

Health and Occupational Risks in Sanitation Work: An Empirical Study of Lived Experiences of Sanitation Workers in Greater Hyderabad Municipal Corporation, Telangana

Binod Kumar, SOSW, Indira Gandhi National Open University

Konde Lingaswamy, SOSW, Indira Gandhi National Open University

Shankar Sampangi, Osmania University

Abstract: Sanitation workers are the backbone of urban public health infrastructure. However, their contributions to make the urban spaces habitable are under-recognized. Despite their contributions in various forms, the working conditions of the sanitation workers remain poor. In the prevailing poor working conditions, they face multiple health and occupational risks in their daily lives. The study finds its relevance in the fact that there is a spurt in the process of urbanization, and it requires a large number of sanitation workers to make these spaces livable. Despite government claims of the mechanization of work, a significant portion of the work is still performed under hazardous conditions.

In this backdrop, the current empirical study explores health and occupational risks of sanitation workers working under the jurisdiction of Greater Hyderabad Municipal Corporation (GHMC), Telangana, India. The study focuses on the lived experiences and institutional responses of the various categories of sanitation workers and includes both permanent and contractual sanitation workers. The study adopts a mixed methods research design. It employs a qualitative methodology, supplemented by quantitative data, to holistically examine the daily life experiences of the sanitation workers in Greater Hyderabad. A total of 100 sanitation workers were interviewed using a semi-structured questionnaire. It is supplemented with in-depth interviews of community organisers and supervisors. Additionally, official records of GHMC and other government departments have been analyzed to find the institutional response to the daily challenges of sanitation workers.

By gaining a grounded understanding of urban sanitation labour, the paper contextualizes the workers' narrative to find appropriate policy intervention centred on health and occupational risks, as institutional responses have largely been ineffective.

Keywords: sanitation; worker; urbanisation; marginalised; health and occupational risk

1 Background of the Study

The sanitation workers constitute part of the urban infrastructure. In their daily life, they face numerous challenges ranging from caste-based discrimination to health hazards associated with their work. Most of the writings delve into public health aspects and conveniently ignore their role in making the city livable, inclusive, and aesthetic. It is interesting to note that nearly 65% of the GDP is contributed by the urban sector. Consequently, urbanisation has been seen as a positive factor in the overall development. The urban centers are not only attracting people for

employment but also creating an excessive burden on the urban infrastructure. Sanitation facilities, a necessity for all, require a large number of sanitation workers to keep the city livable. Despite their crucial role in maintaining urban spaces, sanitation workers in urban areas have abysmal status. There are a variety of sanitation works operational in urban areas. Some of these are inhumane and have caught government attention. Most sanitation work in India is carried out manually and is low-paid, with little use of newer technology. Therefore, most of the sanitation workers come from the lower caste groups, and many of them are considered untouchable. In response to their plight, several efforts have been made to improve their lives. In post-independent India, Article 17 of the Constitution of India mandated the abolition of untouchability. A dedicated effort to do away with manual scavenging was made through central-level legislation, the National Commission for Safai Karamcharis (NCSK) Act, 1993, which was operational until 2004. The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013, was enacted by the Parliament and mandated the rehabilitation of manual scavengers and their dependents.

Over time, the understanding of the term ‘sanitation worker’ has evolved gradually. The Ministry of Social Justice & Empowerment, Government of India, considers “Sanitation Worker” to mean a person engaged in or employed for any sanitation work, and includes waste pickers and also those persons who were engaged in cleaning of sewers and septic tanks, but excludes domestic workers.¹ Another important definition of *safai karamcharis* (sanitation workers), as per the Articles of Association of National Safai Karamcharis Finance and Development Corporation, is “*Safai Karamchari*”(sanitation worker) means a person, including his/her dependents, engaged in or employed for any sanitation work and includes waste pickers, but excludes domestic workers and manual scavengers.² As per the World Health Organisation (WHO), “Sanitation workers are some of the most vulnerable workers. Their jobs often exist in an informal economy without basic labour protections or rights. They remain invisible, unquantified, neglected, and ostracised – facing conditions that expose them to debilitating infections, injuries, stigma, and even death from toxic gases and pit collapses. These are not isolated incidents - they are part of a systemic problem.”³ Thereby, sanitation workers include waste pickers, sewers, and septic tank cleaners, but exclude domestic workers and manual scavengers. However, the broader typologies of the sanitation workers include (1). Latrine Cleaner (2). Drain Cleaner (3). Community Toilet/ Public Toilet Cleaner (4). Septic Tank Desludger (5). Sewer Cleaner (6). Treatment Plant Worker (7). Street Sweeper (8). Institutional Waste Collector (Hospitals and Quarantine Centres) (9). Domestic Waste Collector (10). Informal Waste Picker (11). Worker at Waste Processing Facility (Ensuring Safety of Sanitation Workers, 2022). Moreover, the National Urban Sanitation Policy 2008 defines sanitation as “safe management of human excreta, including its safe confinement treatment, disposal and associated hygiene-related practices” (National Urban Sanitation Policy, 2008, p. 4).

¹ <https://socialjustice.gov.in/public/ckeditor/upload/66671696827061.pdf> accessed on 16th August 2025.

² [https://sansad.in/getFile/annex/259/AU780.pdf?source=pqars#:~:text=\(a\)%20Definition%20of%20safai%20karamchari](https://sansad.in/getFile/annex/259/AU780.pdf?source=pqars#:~:text=(a)%20Definition%20of%20safai%20karamchari), accessed on 16th August 2025.

³ <https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/sanitation-safety/sanitation-workers#:~:text='Sanitation%20work'%20includes%20emptying%20toilets,of%20the%20most%20vulnerable%20workers> accessed on 16th August 2025.

Across the typologies of sanitation work, precarity of the sanitation work can be witnessed through multiple health-related problems like gastrointestinal disorders, respiratory issues, musculoskeletal disorders, skin & eye problems, and infectious diseases. The most vulnerable among the sanitation workers are sewers and septic tank cleaners, who are often victims of asphyxiation from inhaling toxic gases. Table 1 provides the number of deaths of sewer and septic tank cleaners for the years 2023 and 2024 as compiled by the National Commission for Safai Karamcharis⁴ and exhibits deaths of sanitation workers across India.

Title 1: Number of death of sewer & septic tank cleaners (2023-2024)

Sl. No.	State/UT	2023	2024
1	Bihar	2	0
2	Delhi	0	7
3	Goa	0	1
4	Gujarat	10	0
5	Haryana	6	1
6	Jharkhand	1	0
7	Karnataka	3	2
8	Madhya Pradesh	2	3
9	Maharashtra	10	9
10	Punjab	6	1
11	Rajasthan	10	7
12	Tamil Nadu	8	6
13	Telangana	1	3
14	Uttar Pradesh	1	10
15	West Bengal	3	0
Total	Total	63	50

⁴ <https://sansad.in/rs/questions/questions-and-answers> accessed on 16th August 2025.

2 Sanitation Work and Worker: A Global Overview

A multi-country report in collaboration with the World Bank, World Health Organisation, International Labour Organisation, and Water Aid titled Health, Safety and Dignity of Sanitation Workers: An Initial Assessment provides a thorough assessment of the occupational health issues. The report highlights the undervalued and invisible contributions of sanitation workers. It highlights the crucial role of sanitation workers in realising the goals of SDG 6 (Ensure availability and sustainable management of water and sanitation for all) and SDG 8 (Decent Work and Economic Growth). The report highlights lack of social security of the sanitation workers, low wages, and lack of access to health services. It also highlights occupational health and safety as a major concern prevailing worldwide among sanitation workers. As sanitation workers are vulnerable to infectious diseases, toxic chemicals, and physical injuries, there is a strong need for their social security and access to appropriate health facilities. Besides, sanitation workers are also subject to social stigma and discrimination. Most of them face discrimination based on their caste and their occupation. An informed policy to alleviate the status of sanitation workers is possible only when there is a reliable dataset. There is a lack of data on the total number of sanitation workers in the country, which creates impediments for designing a comprehensive social policy for their welfare (World Bank, 2019).

3 Health and Occupational Risks in Sanitation Work in India

Robert & Muthulakshmi (2024) in the article Occupational Health Concerns for Sanitary Workers in Varkala Municipality, Thiruvananthapuram discuss the health issues associated with their work, including respiratory and musculoskeletal disorders, infectious diseases, psychological stress, and social stigma. It has been underscored that respiratory problems were most prevalent due to their exposure to the toxic substances. The musculoskeletal disorders among the sanitation workers are another significant problem due to the strenuous nature of work. Additionally, skin disorders, gastrointestinal issues, and fatigue were mainly reported. The study highlights higher levels of fatigue and stress among female workers than among their male counterparts. It calls for greater recognition of sanitation workers' contributions to maintaining public health and improve their working conditions and overall well-being (Robert & Muthulakshmi, 2024).

The report Ensuring Safety of Sanitation Workers: A Ready Reckoner for Urban Local Bodies by the Ministry of Housing and Urban Affairs, Government of India, outlines a comprehensive framework for improving working conditions and restoring the dignity of sanitation workers across urban local bodies. The report highlights the critical role of legal frameworks in improving the lives of sanitation workers in the Indian context. It recognises the hazardous nature of sanitation and solid waste management, yet these are essential services. Despite their crucial role, they are neglected and marginalized both socially and economically. The inadequate protection, their living conditions in the margins of the urban areas, and the lack of access to health care exacerbate their vulnerability. It highlights the multi-faceted nature of risks due to exposure to toxic chemicals during their work and mental health challenges due to social stigma and the nature of their work. It underscores the policy advancement in terms of the enactment of the Prohibition of Employment as Manual Scavengers & Rehabilitation Act (2013). The associated guidelines mandate establishing Emergency Response Sanitation Units (ERSUs) to enhance safety when working in sewers. The report stresses the essential use of personal protective equipment (PPE) by the sanitation workers to prevent loss of life and serious injury. It calls for a mechanised solution, such as robots and automated machinery, to reduce risks in sanitation work, especially in urban areas. There is an urgent need to integrate sanitation

workers into social security schemes, such as health insurance, life insurance, and disability support (Ensuring Safety of Sanitation Workers, 2022).

Tolera et al. give a comprehensive overview of the health risks faced by sanitation workers across the globe. It provides a systematic review of the 51 studies conducted in 23 countries between 2000 and 2022. The sanitation workers play a crucial role in maintaining public health, but they are consistently exposed to hazardous conditions and face serious health risks. It also underlines the widespread prevalence of respiratory disorders among the sanitation workers. The respiratory issues, such as chronic obstructive pulmonary disease (COPD), asthma, pulmonary tuberculosis, and general lung dysfunction, are reported in most of the studies. These symptoms may be attributed to the sanitation workers' exposure to the various types of chemicals. The sanitation workers directly exposed to the sewage and wastewater are at risk of gastroenteritis. It was also found that Hepatitis A, E, and other waterborne infections are commonly reported among sanitation workers, which calls for protective measures and better social security to cover their health expenditure. The mental and occupational stress is compounded by social stigma and discrimination around sanitation work, high risk and vulnerability, low wages, and weak social security. Finally, it advocates for a comprehensive study to understand the true burden of disease and refine the intervention, making it more targeted and appropriate for the betterment of the vulnerable population (Tolera, Temesgen, Endalew, Alamirew, & Temesgen, 2023).

The article Framework for Addressing Occupational Safety of De-sludging Operators: A Study in Two Indian Cities addresses the safety concerns and risks associated with the de-sludging operations in India. It highlights the occupational hazards faced by the de-sludging operators who are responsible for emptying septic tanks and managing faecal sludge. The primary concerns it raises are toxic gases, physical injuries, and direct contact with sludge. Inhalation of toxic gases causes respiratory illnesses, which are among the most common problems among sanitation workers. The study adopts a systems thinking approach and identifies multi-sectoral issues such as septic tank design and non-compliant construction practices. It proposes a wide range of strategies, ranging from the elimination of hazards to the mechanization of the processes and improving the construction designs of septic tanks (Gautam, Wankhade, Sarangan, & Sudhakar, 2021).

In the article Assessment of Occupational Health Hazards and Associated Morbidities in Sanitation Workers of a Metropolitan City in India: A Cross-Sectional Study, Gada et al. (2023) highlight both physical and psychological health issues. The study identifies musculoskeletal disorders, gastrointestinal problems, respiratory diseases, and a variety of psychological issues among the sanitation workers. Substance abuse among the sanitation workers is another important issue identified by the study, increasing the chances of comorbidity. The study underscores the high level of substance abuse and hazardous working conditions, which often put significant psychological stress on sanitation workers. The study recommends preventive measures like substance abuse programs, better protective gear, regular health screenings, and mental health support (Gada, et al., 2023).

Tiwari (2008), in *Occupational Health Hazards in Sewage and Sanitary Workers*, provides a thorough overview of the health risks faced by sanitation and sewage workers in India. It highlights musculoskeletal disorders, infectious diseases, and exposure to harmful gases as occupational risks for sanitation workers in India. The study calls for ergonomic interventions and safer working conditions to prevent long-term musculoskeletal damage. The findings

recommend the vaccination programs and preventive healthcare measures to reduce infectious diseases (Tiwari, 2008).

Oza et al. (2022) conducted a systematic review of 65 studies examining various health issues associated with sanitation workers, such as gastrointestinal disorders, respiratory diseases, musculoskeletal disorders, mental and social health, and mortality. This study identifies gastrointestinal disorders as the most reported health issue among sanitation workers. The study advocates for the hygiene intervention and vaccination to reduce the risk of infections. Besides, respiratory ailments such as chronic obstructive pulmonary disease (COPD), bronchitis, and asthma are common among sanitation workers. The mental and social health conditions, such as occupational stress and social stigma, are significant impediments to the overall well-being of the sanitation workers. Finally, the study highlights gaps in existing research, especially among the informal workers of the low-income countries who have minimal access to the social security nets (Oza, et al., 2022).

4 Sanitation Workers: Disguised Warriors of Public Health

The Hidden World of Sanitation Workers in India (Wateraid, 2019) report highlights the critical role of sanitation workers in ensuring public health despite working in precarious conditions. The central theme of the report is caste-based discrimination, as most of the sanitation workers belong to Dalit groups, which are at the bottom of the caste hierarchy. The report reveals the lack of safety measures for the sanitation workers in India. It also uncovers a gap in reliable datasets on sanitation workers and highlights that, despite a strict legal framework, its ineffective enforcement leaves workers in vulnerable conditions. The report recommends a comprehensive enumeration of sanitation workers, strict enforcement of legal provisions and rules, awareness, and rehabilitation of workers (Wateraid, 2019).

Ranjithkumar (2025) provides a holistic overview of the problems faced by women sanitation workers in Tamil Nadu. It highlights the health risks especially faced by the women sanitation workers due to poor working conditions, toxic chemical exposure, and infectious waste. It highlights that most sanitation workers do not have formal employment contracts; therefore, they have minimal job security, no paid leave, and no access to other social security benefits (Sulochana & Karthikeyan, 2025). In some cases, sanitation workers are discouraged from seeking medical help by the medical professionals due to stigma and discrimination attached to their work (Ranjithkumar, 2025).

K.L.Ramitha et al. (2021) in the article A Cross-Sectional Study on Occupational Health and Safety of Municipal Solid Waste Workers in Telangana, India examines the health and safety challenges faced by the Municipal Solid Waste workers in Telangana, India. The findings indicate musculoskeletal disorders, respiratory problems, skin diseases, gastrointestinal issues, and eye problems. The study highlights the lack of proper working conditions and basic amenities like drinking water, toilets, and resting places. Women workers reported discomfort and used public places for basic needs in the absence of toilets (K.L.Ramitha, Ankitha, Alankrutha, & Anitha, 2021).

Mahendran & Mahendran (2025), in the article Hazards and Safe Housekeeping Practices Among Healthcare Sanitary Workers in South India, examine the occupational health risks faced by healthcare sanitary workers. The study underscores that sanitary workers are exposed to a wide array of physical hazards, including slips, falls, and injuries related to lifting heavy

weights. The healthcare sanitary worker needs special training to handle chemicals and mitigate the potential risks.

While synthesising the findings of previous studies, it was found that most studies identify musculoskeletal disorders, respiratory problems, skin diseases, gastrointestinal issues, eye problems, and infectious diseases. At the same time, a few have focused on mental health. The working conditions of the sanitation workers are overall deplorable, as they spend long hours at work without access to drinking water, toilet facilities, or a resting place. They are low-paid, face discrimination & social stigma, and are vulnerable to various health and occupational risks. Despite facing these issues, they maintain cleanliness and foster better public health.

5 Theoretical Framework

The intersectionality framework is employed to understand the role of multiple factors intersecting health and occupational risk in sanitation work. Sanitation workers are not a homogeneous category, and their experiences are shared by multiple explicit and implicit factors. The health and occupational risks faced by sanitation workers are often mediated by caste, class, gender, language, and migration status. Among sanitation workers, women are differentiated by the manifold risks like reproductive health, gender-based discrimination and sexual harassment. Likewise, migrant sanitation workers who speak different languages further increase the precarity in the sanitation work. Thus, the intersectionality framework provided an analytical lens to capture lived experiences of sanitation workers often mediated by caste, class, gender, language and migration status. Furthermore, ecological systems theory provides a holistic understanding of the various systems that influence health and occupational risk in sanitation work. The ecological system in the sanitation work encompasses institutional structures, municipal governance, labour contracting systems, and workplace safety regulations and practices. It also includes macro systems like socio-cultural norms, legal frameworks, and economic policies. The ecological systems approach closely aligns with the person-in-environment perspective, which is critical to social work practice.

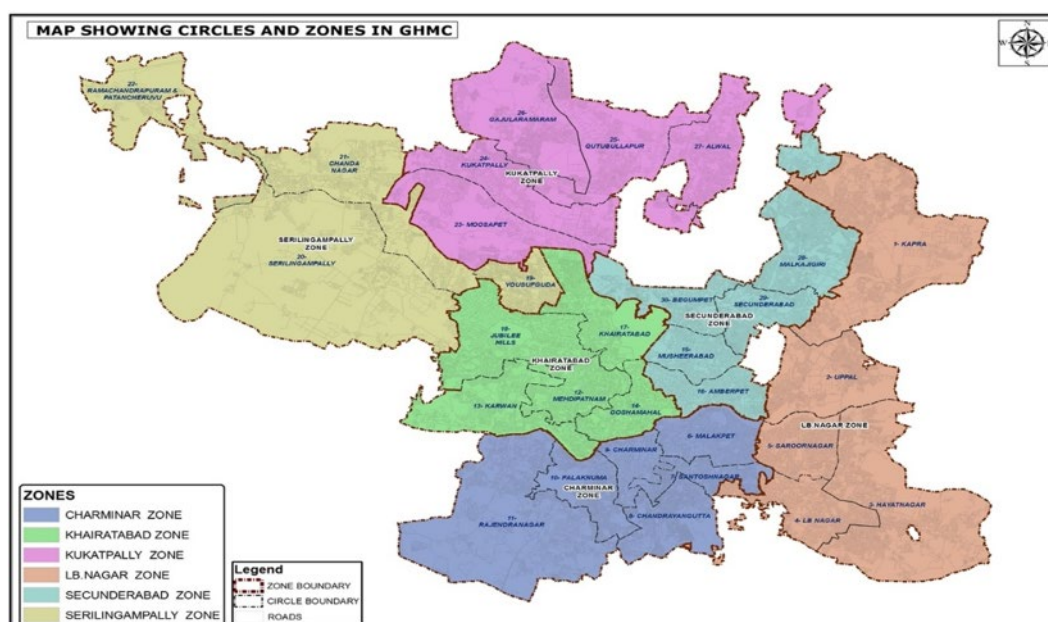
6 Area of the Study

The administrative arrangement of the city of Hyderabad & adjoining areas to provide water supply, sewerage management, and overall cleanliness has been divided into two bodies: (i) Greater Hyderabad Municipal Corporation (GHMC), (ii) Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB).

Greater Hyderabad Municipal Corporation (GHMC)

The Greater Hyderabad Municipal Corporation is an urban administrative body that looks after the capital city of the state of Telangana. It was constituted in the year 2007 after merging the Municipal Corporation of Hyderabad, which was established in the year 1955, along with 12 surrounding municipalities. Its geographical limits spread over four districts– (i) Hyderabad, (ii) part of Medchal Malkajgiri, (iii) part of Ranga Reddy, and (iv) part of Sangareddy. For smooth administration, GHMC is divided into six zones, 30 circles, and 150 wards.

Title: Map of the areas under Greater Hyderabad Municipal Corporation (GHMC)



Source:

https://upload.wikimedia.org/wikipedia/commons/e/e2/GHMC_NEW_ZONES%2CCIRCLE_MAP.jpg accessed on 24th August 2025.

Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB)

The Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) was constituted in 1989 under the Hyderabad Metropolitan Water Supply and Sewerage Act 1989 (Act No. 15 of 1989) after merging the adjoining areas of 10 municipalities. The act mandates two broad functions to the HMWSSB– (i) planning, design, construction, maintenance, operation & management of the water supply system (ii) planning, design, construction, maintenance, operation & management of all sewerage and sewerage treatment works.

The area of operations of these two bodies is almost common, though HMWSSB has a bigger service area. Therefore, the study of the lived experiences of sanitation workers in Hyderabad will be incomplete if these two service providers are not addressed together. Taking these two institutions together, helped to cover a range of sanitation activities and workers across the geographical expansion. Therefore, researchers began data collection with GHMC sanitation workers, although we soon realised that the whole exercise would be incomplete if the study did not also cover HMWSSB. Table 2 below provides the number of sanitation workers employed by GHMC and HMWSSB identified for data collection. The number of sanitation workers identified from the HMWSSB is less, as they specifically dealt with the sewerage system only. , in actual sense, the total number of workers employed by HMWSSB is less than GHMC.

Table 2: Distribution of Study Participants by Organisation

Area of Work	N
GHMC	134
HMWSSB	49
Total	183

To make the sample representative across the zones of GHMC, the samples were identified from various zones of the GHMC. The distribution of samples across the zones is listed in Table-3 below.

Table 3: Distribution of samples across the zones

Zone	GHMC	HMWSSB	Grand Total
Kukatpally	29	6	35
LB Nagar	30	3	33
Khairatabad	27	5	32
Charminar	25	4	29
Secunderabad	23	5	28
Lingampally	23	3	26

7 Methods and Materials

7.1 Objective and Research Questions

The broad objective of the article is to understand the health and occupational risks of the sanitation workers with special reference to the Greater Hyderabad Municipal Corporation and to assess the role of existing institutions in providing basic facilities to them. The research questions framed by the researcher for the study are:

1. What are the health and occupational risks of the sanitation workers in Greater Hyderabad Municipal Corporation (GHMC), and how do these risks impact their daily life?
2. How are the everyday challenges faced by sanitation workers addressed through institutional responses?

The study adopted a mixed-methods approach, combining qualitative and quantitative methods in data collection to assess the status of sanitation workers and document their lived experiences at work. While quantitative aspects addressed demographic information and the incidence of occupational health problems and injuries at work, qualitative aspects examined their lived experiences and challenges in detail.

7.2 Sample Selection

The purposive sampling technique was employed to select sanitation workers from all zones of the GHMC and HMWSSB. The sample includes both permanent and contractual workers in various sanitation roles. Purposive sampling was deliberately used to select sanitation workers with more than 5 years of experience. It helped in gaining information-rich cases and deeper insights into the research questions. A sample of 183 proportionally zone-wise selected from a population of 18,500. Sample adequacy is guided by research objectives, saturation, and feasibility. For this study, data was collected from the diverse group of sanitation workers, and these includes (i) domestic waste collectors, (ii) Informal waste pickers, (iii) Institutional waste collectors, (iv) public toilet cleaners, (v) sanitation field assistants, (vi) senior linemen, (vii) septic tank de-sludgers. It is interesting to note that almost the whole sanitation work under both GHMC and HMWSSB has been highly informalised. There is no recruitment of permanent sanitation workers; the study found that most permanent workers were hired on compassionate grounds due to the loss of a family member. Table 4 below gives the number of outsourced and regular sanitation workers under GHMC & HMWSSB.

Table 4: No of sanitation workers in Outsourcing v/s Regular Employment under GHMC & HMWSSB

No of sanitation workers in Outsourcing v/s Regular Employment under GHMC & HMWSSB			Employment Type		Total
			OUTSOURCING	REGULAR	
Area of Work	GHMC	Count	131	3	134
		% within Employment Type	74.4%	42.9%	73.2%
	HMWSSB	Count	45	4	49
		% within Employment Type	25.6%	57.1%	26.8%
Total		Count	176	7	183
		% within Employment Type	100.0%	100.0%	100.0%

7.3 Data Collection

Semi-structured Interviews

A semi-structured interview tool was prepared containing both qualitative and quantitative attributes. The purpose of the tool was to know their demographic details and explore their health and occupational risks associated with their work. The emphasis was on their exposure to toxic substances, injuries, infectious diseases, and work-related ailments such as musculoskeletal problems, respiratory issues, and concerns related to the eyes and skin.

In-depth Interviews

To gain a broader overview of the roles and functions of the sanitation workers working in the GHMC and HMWSSB, an in-depth interview was conducted with key informants such as sanitary inspectors and community organisers. The in-depth interview helped to enrich the study's findings and reinforced the issues and challenges raised by the sanitation workers. The

key informants directly work with the sanitation workers; therefore, in-depth interviews helped in understanding the problems, institutional responses, and gaps in the policy framework.

Official Records

The official records associated with the social security and occupational health of the sanitation workers were reviewed. This included accessibility of the sanitation workers to the social security benefits such as health check-ups, training programs, and availability & use of protective gears.

8 Ethical Considerations

The study has adhered to the standard ethical protocol. The informed consent of the respondents of the study was obtained before participation in the study. They were also informed briefly about the research and that their participation is voluntary, and they must feel free to quit whenever they feel uncomfortable. The information associated with the identity of the respondent has been kept strictly confidential.

9 Data Analysis

The quantitative data were analysed using SPSS. The open-ended questions and in-depth interviews were analysed using thematic analysis involving iterative coding and categorisation of recurring patterns. The analysis focused on key issues of health and occupational risks faced by the sanitation workers and institutional responses. It enabled researchers to gain a nuanced understanding of sanitation workers' lived experiences along with interplaying factors and institutional responses.

10 Findings and Discussion

10.1 Demographic Information

Table 5: Basic demographic details

Age (Years) * Gender					
Age (Years)					
Gender	Mean	N	Std. Deviation	Median	Variance
F	37.59	59	9.505	37.00	90.349
M	37.70	124	11.553	36.00	133.479
Total	37.67	183	10.909	37.00	119.004

Table 5 reveals that the average and median ages are almost identical for both male and female sanitation workers. The standard deviation in the males is higher, indicating the male ages are more spread out than those of the female sanitation workers.

Table 6: Caste Category of the Sanitation Workers

Caste Category of the Sanitation Workers				
Category	Frequency	Percent	Valid Percent	Cumulative Percent
BC	56	30.6	30.6	30.6
OC	12	6.6	6.6	37.2
SC	111	60.7	60.7	97.8
ST	4	2.2	2.2	100.0
Total	183	100.0	100.0	

The largest caste group among the sanitation workers is the scheduled caste, constituting 60.7%. Thereafter, 30.6% of the sanitation workers belong to the backwards caste, and 6.6% belong to the open category. The smallest in the group of the sanitation workers is the scheduled tribe, constituting only 2.2%.

Table 7: Native State of Respondents

Native State				
	Frequency	Percent	Valid Percent	Cumulative Percent
Andhra Pradesh	66	36.1	36.1	36.1
Bihar	10	5.5	5.5	41.5
Karnataka	2	1.1	1.1	42.6
Odisha	1	.5	.5	43.2
Telangana	98	53.6	53.6	96.7
Uttar Pradesh	6	3.3	3.3	100.0
Total	183	100.0	100.0	

Table 7 provides the native state of the sanitation workers. The largest group of sanitation workers is from Telangana, constituting 53.6%, and Andhra Pradesh, around 36%. States like Bihar, Karnataka, Uttar Pradesh, and Odisha also feature significant but small participation in sanitation work.

Table 8: Educational status of sanitation workers

Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Degree	1	.5	.5	.5
Illiterate	82	44.8	44.8	45.3
Inter (Senior Secondary)	10	5.5	5.5	50.8
Primary	41	22.4	22.4	73.2
Secondary	49	26.8	26.8	100.0
Total	183	100.0	100.0	

Table 8 indicates that the significant majority, constituting 45% sanitation workers, are illiterate. The second-largest category is SSC, constituting 25.7%. Only 0.5% of the sanitation workers have a degree-level qualification. It indicates that sanitation workers form one of the most illiterate and vulnerable workforces, as it involves occupational risks and social stigma. Only when they do not find any alternative employment, they enter into sanitation work despite knowing the risk.

Table 9: Gender Ratio and Employment Type among Sanitation Workers.

Employment Type				
Gender		Employment Type		Total
		OUTSOURCING	REGULAR	
F	Count	57	2	59
	% within Employment Type	32.4%	28.6%	32.2%
M	Count	119	5	124
	% within Employment Type	67.6%	71.4%	67.8%
Total	Count	176	7	183
	% within Employment Type	100.0%	100.0%	100.0%

Table 9 highlights overall male-to-female participation in the sanitation work at 67.8% and 32.2%, respectively. In both outsourcing and regular employment, there is no significant variation.

Table 10: Gender and Monthly Income

Monthly Income (₹)				
Monthly Income (₹)				
Gender	Mean	N	Std. Deviation	Median
F	16525.42	59	7837.478	15000.00
M	17065.04	123	6514.473	15000.00
Total	16890.11	182	6953.596	15000.00

Table 10 highlights a higher mean monthly income among males (₹17,065.04) compared to females (₹16,525.42). The standard deviation is higher among females, suggesting greater variability in female income than in male income.

Table 11: Monthly Income

Monthly Income (₹) (GHMC vs HMWSSB)				
Monthly Income (₹)				
Area of Work revised.	Mean	N	Std. Deviation	Median
GHMC	15939.85	133	5440.810	15000.00
HMWSSB	19469.39	49	9572.317	20000.00
Total	16890.11	182	6953.596	15000.00

Table 11 shows that HMWSSB employees have a higher mean income (₹19,469.39) compared to GHMC employees (₹15,939.85). However, it is important to note that the risks and occupational hazards in the sewer work of the HMWSSB are also high, which justifies the higher wages.

10.2 Preventive Measures for Occupational Hazards

Table 12: Safety Training

Safety Trainings					
			Area of Work		Total
			GHMC	HMWSSB	
Safety Training (Yes/No)	NO	Count	46	19	65 (35.51%)
	YES	Count	88	30	118 (64.48%)
Total		Count	134	49	183

Work involving occupational risks requires workers to be trained in various risks to reduce occupational vulnerability of sanitation workers. In this regard, table 12 shows that nearly 65% of the respondents have received safety training. The p-value of 0.349 indicates that the area of work does not influence whether employees receive the training.

Table 13: Safety Gear Provided By the Employer

			Safety Gear Provided By the Employer			Total
			Never	Occasionally	Regularly	
Gender	F	Count	5	28	26	59
		Expected Count	3.5	19.0	36.4	59.0
		% within Gender	8.5%	47.5%	44.1%	100.0%
		% within Safety Gear Provided By Employer	45.5%	47.5%	23.0%	32.2%
		% of Total	2.7%	15.3%	14.2%	32.2%
	M	Count	6	31	87	124
		Expected Count	7.5	40.0	76.6	124.0
		% within Gender	4.8%	25.0%	70.2%	100.0%
		% within Safety Gear Provided By Employer	54.5%	52.5%	77.0%	67.8%
		% of Total	3.3%	16.9%	47.5%	67.8%
Total		Count	11	59	113	183
		Expected Count	11.0	59.0	113.0	183.0
		% within Gender	6.0%	32.2%	61.7%	100.0%
		% within Safety Gear Provided By Employer	100.0%	100.0%	100.0%	100.0%
		% of Total	6.0%	32.2%	61.7%	100.0%

Table 14: Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.541 ^a	2	.003
Likelihood Ratio	11.395	2	.003
N of Valid Cases	183		
a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.55.			

Workers in hazardous conditions require the use of safety gear. It has potential to reduce hazards associated with sanitation work. It is the employer who is responsible not only for providing the safety gear but also for educating workers about the importance of wearing it. Overall, 61.7% of the sanitation workers received the safety gear. Table 14 also shows that 70% of males received the safety gear regularly, compared with 44% of females. The p-value of 0.003 indicates a significant difference between the male and female groups in accessing safety gear during sanitation work.

Table 15: Access to Health Insurance

Access to Health Insurance					
			Gender		Total
			F	M	
Health Insurance	NO	Count	51	114	165
		% within Gender	86.4%	91.9%	90.2%
	YES	Count	8	10	18
		% within Gender	13.6%	8.1%	9.8%
Total		Count	59	124	183
		% within Gender	100.0%	100.0%	100.0%

Table 15 shows that only 9.8% of the sanitation workers have health insurance, which they may be able to use for their illnesses and injuries requiring hospitalisation. Overall, 90.2% of the sanitation workers do not have health insurance. It is important to note that sanitation workers have access to the Employees' State Insurance Corporation (ESIC) hospitals. Still, most of them do not access these facilities as it is time-consuming, especially in cases of minor illnesses and injuries. As per respondents, even for minor health issues, ESIC hospital takes the whole day and even more if a diagnosis and lab report are required. Eventually, sanitation workers face a day without pay. Therefore, they manage minor health issues and injuries out of their pocket in the private dispensaries.

10.3 Occupational Hazards in Sanitation Work

Table 16: Injury during Work

Injury during Work					
			Injured During Work (Yes/No)		Total
			NO	YES	
Gender	F	Count	52	7	59
		Expected Count	44.2	14.8	59.0
		% within Gender	88.1%	11.9%	100.0%
		% within Injured During Work (Yes/No)	38.0%	15.2%	32.2%
		% of Total	28.4%	3.8%	32.2%
	M	Count	85	39	124
		Expected Count	92.8	31.2	124.0
		% within Gender	68.5%	31.5%	100.0%
		% within Injured During Work (Yes/No)	62.0%	84.8%	67.8%
		% of Total	46.4%	21.3%	67.8%
Total		Count	137	46	183
		Expected Count	137.0	46.0	183.0
		% within Gender	74.9%	25.1%	100.0%
		% within Injured During Work (Yes/No)	100.0%	100.0%	100.0%
		% of Total	74.9%	25.1%	100.0%

Table 17: Association between Gender and Work-Related Injury among Sanitation Workers: Chi-Square Test Results

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.151 ^a	1	.004		
Continuity Correction ^b	7.143	1	.008		
Likelihood Ratio	8.964	1	.003		
Fisher's Exact Test				.006	.003
N of Valid Cases	183				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.83.					
b. Computed only for a 2x2 table					

In total, 31.5% of the male sanitation workers were injured sometime or other during the work, while it is 11.9% for the females. Male sanitation workers are far more likely to report injury during work than females.

Table 18: Substance Abuse

Substance Abuse					
			Gender		Total
			F	M	
Substance Use	NO	Count	58	112	170
		% within Gender	98.3%	90.3%	92.9%
	YES	Count	1	12	13
		% within Gender	1.7%	9.7%	7.1%
Total		Count	59	124	183
		% within Gender	100.0%	100.0%	100.0%

Table 18 shows that overall, 92.9% of the sanitation workers do not indulge in substance abuse, and only 7.1% admitted to substance abuse. However, deeper probing is required to ascertain the percentage of substance, as it is a personal choice, and taboo and stigma are attached to it.

10.4 Social and Institutional Challenges

Table 19: Harassment at Work

Harassment at Work							
Harassment at Work					Gender		Total
					F	M	
Harassment at Work (Yes/No)	NO	Count	15	15	30		
		% within Gender	25.4%	12.1%	16.4%		
	YES	Count	44	109	153		
		% within Gender	74.6%	87.9%	83.6%		
Total		Count	59	124	183		
		% within Gender	100.0%	100.0%	100.0%		

Table 19 shows that overall, 83.6% of the sanitation workers faced harassment of different types. It is significant to note that 87.9% of the males, whereas 74.6% of the females, reported harassment in the form of physical and verbal abuse at work. A larger proportion of male harassment signifies their vulnerability in the sanitation work, not only by the community organisers and sanitary inspectors, but also by ordinary people.

Table 20: Union membership

Union membership					
			Gender		Total
			F	M	
Union Member (Yes/No)	NO	Count	48	122	170
		% within Gender	81.4%	98.4%	92.9%
	YES	Count	11	2	13
		% within Gender	18.6%	1.6%	7.1%
Total		Count	59	124	183
		% within Gender	100.0%	100.0%	100.0%

Table 21: Association between Gender and Union Membership among Sanitation Workers: Chi-Square Test Results

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.572 ^a	1	.000		
Continuity Correction ^b	15.086	1	.000		
Likelihood Ratio	16.575	1	.000		
Fisher's Exact Test				.000	.000
N of Valid Cases	183				
a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.19.					
b. Computed only for a 2x2 table					

Table 22: Membership of Union and Area of Work

Union members Vs Area of work					
			Area of Work		Total
			GHMC	HMWSS B	
Union Member (Yes/No)	NO	Count	121	49	170
		% within Area of Work revised	90.3%	100.0%	92.9%
	YES	Count	13	0	13
		% within Area of Work revised	9.7%	0.0%	7.1%
Total		Count	134	49	183
		% within Area of Work revised	100.0%	100.0%	100.0%

The existence of a union or a collective voice in the workplace addresses the collective interests. However, membership in a union or any collective advocating for the well-being of the sanitation workers seems insignificant or absent for them. As many as 92.9% of the respondents are not members of any union or collective that advocates to protect their interests. It is important to note that female participation in unions or collectives is higher, as only 1.6% of males are part of any union, in contrast to 18.6% females. The Chi-Square tests in the table 21 confirm that there is a statistically significant relationship between gender and union membership. It is also important to note that 100% of sanitation workers with HMWSSB are

not members of any union, whereas 9.7% of GHMC workers are members of a union. It signifies their overall vulnerability and the regimentation of sanitation workers, so that they do not take part in these activities and gain negotiating power.

Table 23: Weekly Leaves

Weekly leaves					
			Area of Work revised.		Total
			GHMC	HMWSSB	
Weekly Leave	NO	Count	2	4	6
		% within Area of Work revised	1.5%	8.2%	3.3%
	YES	Count	132	45	177
		% within Area of Work revised	98.5%	91.8%	96.7%
Total		Count	134	49	183
		% within Area of Work revised	100.0%	100.0%	100.0%

The weekly leaves from work are a strong parameter of working conditions. As many as 96.7% of the sanitation workers are availing the weekly off. Though workers shared, a single day is fixed as a day off in a week for every worker. It gives them a limited opportunity to take leave on some other day so that they can utilise it for personal and family work as and when required. Apart from this, any leaves they take are considered leave without pay.

Table 24: Mean Working Hours

Mean working hours					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Daily Working Hours	F	59	8.00	.000	.000
	M	124	8.80	2.216	.199

Table 24 signifies that the mean daily working hours are 8 hours with no standard deviation for females and 8.80 hours for males with a 2.216 standard deviation. Therefore, male sanitation workers work for more hours, and there is significant variability in their working hours.

Table 25: Discrimination at Work.

Discrimination						
				Gender		Total
				F	M	
Faced Discrimination (Details)		Count	1	0	1	
		% within Gender	1.7%	0.0%	0.5%	
	NO	Count	0	3	3	
		% within Gender	0.0%	2.4%	1.6%	
	YES	Count	58	121	179	
		% within Gender	98.3%	97.6%	97.8%	
Total		Count	59	124	183	
		% within Gender	100.0%	100.0%	100.0%	

As Table 25 shows, up to 97.8% of workers faced discrimination at work. The workers also highlighted discrimination by their own caste and families due to the nature of the work they are in. This shows entrenched stigma in the sanitation work in India. Many sanitation workers shared that, although they do not belong to the Dalit caste, they are treated as untouchables because of the nature of their work.

10.5 Swachh Auto Tipper- Driver cum Owner Scheme

A unique scheme, experimented with by the Greater Hyderabad Municipal Corporation (GHMC), has been taken forward by the government of Telangana across the state. The scheme involved a tripartite agreement between Swachh Auto Tipper, urban local bodies, and the bank. The other feature of the schemes is that the Swachh Auto Tipper- Driver cum Owner will have to bear 10-20% of the upfront cost of the vehicle, and the remaining 80-90% of the cost of the vehicle will be financed by the bank. After repayment of the loan amount in 5 years, the Swachh Auto Tipper- Driver becomes the full owner of the vehicle. Each Swachh Auto Tipper has been allotted 650-750 households for garbage collection. Swachh Auto Tipper- Driver cum Owner will be entitled to collect the user fee as fixed by the urban local bodies from time to time. The government claims that, through this scheme, it has devised a sustainable way to collect and manage domestic solid waste, on the one hand, while also employing people, on other. When probed further during the data collection, the Swachh Auto Tipper- Driver cum Owner shared that there are numerous hiccups in repaying the loan, and there is no support from the urban local bodies. Moreover, drivers also face discrimination during waste collection from the community. No one allows them to park their vehicle in front of their house due to the stench of the solid waste. They struggle to find community toilets and drinking water in the housing in case of need. Even if it is available in some areas, residents do not allow them to use it. In this scenario, they feel belittled and harassed as they have limited access to the utilities because of their involvement in sanitation work.

11 Conclusion and Way Forward

The sanitation workers employed by the Greater Hyderabad Municipal Corporation (GHMC) and Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) face multiple health and occupational risks in their daily lives. As most of them are illiterate, they are unaware of the various government interventions primarily meant for them. In the absence of awareness, they are not benefiting from the government schemes. Despite their critical role in maintaining the overall cleanliness of urban spaces and maintaining public health, their efforts have been undermined for a long time. Besides, they also face discrimination daily by the municipal officials, their own families, and society at large due to the work they are engaged in. The sanitation workers are one of the most vulnerable categories in the urban areas. It has been found that no sanitation workers want to bring their next generations into this work. Many of the sanitation workers curse their fate for the job. It is critical to reflect that India is gradually moving up the developmental ladder and more sanitation workers are needed for future. Therefore, it is vital to take steps to improve the working conditions, not only in terms of providing better wages and overall well-being at the workplace but also in terms of employing better technologies to make the work more humane and ethical. Moreover, urbanisation in India is on the rise, and even rural India will need more sanitation workers in the coming years as infrastructure expands. Hence, there is an urgent need to strengthen the institutional framework to reduce the health and occupational risks of sanitation workers. Given the large number of sanitation workers and their plight, there is a need for a comprehensive policy overhaul to prioritise their health and overall well-being. Improving working conditions in the sanitation sector is possible only if the government adopts a humanistic approach and takes adequate protective measures. Apart from providing personal protective equipment (PPE) and offering health facilities, the government needs to design dedicated schemes for the social security of sanitation workers. It will help them provide their service to society while working and ensure better access to health care when they retire from service. The findings also highlight insensitivity in not using PPE, despite the agency supplying it for sanitation workers. When probed further, it came out that they are not comfortable using PPE while working, and some of them also raised the low quality of PPE. Therefore, in addition to a comprehensive policy overhaul, it is also necessary to develop sanitation workers' capacities by raising their awareness. Another significant component of sanitation workers' daily lives is the need for regular health check-ups as a preventive measure. As sanitation workers regularly work in hazardous situations, their regular check-up is critical to ensure their overall well-being. Despite their low wages, they spend a significant amount of money on injuries and occupational health issues. If sanitation workers are protected under social security benefits, as factory workers are, where working conditions are more regulated, standardised, and streamlined, then health and occupational risks may be markedly reduced.

References:

- Development, M. o.** (2008). *National Urban Sanitation Policy*. New Delhi: Ministry of Urban Development. Retrieved August 18, 2025, from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://mohua.gov.in/upload/uploadfiles/files/NUSP_0.pdf.
- Affairs, M. o.** (2022). *Ensuring the Safety of Sanitation Workers*. New Delhi: Government of India.
- World Bank, I. W.** (2019). *Health, Safety, and Dignity of Sanitation Workers: An Initial Assessment*. Washington, DC: World Bank.
- Robert, S., & Muthulakshmi, D.** (2024). *Occupational Health Concerns for Sanitary Workers in Varkala Municipality Thiruvananthapuram*. SEEJPH.

Tolera, S. T., Temesgen, S., Endalew, S. M., Alamirew, S. T., & Temesgen, L. M. (2023). Global systematic review of occupational health and safety outcomes among sanitation and hygiene workers. *Frontiers in Public Health*, 1-11.

Gautam, M., Wankhade, K., Sarangan, G., & Sudhakar, S. (2021). Framework for addressing occupational safety of de-sludging operators: A study in two Indian cities. *Journal of Environmental Management*, 1-10.

Gada, N. P., Shukla, R., Kumar, P., Shah, K., Abhishek, K., Sarkar, M.,... Pathak, S. (2023). Assessment of occupational health hazards and associated morbidities in sanitation workers of a metropolitan city in India: a cross-sectional study. *International Journal of Community Medicine and Public Health*, 3771-3777.

Tiwari, R. R. (2008). Occupational health hazards in sewage and sanitary workers. *Indian Journal of Occupational and Environmental Medicine*, 12(3), 112-115.

Oza, H. H., Lee, M. G., Boisson, S., Pega, F., Medlicott, K., & Clasen, T. (2022). Occupational health outcomes among sanitation workers: A systematic review and meta-analysis. *International Journal of Hygiene and Environmental Health*, 1-11.

Wateraid. (2019). *The Hidden World of Sanitation Workers in India*. New Delhi: Wateraid India.

Ranjithkumar, D. A. (2025). Socio-Economic Factors Influencing Health Risks and Access to Healthcare Services Among Women Sanitation Workers in Tamil Nadu. *International Journal of Gender & Women's Studies*, 29-42.

Sulochana, S., & Karthikeyan, D. P. (2025). Workplace Challenges and Safety Measures Among Sanitation Workers: An Empirical Study. *Journal of Neonatal Surgery*, 289-293.

K.L.Ramitha, Ankitha, T., Alankrutha, R. V., & Anitha, C. T. (2021). A Cross-Sectional Study on Occupational Health and Safety of Municipal Solid Waste Workers in Telangana, India. *Indian Journal of Occupational and Environmental Medicine*, 169-177.

Mahendran, J., & Mahendran, R. (2025). Hazards and Safe Housekeeping Practices among Healthcare Sanitary Workers in South India. *Journal of the Scientific Society*, 8-13.

Author's Address:

Binod Kumar, Assistant Professor
School of Social Work, Block 15, Swami Vivekananda Bhavan, Indira Gandhi National Open University (IGNOU)
Maidan Garhi, Pin: 110068, New Delhi, India
+91-8826952129
binod.attorney@gmail.com

Author's Address:

Konde Lingaswamy, Assistant Professor
School of Social Work, Block 15, Swami Vivekananda Bhavan, Indira Gandhi National, Open University (IGNOU)
Maidan Garhi, Pin: 110068, New Delhi, India
+91-99082 22282
klingaswamy@ignou.ac.in

Author's Address:

Dr. Shankar Sampangi, Assistant Professor
Dept. of Social Work, University PG College, Secunderabad, Osmania University
Sardar Patel Road, Colony, Telangana, Pin No: 500003

