



## Health Problems among Sanitation Workers in Indore City and Their Knowledge, Attitude & Practices Regarding Preventive Measures Taken At Workplace: A Cross- Sectional Study

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### Abstract

**Introduction:** *The health and safety need of sanitation workers is an important issue. This study aims to know the common health problems among sanitation workers and their knowledge, attitude and practices regarding preventive measures provided and taken by them at work place.*

**Methodology:** *This cross-sectional study was carried out from September to November, 2017 among 200 randomly selected sanitation workers employed under the Indore Municipal Corporation (IMC). A pre-designed semi-structured questionnaire was used to collect data and informed consent was taken from study participants. Data was entered in Excel sheet and analyzed.*

**Results:** *71% sanitation workers were in the age group of 31-49 years; and majority(63%) were females. 96% suffered from one or a combination of health problems; most common being respiratory problems (87%). Awareness about personal protective equipment (PPE) was present among 85% study population; none (0%) used them. 98% stated that they would use PPE if provided by IMC. Only 57% consulted a doctor in case of sickness.*

**Conclusion:** *There is high prevalence of health problems among sanitation workers. There is presence of a wide gap between the knowledge/attitude and practices of sanitation workers regarding protective gear. Strategies to improve monitoring and treatment of illness and injuries at workplace must be done.*

### Introduction

Over the past few years, access to sanitation has attracted more attention in India- thanks to the Swachh Bharat Mission (Clean India Mission) which was launched in 2014. This project seeks to make the nation free of “open defecation” by 2019. Such efforts have been made after the Supreme Court of India recognized sanitation as a fundamental right in the 1990s, and the UN

General Assembly recognized sanitation as a distinct human right.<sup>1</sup>

Much had been talked about sanitation and health and now it is well known that sanitation has an important bearing on positive health. Also, many studies have proved this.<sup>2-5</sup> In India, the maintenance of clean environment has become a challenge and many sanitation workers are working under Municipal Corporations whose

responsibility is to maintain sanitation in their respective towns and cities. Their work include sweeping roads, cleaning toilets, cleaning septic tanks, disposal of human and animal excreta, collecting and transporting garbage, etc.<sup>6</sup> All this sanitation work is physically hard, smelly, disgusting and often dangerous: 90 per cent of municipal sanitation workers die before the retirement age, most from occupation-related health conditions.<sup>7</sup> Sanitation workers experience twice the fatality rates of police officers and nearly seven times the rate of firefighters, according to a cultural study done in New York City.<sup>8</sup> The demand of sanitation workers for a living wage and right to live with dignity & safety can be traced back to the 1968 Memphis strike.<sup>9</sup>

Due to their occupation and occupation based castes, they are neglected, exploited, discriminated and even alienated in society. The sanitation workers make up the most underappreciated workforce in the society even after doing their job. Death of sanitation workers who enter sewers without any protective gear have also been reported time and again.

Keeping in view the health & safety needs of sanitation workers, very few studies have been done. Also, Indore city being ranked as No. 1 in the past Swachhta Survekshan (Cleanliness Survey) under the Clean India Mission, it becomes all the more necessary to look into the health problems and safety practices of the sanitation workers who keep this city clean.

### Objectives

- 1) To study the common health problems among sanitation workers.
- 2) To study the knowledge, attitude and practices regarding preventive measures taken at workplace.

### Methodology

This cross-sectional study was carried out for duration of 3 months (September to November, 2017) among 200 randomly selected sanitation workers employed under the Indore Municipal

Corporation. The confidence interval was taken as 95%, precision of the study as 5% and the prevalence of health problems among sanitation workers from previous literature as 15%-for calculation of sample size for the study. The sanitation workers less than 20 years and more than 60 years were not included in the study. Informed consent was taken from the study participants. The information was collected through a pre-designed semi-structured questionnaire inquiring into the common health problems suffered by the sanitation workers owing to their occupation. Also their knowledge, attitude and practices regarding the preventive measures provided and taken by them were looked into. All information collected was kept confidential. Data was entered in Microsoft Excel sheet. Qualitative data were presented as frequency distribution with its percentage; and for quantitative data, descriptive statistics with mean and standard deviation were calculated.

### Results

The findings of the study reveal that maximum (71%) sanitation workers were in their thirties and forties (Mean age= 39.33+/-8.35 years). 63% were females; 93% were street sweepers; and 44% were working for more than 10 years. The Demographic characteristics of the study population are shown in Table 1.

**Table 1:** Demographic Characteristics of the study population

Sl.No.	Demographic characteristic	Frequency(n=200)	Percentage (%)
<b>1.</b>	<b>Age Group</b>		
	20-29 years	28	14
	30-39 years	78	39
	40-49 years	64	32
	50-59 years	30	15
	<b>Total</b>	<b>200</b>	<b>100</b>
<b>2.</b>	<b>Gender</b>		
	Male	74	37
	Female	126	63
	<b>Total</b>	<b>200</b>	<b>100</b>
<b>3.</b>	<b>Type of Work</b>		
	Manual Scavenger	2	1
	Street Sweeper	186	93
	Office Workers	12	6
	<b>Total</b>	<b>200</b>	<b>100</b>
<b>4.</b>	<b>Years of Working</b>		
	<1 year	2	1
	1-5 years	48	24
	5-10 years	62	31
	>10 years	88	44
	<b>Total</b>	<b>200</b>	<b>100</b>

Only 4 % of study population did not suffer from any of the common health problems, while 96% suffered from one or a combination of health problems involving the respiratory system,

gastrointestinal system, skin, eyes and/or sharp object injury. The proportion of common health problems suffered is depicted in table 2.

**Table 2:** Morbidity Profile of Study Population

Sl. No.	Variable	Frequency(n=200)	Percentage (%)
<b>1.</b>	<b>*Common Health Problems</b>		
	Respiratory Problem(cough and/or difficulty breathing)	174	87
	Sharp Object Injury	142	71
	Gastrointestinal Disturbance(diarrhea)	90	45
	Skin Condition(allergy/eczema)	68	34
	Ophthalmic Problem	54	27
	Not Suffered from any of the above	8	4
*The percentage of common health problems does not add up to 100% as these were multiple choice answers.			
<b>2.</b>	<b>Respiratory Problems</b>		
	Cough present	170	85
	Difficulty breathing present	136	68
<b>3.</b>	<b>Gastrointestinal Disturbance</b>		
	Diarrhea	90	45
	Blood in Stool (Dysentery)	10	5
	Diarrhea associated with fever	10	5
<b>4.</b>	<b>Ophthalmic Problem</b>		
	Yes	54	27
	No	38	19
	Don't know and/or remember	108	54
	<b>Total</b>	<b>200</b>	<b>100</b>
<b>5.</b>	<b>Skin Condition</b>		
	Yes	68	34
	No	128	64
	Don't remember	4	2
	<b>Total</b>	<b>200</b>	<b>100</b>
<b>6.</b>	<b>Sharp Object Injury</b>		
	Yes	142	71
	No	52	26
	Don't remember	6	3
	<b>Total</b>	<b>200</b>	<b>100</b>

Though the awareness about personal protective equipment (PPE) like face mask, eye gear, gloves and gum boots was present among 85% study population; still none (0%) used them during work hours. No provision of PPE by the Municipal Corporation (90%) was the main reason stated for not using them. 1% did not find the PPE of much use while 6% had no specific reason for not using the PPEs. However, 98% study population stated that they would use the PPE if provided by the

municipal corporation. 72% reported that there was no provision of proper and organized health checkups by the municipal corporation. Only 57% consulted a doctor in case of sickness; while the remaining 43% either took a home based remedy (21%), took over the counter medications(15%) or did not seek treatment at all(7%). The details of the Knowledge, Attitude and Practices are shown in table 3& 4.

**Table 3:** Knowledge & Practices of Study Population regarding Preventive Measures in Their Workplace

Sl. No.	Variable	Response		
		Yes (n=200, %)	No (n=200, %)	Not sure (n=200, %)
1.	Awareness about occupational hazard exposure	134(67)	62(31)	4(2)
2.	Any past exposure of occupational hazard	108(54)	92(46)	-
3.	Awareness about PPE	170(85)	30(15)	-
5.	Use of PPE by them	0(0)	200(100)	-
6.	Provision of PPE by Municipal Corporation	6(3)	180(90)	14(7)
8.	Provision of Health Checkups by Municipal Corporation	40(20)	144(72)	16(8)

**Table 4:** Attitude of Study Population regarding Preventive Measures in Their Workplace

Sl.No.	Variable	Response		
		Agree (n=200,%)	Neutral (n=200,%)	Disagree (n=200,%)
1.	Think that hazards can be minimized by use of PPE	182(91)	6(3)	12(6)
2.	Willing to use PPE if provided by Municipal Corporation	196(98)	0(0)	4(2)
3.	Willing to Approach Doctor When Sick	114(57)	0(0)	86(43)

## Discussion

According to this study, maximum (71%) sanitation workers belonged to the age group of 31-49 years and majority (63%) of them was females.

Studies done by Yogesh D Sabde et al. on the morbidity profile of street sweepers of Nagpur Municipal Corporation<sup>10</sup> and N Sherrin Sophia et al. on the sanitation workers of Trichurapalli<sup>11</sup> also had majority of sanitation workers belonging to the age group of 30-50 years; 73.2% and 30% respectively. Study done by Yuehua Yan1 et al. on occupational skin diseases among sanitation workers in China had 87.2% female sanitation workers.<sup>12</sup>

The present study reported 96% suffering from one or more of the common health problems; the most common health problem involved the respiratory system, i.e., cough and/or difficulty breathing (87%) followed by sharp object injury

during work hours (71%), gastrointestinal disturbance, i.e., diarrhea and/or dysentery with or without fever (45%), skin conditions like allergy/eczema (34%) and eye problems like watering of eyes/itching/burning sensation in the eyes (27%).

Similar findings were reported by Yogesh D Sabde et al. and Prabhakumari Chellamma et al. where the most common illness suffered affected the respiratory system (15% and 50.72% respectively) besides other health problems.<sup>10,13</sup> The study done by N Sherrin Sophia et al. also reported several health issues such as gastrointestinal diseases, skin related issues, orthopedic problems and asthma among 70% of sanitation workers.<sup>11</sup>

Another research done by Smilee Johncy S. et al. in central Karnataka compared all pulmonary function parameters-between female sweepers and healthy female controls. The results showed that

sweepers had significantly compromised lung function parameters as compared to the controls.<sup>14</sup>

Other health problems include significantly higher risk of developing Musculoskeletal Disorders among street sweepers compared with the comparison group as found in the study done by Pradeep S Salve et al.<sup>15</sup>

The sanitation workers are also prone to needle stick and sharps injuries as documented in a survey in Mexico City by Thompson B et al., where 34% reported 22 needle sticks in the previous one year.<sup>16</sup>

According to the present study, though awareness about PPE was present among 85% study population; none used them. The main reason stated for not using them was no provision of PPE by the IMC (90%). However, 98% study population stated that they would use the PPE if provided by the municipal corporation. Also, 91% agreed that health hazards can be minimized by the use of protective gears at work place.

Prabhakumari Chellamma et al. highlighted similar findings. The awareness regarding PPE was seen in 85.19% of the sanitation workers. Despite this high level of awareness, regular use of PPE was seen only in 18% of workers.<sup>13</sup> Only 58% preferred wearing safety measures during work: in the study done by N Sherrin Sophia et al.<sup>11</sup> Yogesh D Sabde et al. also noted that none of the street sweepers used protective devices such as face mask, goggles, gumboots or gloves while working. The reasons given were an irregular supply of the protective devices and lack of motivation for using these devices.<sup>10</sup>

The present study revealed that though free treatment was provided by the IMC in their dispensaries; 72% sanitation workers reported no provision of pre-placement and periodic health checkups in these dispensaries. Only 57% voluntarily consulted a doctor in case of sickness. Auler F et al. in their analysis of the health conditions and access to health services of waste pickers in Brazil found that 36.9% had not consulted with a doctor in more than 1 year and 15.7% had no access to a healthcare unit.<sup>17</sup> Also,

analysis done by Rangamani S et al. among sanitation workers in Karnataka stated that most sanitation workers continued to work without appropriate treatment.<sup>18</sup>

### Conclusion

The health profile of sanitation workers is critical, with a high prevalence of health problems involving the respiratory, skin, sharp object injuries and gastrointestinal system. This problem is magnified by no use of PPE at their workplace and poor healthcare seeking behavior among them.

Though majority of sanitation workers are aware and are ready to use the PPE if provided; however none were found to use them. This implies the presence of a wide gap between the knowledge/attitude and practices of sanitation workers. The reasons for this gap may be multifactorial; ranging from financial constraints, poor political commitment, and lack of urgent demand of preventive measures.

Only 20% individuals reported to have undergone a health check-up that was provided by the IMC. 80% did not receive any kind of health check-up. The reasons for this may also be the lack of political commitment, absence of any authoritative body to ensure health checkups, and loss of pay or job of the workers.

All these findings suggest the absence of a proper health and safety mechanisms at workplace. Thus, recommendations include formation of an authoritative body which would deal with the proper implementation of use of PPE and uniforms at workplace. Pre-placement health checkups and periodic health examinations by the municipal corporation should be made mandatory for all sanitation workers. Health education sessions should be organized by IMC.

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## References

1. News clipping:India's ambitious plans to achieve sanitation for all must look beyond building individual toiletsOctober 9, 2017 10.20pm AEDT Available from: <https://qz.com/1098315/swachh-bharat-indias-ambitious-plans-to-achieve-sanitation-for-all-must-look-beyond-building-individual-toilets/>
2. Duncan Mara, Jon Lane, Beth Scott, David Trouba (2010); Sanitation and Health
3. Anjana Kuberan, Awnish Kumar Singh, Jyoti BalaKasav, Satish Prasad, Krishna Mohan Surapaneni, Vandana Upadhyay, Ashish Joshi (2015);Water and sanitation hygiene knowledge, attitude, and practices among household members living in rural setting of India
4. Ashish Joshi and ChiomaAmadi (2013); Impact of Water, Sanitation, and Hygiene Interventions on Improving Health Outcomes among School Children
5. Ganesh S Kumar, Sitanshu Sekhar Kar, Animesh Jain (2011); Health and environmental sanitation in India: Issues for prioritizing control strategies
6. Earanna. J, LaxmanKawale (2017); Pourakarmikas In India: Analysis Of Social, Occupational And Health Status
7. Barbara Harriss-White (2017); Formality and informality in an Indian urban waste economy
8. Robin Nagle; Picking Up: On the Streets and Behind the Trucks with the Sanitation Workers of New York City
9. Michael Honey(Spring 2008);The Memphis Strike: Martin Luther King's Last Campaign
10. Yogesh D Sabde and Sanjay P Zodpey (2008); Study of Morbidity Pattern in Street Sweepers: A Cross-sectional Study
11. N Sherrin Sophia and S Pavithra (2017); A study on sanitation workers at Tiruchirappalli
12. Yuehua Yan, Xinggong Wang, Jianbo Wu, Li Xu (2015); Occupational skin diseases and prevention among sanitation workers in China
13. Prabhakumari Chellamma, Sudhiraj, Arya Vijayakumar (2017); Morbidity Profile Of Sanitary Workers In Thrissur Corporation, Kerala
14. Smilee Johncy S., Dhanyakumar G., Vivian Samuel T., Ajay K.T., Suresh Y. Bondade (2013); Acute Lung Function Response to Dust in Street Sweepers
15. Pradeep S Salve, Praveen Chokhandre (2016); Assessing the exposure of street sweeping and potential risk factors for developing musculoskeletal disorders and related disabilities:a cross-sectional study
16. Thompson B, Moro PL, Hancy K, Ortega-Sánchez IR, Santos-Preciado JI, Franco-Paredes C, Weniger BG, Chen RT (2010); Needlestick Injuries Among Sanitation Workers In Mexico City
17. Auler F, Nakashima AT, Cuman RK (2014); Health Conditions of Recyclable Waste Pickers
18. Rangamani S, Obalesha KB, Gaitonde R (2015); Health issues of sanitation workers in a town in Karnataka: Findings from a lay health-monitoring study.