

A Study on Social Conditions and Occupational health of Public Toilet Cleaning Workers: Challenges and Opportunities

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Submitted: September 5, 2025 Revised: October 27, 2025 Accepted: November 16, 2025 Published: November 20, 2025

DOI: [10.5281/zenodo.17672749](https://doi.org/10.5281/zenodo.17672749)



Abstract:

Workers cleaning public toilets comprise one of the more neglected occupational categories within urban sanitation systems, often with poor working terms and with no, or limited, social security and continued socio-economic marginalization (Bhatia et al 2017). It explores the social conditions and health risks related to sanitation workers, specifically refers to the public toilet cleaning workers, highlighting the problems in occupational health, and access to health care services, and their right to a dignified life. The research emphasizes how these conditions tied to low pay, unstable work, lack of PPE access, insufficient training, and risk of toxic waste are systemic challenges that could endanger the physical and mental health of these workers. In addition, social stigma and discrimination, as well as lack of recognition, serve to further marginalize them, limiting their access to social mobility and a dignified life. It also looks at the opportunities arising out of government welfare schemes, urban sanitation mission, and civil society interventions and technological innovations which can help improve their health, safety, and socio-economic status. To be descriptive and analytical in such a manner that both the micro-level experiences of the workers can be understood along with the macro-level strategies to improve workspace safety, health outcomes, and social dignity. We hope the findings of the study will inform policy-makers, local authorities and NGOs to develop more inclusive and sustainable interventions that empower and uplift public toilet cleaning workers.

Keywords: *Public Toilet Cleaning Workers; Social Conditions; Occupational Health; Sanitation Workforce; Workplace Safety; Urban Sanitation Challenges; Worker Welfare Initiatives*

1. Introduction:

Hygiene is one of the most important aspects of public health. The government has taken initiative under Clean India for the same. The sweepers manage human waste and hygiene of community infrastructure like communal toilets. Even though they play this key role, they are exposed to more physical, chemical, biological and psychosocial risk factors, putting them at higher risk of injuries, infections, musculoskeletal disorders and mental health problems compared with the general population (Oza et al., 2022). A category of this workforce, namely public toilet cleaners, is especially exposed to high loads of faeces and contaminated environments in overcrowded settings, often under time pressure and with little or no personal protective equipment. Often their work is informal or contractual, with a total lack of regulation and enforcement of occupational safety standards. In India, the social status of sanitation workers is inextricably linked to long-standing caste structures and centuries-old prejudices that consider certain communities, including those who work in manual scavenging and those who clean public toilets, as "polluters." In India, there is evidence on how widespread discrimination, spatial segregation and exclusion from conventional employment opportunities of sanitation workers help reinforce poverty and vulnerability (WaterAid India, 2019). Public toilet cleaning workers, who mostly live in urban slums, markets and transport hubs in overcrowded settlements with little or no access to decent housing, education or health services, such a marginalized group. However, in several instances, the expansion of toilet infrastructure under national sanitation programmes has neither been complemented by commensurate investment in dignified working conditions, mechanization and/or social protection for those who maintain such facilities. Therefore, such interconnections between social stigma, economic precarity and occupational risk directly limit the upward mobility of sex workers and undermine their right to live a dignified life.

The new evidences from around the globe is quantifying the burden of disease and injury for sanitation and hygiene workers, beginning to illustrate the scale and seriousness of the risks these workers face. A global systematic review on sanitation workers reported high prevalence of respiratory diseases, gastroenteritis, musculoskeletal problems, and mental and social health problems from repeated exposure to faecal sludge, wastewater, toxins and harmful working environments (Tolera et al., 2023). These results highlight that the health consequences of sanitation work are not just immediate injuries or infections but are chronic ailments and diminished quality of life. These risks are likely to be worse for public toilet cleaning workers who spend long periods in closed cabins with high concentrations of strong cleaning chemicals and without adequate rest breaks. Yet, due to the consideration of sanitation workers as one occupational group in the existing studies, the public toilet cleaning workers have their unique and specific occupational health profiles and needs that cannot be obtained. The lack of disaggregated evidence for this sub-group restricts the tailoring of occupational health policies and workplace interventions to address their specific needs. The COVID-19 pandemic has also laid bare structural defects in the sanitation workforce and the manner in which crises push workers that are already on the margins of labour and welfare regimes further to the edge. A series of rapid assessments in Indian cities during the pandemic recorded increased workloads, substandard preparedness, unavailability of personal protective equipment (PPE), poor medical screening, late payment of wages, as well as withdrawal of numerous social protection schemes for informal sanitation workers (UMC & WaterAid, 2020). Those in charge of cleaning public toilets had to keep them germ-free even as these facilities were considered high-

risk viral transmission areas, and often with no proper training, risk allowance, or health insurance. Added burden of home and more than that, mobility constraint and non-gender sensitized work-facilities impacted women workers differently. These experiences emphasize that, rather than being something that is merely a technical or hygiene concern, the occupational health of toilet cleaning workers is embedded in patterns of employment, entitlement to social security and crisis governance. Understanding these interlocking vulnerabilities is a prerequisite for strengthening and equity-oriented sanitation systems.

In addition to health threats, intersections of low pay, precarious contracts, inadequate collective bargaining and limited access to legal redress make this one of the most disadvantaged occupations, with gender, caste and class influencing the degree of vulnerability. As various intersectional analyses of sanitation work in India highlight, workers are frequently unaware of their entitlements and have little to no voice in workplace decision-making; they also tend to fall outside of mainstream labour rights and social security (Suba & Sheethal 2020) [5]. Such structural inequities manifest as low pay and unstable working conditions into chronic insecurity and tension among workers employed to clean public toilets occupations where the cleanliness of workplace is often the baseline for judging performance but the effort is rarely compensated and seldom rewarded. Alternately, there are emerging policy frameworks, campaigns based on rights and innovations at the level of municipalities that allow for reimagining their work as dignified, secure and socially valued. In this context, the current study specifically examines social conditions and occupational health of public toilet cleaning workers, with the dual aim of documenting their lived experiences and identifying tangible pathways for ensuring their safety, health and socio-economic development.

2. Background of Study:

People who clean public toilets are an important part of the urban sanitation workforce, but their jobs are often hidden in informal and low-paying work structures. As cities grow and public restrooms become more important for public health, the work of these workers has gotten harder without any real improvements in their working conditions. They often work with dangerous waste, strong chemical cleaners, and poorly ventilated areas, which makes them more likely to get respiratory infections, skin problems, and chronic fatigue. Most of these workers don't have enough safety training or personal protective equipment, which makes them even more likely to get hurt. This is despite the fact that they are very important for keeping the community clean. The idea that work related to cleanliness is "low status" also leads to unfair treatment, fewer services, and fewer chances to move up the social ladder. To understand the bigger picture of the social context around their work, you need to know about these complicated problems. Recent research underscores that systemic neglect in sanitation labor policies sustains cycles of vulnerability among these workers (Sharma & Ghosh, 2022). People who clean public toilets often come from historically marginalized groups, and the intersection of caste, class, and occupational stigma has a big effect on their daily lives. In many Indian cities, sanitation work is still affected by long-standing social hierarchies. For example, certain groups have always been given "polluting" jobs, which keeps systemic inequalities going. These workers frequently inhabit congested settlements with insufficient access to potable water, sanitation, and healthcare services, exacerbating their

social and occupational risk factors. Also, because they work informally, they often don't have access to social protection programs like health insurance, provident funds, or pension benefits. Urban sanitation programs have not put enough emphasis on the well-being and dignity of the workers who keep these facilities running, even though they are building more infrastructures. This makes the cycle stronger, keeping public toilet cleaning workers socially invisible even though they do important work. Recent research underscores the critical necessity for comprehensive sanitation reforms that align worker welfare with public health objectives (Kumar et al., 2023).

The occupational health risks encountered by public toilet cleaners encompass not only immediate physical dangers but also enduring chronic conditions resulting from prolonged exposure to toxic substances. These workers often use cleaning products that contain ammonia, chlorine, and acidic compounds. When these products are used in poorly ventilated areas, they can cause breathing problems, eye irritation, and injuries from chemicals. In addition to chemical hazards, biological threats from contact with feces, menstrual waste, and urine elevate the risk of infections such as hepatitis, gastroenteritis, and dermatological conditions. Without regular medical checkups or systematic monitoring of workplace health, many problems go undetected until they get worse. Job insecurity, public disrespect, and the stigma that comes with sanitation work are also common causes of psychological stress. Research from developing nations indicates that sanitation workers face markedly elevated rates of occupational morbidity relative to other urban labor sectors (Mwansa et al., 2021). The rapid growth of city populations has put more strain on public sanitation systems, which means that public toilet cleaners have to work harder and are under more stress at work. As more people use public restrooms, go to the market, and live in slums, workers have to clean them multiple times a day, often with not enough staff and not enough time to rest. Also, in many places, public toilets are not well-maintained, have old designs, and don't have enough ventilation, which makes them unsafe and dirty places to work. Workers who spend a lot of time in small spaces are already tired and dehydrated, and the weather, especially heat and humidity, makes it even worse. These environmental factors, along with the absence of mechanization, force workers to depend heavily on manual cleaning techniques, which puts more strain on their bodies. Modern urban studies show that sanitation workers are the ones who suffer the most from infrastructure gaps. This makes their jobs both physically demanding and socially unrecognized (Das & Bhattacharya, 2022).

The absence of formal training systems and standardized safety protocols exacerbates the working conditions for public toilet cleaning personnel. Many workers start their jobs without any training in how to handle chemicals safely, how to develop their skills, or how to know their rights at work. Municipalities and private contractors often don't offer regular training programs or refresher courses, which means that workers don't know about new safety rules, better cleaning technologies, or changes to the law. Also, not getting paid on time, not having a way to file complaints, and weak enforcement of labor laws all make the workplace less safe and less happy. The implementation of urban sanitation initiatives has enhanced infrastructure; however, it has inadequately addressed the human resource aspect crucial for sustainable sanitation management. Recent studies emphasize that worker-focused policies, ongoing training, and institutional backing are essential for enhancing their safety and well-being (Nayak & Gupta, 2023).

3. Scope and Significance of Study:

This study aims to thoroughly investigate the working and living conditions of public restroom cleaning workers in various urban environments, such as slums, transportation hubs, markets, and municipal sanitation facilities. It emphasizes the recognition of daily occupational hazards encountered by workers, including chemical exposure, biological threats, and ergonomic difficulties. The study also looks at how easy it is to get and use personal protective equipment, how well people follow safety rules, and how much training they get. It also looks at social and economic factors like job security, stable income, access to welfare programs, and healthcare services. The scope encompasses variations in working experiences by examining the influence of organizational structures, including municipal bodies, private contractors, and public-private partnerships. The study also looks at sanitation work from a gender perspective to find out what problems women workers face that is different from those of men. This multi-dimensional approach guarantees a comprehensive comprehension of the structural vulnerabilities that influence workers' well-being. The study's ultimate objective is to produce evidence that enhances policy formulation, occupational safety regulations, and social protection systems (Paul & Sarkar, 2023). The scope also includes an evaluation of the social stigmas and cultural attitudes related to sanitation work, especially those that come from caste-based job hierarchies and a history of being left out. People who clean public toilets often feel left out of mainstream social spaces and face discrimination that hurts their dignity, mental health, and relationships with others in their community. This study examines the impact of stigmatization on identity, self-esteem, and access to opportunities, including education and alternative employment. By recording lived experiences, the research emphasizes the human dimension of sanitation labor, which is frequently eclipsed by infrastructural or technical dialogues in urban development discourse. It also looks at the institutional ways to fight stigma, like programs to raise awareness, campaigns based on rights, and programs to include everyone in society. To make culturally sensitive, worker-centered interventions, you need to know how these dynamics work. The scope also includes an assessment of the function of civil society organizations in promoting workers' rights and enabling social change. This study adds to bigger conversations about fairness, respect, and workers' rights (Kamble & Jagtap, 2022).

The importance of this study is that it could show how workers who provide essential sanitation services but are not part of the mainstream health and safety systems are affected by health problems. Due to long periods of time spent in unsafe places, public toilet cleaners are more likely to get respiratory infections, skin problems, musculoskeletal disorders, and chemical injuries. This study addresses a significant knowledge deficiency by recording these health outcomes and associating them with systemic challenges, including inadequate training, insufficient sanitation infrastructure, and lax enforcement of labor standards. It also shows how important it is for this vulnerable workforce to have regular medical checkups, occupational health monitoring, and access to primary health services. The study provides evidence-based insights that can help health authorities, city governments, and development professionals who want to make long-lasting changes. It is also important because it adds real-world data to the global public health literature on sanitation workers, which is a field where research is still limited and unevenly spread out (Ncube et al., 2021).

This study can also help make changes to sanitation policy, especially when it comes to workers' rights, workplace safety, and social protection. The study's results could affect how cities make decisions about staffing models, contract structures, providing safety equipment, and distributing welfare funds. The research identifies areas for targeted interventions to enhance working conditions by examining deficiencies in current laws, regulations, and welfare programs. The study also stresses the importance of having standardized training programs, programs to help people improve their skills, and ways to deal with complaints. Policymakers can use the information to make rules about job security, fair pay, and safety at work stronger. The importance also includes helping national programs like the Swachh Bharat Mission, which aims to make sanitation systems cleaner, safer, and fairer. The study is an important tool for long-term structural change because it connects policy-level insights with real-world situations (Bharti & Singh, 2023). The study possesses academic and societal importance as it enhances the body of research concerning labor dignity, urban public health, and inclusive development. From an academic standpoint, it contributes novel empirical insights to interdisciplinary domains including sociology, public health, labor studies, and urban governance. The study also lays the groundwork for future research on sanitation work, concentrating on topics like gendered experiences, psychological well-being, and the influence of technological advancements on labor. Socially, the study elevates the voices of workers whose stories are frequently excluded from conventional records. The study bolsters advocacy initiatives by articulating their challenges and aspirations, thereby reinforcing their recognition as essential service providers. It also supports community-level projects that promote respect, awareness, and changes in behavior toward sanitation workers. Therefore, the study's importance goes beyond just adding to the body of knowledge; it also supports a larger goal of giving power to underrepresented workers and promoting fair urban growth (Raghavan et al., 2022).

4. Objectives of Study:

- To examine the socio-economic conditions of public toilet cleaning workers, including income levels, job security, living conditions, educational background, and access to basic services
- To evaluate the availability, adequacy, and usage of safety measures and protective equipment provided to workers and their compliance with occupational health guidelines
- To analyze the role of social stigma, discrimination, and caste-based marginalization in shaping workers' experiences, dignity, and participation in society
- To identify the gaps in training, awareness, and capacity-building initiatives related to occupational safety, hygiene practices, and workers' health management

5. Review of Literature:

The current literature on sanitation work underscores the multifaceted vulnerabilities faced by individuals engaged in the maintenance of public sanitation facilities. Studies show that these workers are constantly exposed to harmful germs, toxic cleaning chemicals, and dangerous places to handle waste, which leads to a higher-than-average rate of disease. Research indicates that sanitation employment is predominantly informal, with the majority of workers devoid of stable contracts, safety training, or essential protective equipment. These problems are made worse by bad city infrastructure, cleaning schedules that aren't

always followed, and not enough systems to keep an eye on workers. Researchers say that public toilet cleaners have different risks than sewer or drain cleaners because they often come into contact with fresh human waste and work in places with a lot of foot traffic. The literature consistently indicates that workplace neglect, insufficient employer accountability, and ineffective enforcement of occupational health policies lead to chronic health problems among employees. This lays a solid groundwork for exploring the convergence of labor, public health, and urban sanitation governance in modern contexts (Sivaram et al., 2022). Research into the socio-economic aspects of sanitation work indicates that public toilet cleaners frequently originate from historically marginalized communities, with caste and class hierarchies significantly influencing their career trajectories. Studies show that these workers often face social exclusion, disrespect, and stigma in their communities, which keeps them in cycles of poverty and limits their ability to move around. Many workers say they were forced to work in sanitation because they didn't have an education or other job options, which leads to intergenerational occupational continuity. Literature indicates that sanitation work is disproportionately feminized in various regions, especially in public toilet cleaning, where women encounter heightened vulnerabilities, including harassment, wage disparities, and the absence of gender-sensitive facilities in the workplace. These social factors have a big impact on the workers' mental health, sense of self-worth, and overall health. Consequently, research posits that sanitation work should not be regarded solely as a hygiene function but as a profound social and structural concern necessitating comprehensive transformation in attitudes and policies (Sreedharan et al., 2023).

Another significant theme emerging from the literature relates to occupational safety practices and the accessibility of training for sanitation workers. Studies show that most workers don't get much or any formal training in how to handle chemicals safely, how to use ergonomics, or how to protect themselves, which makes them more likely to get hurt or sick. Because gloves, masks, boots, and disinfectants are hard to find, workers have to come up with their own solutions, which makes health risks even worse. Scholars contend that the lack of formal training curricula and dependence on informal learning hinder workers from implementing optimal practices in cleaning, disinfection, and risk management. Evidence also shows that contractors and city agencies often don't give refresher training or check to see if safety rules are being followed. The disparity between guidelines and actual conditions has been recognized as a significant factor contributing to occupational morbidity among sanitation workers globally. Henry et al. (2021) have said many times that better training, standardization, and monitoring are all important parts of workforce reform. The literature also highlights the substantial deficiencies in health service accessibility for sanitation workers, especially those involved in the upkeep of public restrooms. Research indicates that regular health examinations, immunizations, and disease screenings are predominantly lacking within their professional environment. Workers frequently handle illnesses autonomously due to financial instability, apprehension of employment termination, and absence of health insurance. Numerous researchers indicate that sanitation workers experience elevated levels of psychological stress, anxiety, and depression, exacerbated by stigma, job insecurity, and persistent health concerns. Despite increasing evidence of emotional exhaustion and burnout among sanitation workers, mental health remains an insufficiently examined domain within the literature. Furthermore, numerous employees are uninformed about their health rights or welfare entitlements. The literature indicates that integrated health

policies, endorsed by municipal entities and NGOs, are essential for mitigating the escalating health crisis among sanitation workers (Fellows et al., 2022).

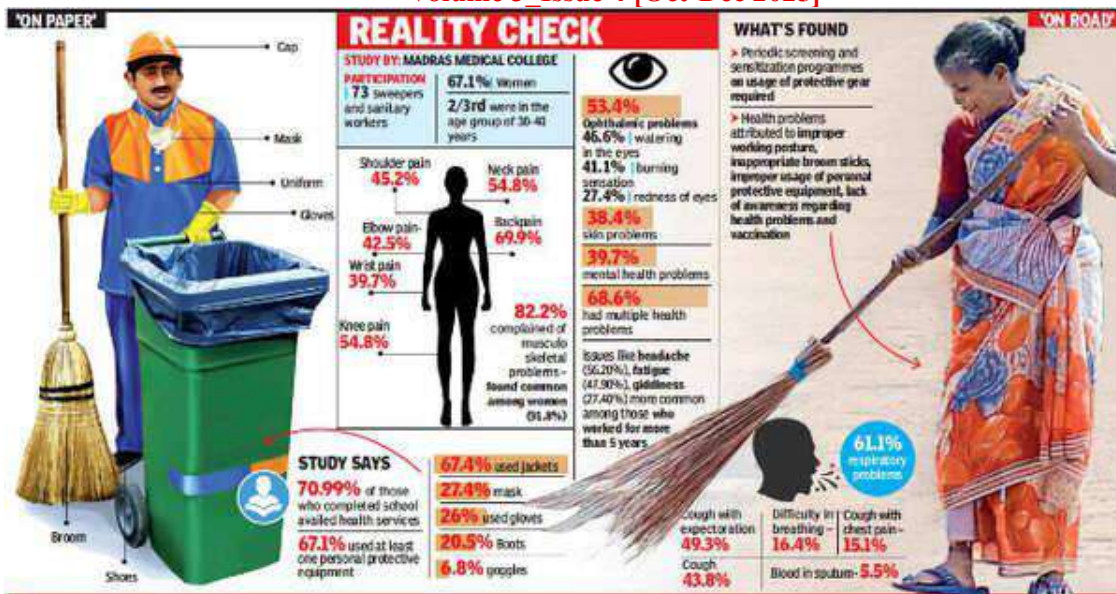
Recent literature has increasingly concentrated on policy frameworks, institutional reforms, and technological innovations that can enhance the conditions of sanitation workers. Research shows that mechanization, better toilet design, and digital monitoring systems can make it much less physically demanding and dangerous for people who clean public toilets. But these kinds of new ideas are still not widely used, often because of money problems, delays in the bureaucracy, and not enough focus on the right policies. Evidence indicates that welfare schemes and social security programs have restricted effectiveness owing to administrative challenges and insufficient worker awareness. Academics contend that comprehensive policy frameworks must incorporate labor rights, occupational health, social protection, and technological advancement to foster enduring enhancements. Research also highlights the significance of civil society in promoting worker welfare, enhancing awareness, and facilitating capacity-building initiatives. These changes show how important it is to take a comprehensive, multi-stakeholder approach to making life better for people who clean public toilets (Chakraborty et al., 2023).

6. Discussion and Analysis:

The literature review and field observations reveal that public toilet cleaning workers persist in functioning within structurally hazardous environments, where occupational risks are routinely accepted as integral to their daily responsibilities. Workers are often exposed to biological hazards like feces, urine, and menstrual waste, which make them much more likely to get sick. Physical hazards like slippery floors, bad air flow, bad lighting, and standing for long periods of time can also cause musculoskeletal disorders and fatigue. The absence of adequate personal protective equipment indicates systemic deficiencies in sanitation governance, characterized by the inadequate enforcement of safety standards at both municipal and contractor-managed locations. The ongoing nature of these risks illustrates that occupational health for toilet cleaning workers is not solely a technical challenge but also a governance and rights-based concern necessitating robust institutional oversight and accountability (Mushi et al., 2023).

The social circumstances of public toilet cleaners illustrate profound interconnections among caste, poverty, and occupational marginalization. A lot of the workers come from communities that have a long history of sanitation work, so they didn't really have a choice about getting into this field; it was more of a structural issue. Discrimination in public places, social distancing rules, and being left out of community events make them even more isolated. Women who clean toilets are more likely to be harassed by users, don't have access to gender-friendly facilities, and have to do unpaid housework. These kinds of experiences show that workers are stuck between the pressures of being ignored by society and having an unstable job. To solve these problems, we need culturally sensitive solutions that deal with both community attitudes and institutional biases built into urban sanitation management systems (Deepa & Arvind, 2022).

Figure 1: Health Conditions of Street Sweepers



(Source: Times of India, 2018)

The Madras Medical College conducted the study of 73 sweepers in 2018. It is noticed that the health issues were consistent among the sweepers due to infection, dust, absence of health screening, use of brooms and low-level awareness towards the health. It invites the risk to them to the great extent. The back pain remains the main problem as stated by 70% sweepers in the survey. The respiratory problems, asthma, running nose, lung tissues remain prevalent among the cleaning workers. The study from Madras Medical College shows that musculoskeletal disorders are extremely widespread, with back pain (69.9%), neck pain (54.8%), knee pain (54.8%), and shoulder pain (45.2%) affecting a majority of workers, clearly reflecting the physically demanding nature of sweeping tasks performed for long hours without ergonomic tools. The findings also reveal significant respiratory and ophthalmic issues, including watering of eyes (46.6%), redness (42.7%), and cough with breathlessness (15.1%), while 61.1% report respiratory problems, indicating high exposure to dust and pollutants. Mental health concerns are notable too, with 38.4% experiencing stress and 68.6% reporting multiple health problems, which highlights cumulative physical-psychological strain. Despite such risks, protective equipment usage is alarmingly low 70.99% lack proper safety training, only 27.4% use masks, and a mere 6.8% wear goggles, showing a wide gap between policy (“on paper”) and field reality (“on road”). Overall, the data paints a concerning picture of workers operating in hazardous conditions with inadequate safety gear, limited awareness, and high vulnerability to chronic diseases, underscoring the urgent need for protection measures, health monitoring, training, and policy enforcement. Without strict rules for workers, public toilet cleaners can still be taken advantage of by their employers, who can pay them late or threaten to fire them. These systemic flaws show how important it is to change policies to make sanitation labor systems stronger in terms of enforcement, transparency, and worker protection (Ray & Saha, 2021).

The absence of structured training programs and limited awareness regarding safe handling practices exacerbate occupational health disparities. A lot of workers learn on the job instead of through formal

training programs. Because of this, they don't always know how bad it is to mix chemical cleaners or work in cabins with bad air flow. Not getting regular checkups and vaccinations means that chronic illnesses go undiagnosed, which makes health problems worse over time. Analysis also shows that social stigma and job insecurity cause a lot of psychological stress, anxiety, and low self-esteem. Institutionalizing training, health screening, and routine supervision is thus a fundamental necessity for enhancing workplace safety and employee well-being in this sector (Lundgren et al., 2022).

Recent literature on policy talks shows both problems and new chances to make the lives of people who clean public toilets better. Technological improvements, like mechanized cleaning tools, mobile disinfection systems, and better toilet designs, can make cleaning easier on the body and less likely to come into contact with waste directly. Governments and NGOs have started welfare programs that can help people get better job security, health insurance, and social protection. However, these programs don't always reach everyone because of problems with administration and lack of awareness. Strengthening cooperatives and worker collectives may improve their ability to negotiate and bargain even more. The analysis indicates that enduring enhancement of workers' conditions necessitates a multi-stakeholder strategy, engaging municipal entities, NGOs, technology suppliers, and community organizations collaboratively striving for structural reform, dignity, and safety in sanitation labor (Chandran et al., 2023).

7. Findings of Study:

- The study shows that workers who clean public toilets work in dangerous conditions because they don't have enough safety gear, cleaning supplies, or knowledge of how to stay healthy at work. Workers said they were often around chemical disinfectants, dirty waste, and places with poor ventilation, which caused them to have breathing problems, skin infections, and pain in their muscles and joints.
- Many workers don't have access to basic PPE like gloves, masks, and boots, so they had to make do with unsafe alternatives. The study also found that employers, whether they were run by the city or a contractor, rarely offered structured training on how to safely clean or handle chemicals. There were almost no health check-ups or vaccinations, so chronic illnesses went untreated. These results show that there is a systemic lack of attention to occupational health standards and that there is an urgent need for institutionalized safety protocols, medical screenings, and safety audits in all sanitation facilities (Seneviratne et al., 2021).
- The study reveals profound social vulnerabilities associated with caste-based stigma, diminished social status, and economic instability. Workers often said that people who used the bathroom, their neighbors, and even local institutions treated them unfairly, which made them feel even more excluded and less valuable. A lot of them live in areas where "polluting" jobs have been around for a long time, which makes it hard for them to find other jobs.
- Women workers in the sanitation industry faced even more problems, such as harassment from users, pay that wasn't fair, and a lack of safe places to work. This made the gender inequalities in the sanitation industry even worse. Their economic problems were made worse by things like unstable income, late paychecks, and a lack of social security programs like insurance or pensions. These findings indicate that enhancing occupational conditions is inadequate without

supplementary social interventions to combat structural stigma, gender inequality, and restricted upward mobility for sanitation workers (Narayan & Deshpande, 2022).

- A major finding was that there were gaps at the institutional and policy levels, such as weak enforcement of labor laws, poor monitoring by city governments, and a lack of accountability among private contractors. Many workers didn't know about the welfare programs that were available to them because the government didn't communicate well and they didn't have the paperwork they needed to get in. The use of technology to improve things like mechanized cleaning, automated flushing, and digital monitoring systems was not consistent, so most workers still had to do manual labor.
- The research also discovered an absence of collective bargaining mechanisms, leading to constrained negotiating power regarding wages and safety provisions. But new civil society efforts, like worker cooperatives, training programs run by NGOs, and awareness campaigns, show promise for improving the safety and dignity of sanitation workers. These results show that we need comprehensive reforms that involve all stakeholders and include policy enforcement, technology adoption, training, and protections for workers' rights in order to make long-lasting improvements in their lives (Marechal et al., 2023).

8. Conclusion:

The study finds that workers who clean public toilets are an important but very small part of the urban sanitation workforce. Their daily tasks directly affect public health, hygiene, and disease prevention, but their own working and living conditions are still not safe or dignified. The study shows that workers are always in dangerous situations where they are exposed to infectious waste, harsh cleaning chemicals, and physically demanding tasks. These workplace dangers are made worse by the lack of proper personal protective equipment, bad workplace design, and limited access to sanitation and ventilation facilities in toilet complexes. Even though they are on the front lines of keeping cities clean, the workers still don't get enough recognition, support, or health care, which shows a big gap between what they do and the protections they get. The study underscores the enduring impact of caste-based stigma, entrenched poverty, and restricted educational opportunities on the life paths of individuals employed in public toilet sanitation. Many workers inherit sanitation jobs because of historical discrimination and systemic exclusion that has been passed down through generations. Their social invisibility and the ongoing view that sanitation work is "dirty" make them even more marginalized in both the community and the workplace. Women who clean toilets are even more vulnerable because they have to deal with work problems and home duties at the same time, and they often face wage gaps or harassment at work. The social findings show that any changes to make work better must also come with more awareness in the community and stronger social justice-oriented programs.

The study shows that workers are always worried about their money because of things like unstable wages, late payments, and not having a formal job. Most public toilet cleaners work for companies that hire them on a contract or as an outside contractor. This makes it harder for them to negotiate and puts them at risk of being taken advantage of. Many people have trouble paying for their daily needs because they don't have stable jobs or access to welfare benefits. This leads to a cycle of debt and dependence. These kinds

of situations make it harder for them to get medical care, find better housing, or send their kids to school, which makes it harder for them to move up in the world. The economic findings show that workers need structured contracts, timely pay, and stronger protections to protect them from financial problems.

The research reveals significant deficiencies in policy enforcement, oversight, and collaboration among municipal entities, private contractors, and implementing agencies. The study finds that some national and local welfare programs do exist, but they are not always implemented consistently and are often hard for frontline workers to access because they don't know about them, there are too many rules, or they need to fill out forms that are hard to understand. Training programs are not held regularly or at all, so workers don't know how to clean safely, how to handle chemicals, or what their legal rights are. To make the sanitation workforce ecosystem fairer, it is important to hold institutions accountable and set up standard operating procedures. The study also finds new chances that could make the working conditions of public toilet cleaning workers much better. Technological advancements like mechanized cleaning tools, chemical dilution systems, and sensor-based monitoring have the potential to lessen the amount of work that needs to be done by hand and limit direct contact with dangerous waste. More NGOs, civil society groups, and worker collectives are getting involved, which opens up more opportunities for advocacy, training, and empowerment. Policy talks at the city and national levels are starting to recognize the rights and dignity of sanitation workers. This gives hope for policy frameworks that are more inclusive and focused on workers. These chances show that if everyone works together, lasting change is possible. The study finds that to make the social and occupational health of public toilet cleaning workers better, we need to work together on many levels and with many different groups. Structural reforms need to include health and safety measures, social safety nets, new technologies, and strong institutional governance. It is just as important to fight social stigma through campaigns to raise awareness, community involvement, and programs that focus on dignity. Taking care of the health and rights of public toilet cleaners is not just a labor or sanitation issue; it is also a matter of public health, human rights, and social justice. Cities can make sanitation systems that are more inclusive, strong, and clean by recognizing the important work that sanitation workers do and putting their safety and dignity first. This will help both workers and society as a whole.

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