crawled in to clear the waste (human faeces, sludge, decomposed animal parts and solid waste). The men did not take leave and continued to work in over three-quarter of the injury episodes, because of fear of losing their job. Chest pain, next to injuries, was commonly reported by both men and women and was also described as a long-term illness. Body ache, backache, leg pain and

headache due to the physical manual labor were reported during the monitoring. Most workers reported frequent episodes of fever, cold and cough. Alcohol consumption and self-medication were the main methods of relief from their symptoms.

Parul Gangwar [15](2014) in their study in Lucknow city concluded that sanitation workers suffered highly postural discomfort as felt by the workers in various body parts was measured using Body Discomfort Scale through body mapping technique. Body discomfort in sanitation workers was found to be highly significant at .0001 levels in academic institutions. Highly significant differences were found in different body parts of sanitation workers according to their different types of cleaning work because of their working pattern, heavy workload, and long working hours. Postural discomfort, musculoskeletal disorders are still common in cleaning work and clearly increase with age. Sanitation workers are able to plan their own work to some extent. This enables them to influence their physical workload and postural stress, musculoskeletal pain.

In the present study 151(82.96%) workers, didn't use any protective devices while working making them vulnerable to various health hazards. The reason for not using the devices was nonavailability, not aware of such devices, felt that they were of no use. Out of 182 workers, 64 (35.16%) workers were not immunized against hepatitis and 35(19.24%) didn't receive injection TT in recently. It was observed that 138 (75.82%) workers were addicted to one or the other addiction like tobacco, alcohol, gutkha and smoking. The high prevalence of alcohol and smoking may be attributed to peer pressure, low educational level or mere way to keep awake and attentive during the night shifts.

Similarly, Prabhakumari Chellamma [2] (2015) found that 53.9% of the workers were provided with personal protective equipments and regular use was seen in 18%. In a study conducted by Sudhir Naik et al, a total of 87 workers were screened, only 1 out of 87 workers used gloves while working and none of the 87 workers used masks or properly covered footwear like boots during the work hours.

ThayyilJayakrishnan [8] (2013) found that none of their participants were reported to have HIV, HBV positive, only 3 had received HBV vaccine. The risk of HIV, HBV infection after a puncture has been estimated to be about 0.3%, 3% respectively. Though 77% had taken prophylaxis against Tetanus, 36 (16%) out of the 228 injured had never taken Tetanus toxoid (TT) and N Sherrin Sophia [9] (2017) found that 68%

workers consume alcohol. Omesh Kumar Bharti [16] (2016) concluded that there is a strong need for periodic health surveillance of sanitary workers to detect early signs of non-communicable diseases like high blood pressure and diabetes etc. among them and educate them regarding balanced diet and risk of excessive alcohol, non-veg food, and smoking. There are facilities nearby to treat communicable diseases. However, now the trend of the suffering of sanitary workers is shifting from communicable to non-communicable diseases that are not taken care of at early stage and hence compound the problems for them.

Conclusion

It can be concluded that the workers are suffering from many morbidities because of lack of knowledge and practices of safety devices. The health status must be reviewed on regular basis and continued health education and counseling must be made available. There is need to upgrade their immunization status.

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