

Introduction

The environment plays a significant role in sustaining life on Earth, providing resources such as food, water, and energy, regulating the climate, and supporting biodiversity. Human activities have a profound impact on the environment, and problems such as pollution, deforestation, habitat destruction, and climate change are major concerns that affect both the natural and built environments. The environment encompasses every element, condition, and factor surrounding an organism or a group of organisms, potentially influencing their development, functioning, survival, and well-being. Environmental hygiene is crucial for maintaining public health and well-being. Contaminated water sources, inadequate sanitation facilities, and improper waste disposal contribute significantly to these health risks. Promoting clean environments helps reduce the incidence of such diseases and improve overall community health (Chu and Karr, 2017).

Urban slums in today's India represent a significant socio-economic challenge, characterized by overcrowding, inadequate housing, poor sanitation, and limited access to basic services. A substantial proportion of India's urban population resides in slums, facing numerous challenges that affect their quality of life and well-being. In India, urban slums are home to an estimated 65 million people, accounting for approximately 17 percent of the urban population (Nolan, 2015). These slum settlements, characterized by overcrowded and makeshift housing, lack basic amenities such as piped water, electricity, and sanitation facilities (UNICEF, 2018). Approximately 18 percent of all urban households reside in slums, facing challenges related to inadequate housing and infrastructure (Behr et al., 2021). Access to clean water and sanitation remains a pressing issue, with approximately 20 percent of slum households lacking drinking water within their premises and 30 percent lacking improved sanitation facilities (WHO, 2019). Health outcomes are significantly impacted, with waterborne diseases prevalent, accounting for approximately 50 percent of reported cases of diarrhoea and typhoid in slum areas (Kumar et al., 2022).

Housing in urban slums is often makeshift, with structures constructed from materials such as tin, plastic sheets, and mud. These homes are typically overcrowded, lacking proper ventilation, and basic amenities. Many households in slum areas lack private toilets and often depend on communal facilities or resort to open defecation due to insufficient sanitary

infrastructure. The ongoing challenge of providing clean water and sanitation remains significant, with many slum residents forced to rely on contaminated water sources or purchase water at high costs from private vendors. The existing sanitation facilities are generally inadequate, with a shortage of toilets and poorly maintained sewage systems. This situation leads to the prevalence of open drains and waste accumulation, contributing to environmental pollution and severe health risks (Ferronato and Torretta, 2019).

The living conditions in urban slums contribute to a high prevalence of health issues. Waterborne diseases, including diarrhoea, cholera, and typhoid, are widespread due to poor water quality and inadequate sanitation. Respiratory infections are also common due to indoor air pollution from cooking with biomass fuels and inadequate ventilation. Slum dwellers often face barriers to accessing education and formal employment opportunities. Children may not attend school regularly due to financial constraints, inadequate infrastructure, and the need to contribute to household income. Informal and precarious employment is common among adults, leading to income instability and economic vulnerability (Kanungo et al., 2021).

Social issues such as crime, substance abuse, and gender-based violence are prevalent in slum communities. Limited social cohesion and community organization can hinder collective efforts to address common issues and advocate for improved living conditions. The current status of environmental hygiene in urban slums presents a complex and challenging landscape, characterized by several interrelated issues. Access to clean water remains a critical concern, as many slum residents lack piped water connections and rely on unsafe or expensive sources. Sanitation facilities are often inadequate and insufficient, with many households sharing communal toilets that are poorly maintained or lacking privacy, leading to issues like open defecation. This situation not only poses health risks but also undermines the dignity and safety of residents, particularly women and children (UNICEF, 2021).

Waste management in urban slums is another significant issue. Many areas lack formal waste collection services, resulting in the accumulation of garbage in open spaces, streets, and water bodies. Burning waste or dumping it in nearby waterways contributes to environmental pollution and health hazards (Abubakar et al., 2022). Inadequate ventilation in overcrowded and poorly built housing worsens indoor air pollution, potentially leading to respiratory illnesses and other health issues (Holden et al., 2023).

The prevalence of waterborne and sanitation-related diseases is high in urban slums due to the lack of access to clean water and inadequate sanitation facilities (Kanungo et al., 2021).

Common diseases such as diarrhoea, cholera, typhoid, and parasitic infections contribute significantly to high morbidity and mortality rates, particularly among children and the elderly (Amicizia et al., 2019). Overcrowding is a persistent issue, with slum populations growing faster than infrastructure development can accommodate. This results in strained public services and inadequate provision of health care, education, and other essential services (Rahaman et al., 2023).

Environmental degradation is another consequence of poor environmental hygiene practices in urban slums. Contamination of water sources, soil pollution, and the destruction of natural habitats further exacerbate the vulnerability of slum communities to environmental hazards and health risks (Surya et al., 2020). Despite these challenges, governments, non-governmental organizations, and community groups are making efforts to improve environmental hygiene. These efforts include initiatives to provide access to clean water and sanitation facilities, promote proper waste management practices, and raise awareness about hygiene and sanitation among residents (WHO, 2024).

A clean environment is not only essential for preventing diseases but also for promoting good health. Access to clean water, sanitation facilities, and hygienic practices, such as regular hand washing, are critical components of maintaining health, particularly among vulnerable populations, including children and the elderly (WHO, 2019). These practices help to prevent the transmission of pathogens and contribute to better health outcomes. Firstly, environmental hygiene plays a significant role in preventing the spread of infectious diseases. By ensuring access to clean water, proper sanitation facilities, and promoting hygienic practices such as proper hand-washing techniques, communities can significantly reduce the incidence of these diseases and improve public health outcomes (WHO and UNICEF, 2021).

Secondly, environmental hygiene plays a crucial role in promoting good health. A clean environment supports healthy living conditions, reduces exposure to pollutants, and minimizes health risks associated with environmental hazards. Access to clean air, water, and sanitation facilities is essential for maintaining physical health and preventing a range of health problems, including respiratory diseases, skin infections, and gastrointestinal illnesses (Prüss-Ustün et al., 2016).

Additionally, environmental hygiene is crucial for preserving natural resources and protecting ecosystems. Proper waste management, pollution control, and conservation efforts

are essential for maintaining biodiversity, ecosystem services, and the natural balance of our planet (IPBES, 2019). Clean environments support sustainable development by ensuring that natural resources are used responsibly and preserved for future generations. Environmental hygiene also enhances quality of life by providing safe and pleasant living environments. Clean surroundings contribute to mental and emotional well-being, reduce stress, and promote community pride and social cohesion. Access to clean and safe public spaces encourages physical activity, social interactions, and overall community engagement (Naragatti, 2023).

Environmental hygiene interventions are critically needed in urban slum communities to address a multitude of challenges that impact health, well-being, and overall quality of life. One of the most pressing needs is to prevent the spread of infectious diseases. Inadequate sanitation facilities and poor waste management practices contribute to the contamination of water sources and the proliferation of disease-causing pathogens. Interventions such as providing access to clean water, promoting proper sanitation practices, and educating communities about hygiene are crucial in reducing the incidence of these diseases and improving public health outcomes. Moreover, environmental hygiene interventions are necessary to promote public health and well-being.

Clean environments are fundamental to maintaining good health and reducing the burden of preventable illnesses. Proper waste disposal, sanitation infrastructure, and hygiene education are critical components of these interventions. They help mitigate health risks associated with poor living conditions and environmental pollution, thereby improving the overall quality of life for slum residents. Furthermore, these interventions play a significant role in protecting the environment and conserving natural resources. Slum communities often face challenges such as open defecation, improper waste disposal, and air and water pollution. These practices degrade local environments, pollute natural resources, and harm biodiversity. Interventions that promote sustainable waste management, recycling, and pollution control measures help mitigate these impacts and contribute to environmental sustainability (UNICEF and WHO, 2019).

Addressing social inequalities is another important aspect of environmental hygiene interventions. Access to clean water, sanitation facilities, and a safe living environment is a basic human right. In urban slums, marginalized populations often face barriers to accessing these necessities, leading to health disparities and social injustices. Environmental hygiene interventions help bridge these gaps by ensuring that all individuals have equitable access to

clean and safe living conditions, thereby promoting social equity and justice (Corburn, 2022). Healthy environments attract investments, support tourism, and enhance property values. Moreover, reducing healthcare costs associated with preventable diseases and improving productivity due to better health outcomes contribute to economic growth. By investing in environmental hygiene interventions, societies can create healthier, more sustainable, and economically vibrant communities (Prüss-Ustün et al., 2016).

In India, both governmental and non-governmental organizations have implemented various environmental hygiene interventions aimed at improving living conditions in urban slums. Government initiatives include schemes like the Pradhan Mantri Awas Yojana (PMAY) 2024, which provides affordable housing with basic amenities, including water supply, sanitation, and solid waste management. The Swachh Bharat Mission (Urban), launched in 2014, aims to achieve universal sanitation coverage and make India open defecation-free by constructing toilets and promoting community participation in maintaining cleanliness. Additionally, the National Urban Livelihoods Mission (DAY-NULM) supports slum dwellers by enhancing their livelihoods and access to basic services, including housing and healthcare. The Integrated Low-Cost Sanitation (ILCS) Scheme and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) have also played crucial roles in improving infrastructure and sanitation in urban slums across the country (Ministry of Housing and Urban Affairs, 2018).

On the private and non-governmental front, organizations like Water.org have partnered with local entities to provide access to safe water and sanitation through microloan programs. Sulabh International has implemented sanitation and waste management projects, including the construction of community and household toilets. The Akshaya Patra Foundation not only provides mid-day meals to school children but also focuses on hygiene education and access to clean drinking water in slum communities. CARE India and the Selco Foundation are actively involved in improving water, sanitation, and hygiene (WASH) practices in slums, promoting hygiene education, and providing solar-powered solutions for water and sanitation needs (SELCO Foundation, 2021).

These interventions are often implemented in collaboration with community stakeholders and use innovative approaches to address the unique challenges faced by slum communities. Community-Led Total Sanitation (CLTS) approaches empower communities to end open defecation and adopt improved sanitation practices. Public-private partnerships

(PPPs) play a significant role in the development of sanitation facilities and waste management systems, ensuring sustainable and effective outcomes (House, 2020).

The implementation of environmental hygiene interventions in urban slums in India faces several challenges that hinder the complete adoption and effectiveness of these initiatives. One major issue is the lack of adequate infrastructure and resources. Many urban slums are characterized by inadequate water supply, sanitation facilities, and waste management systems. Limited funding and resources allocated to slum development often restrict the scale and scope of interventions. Government budgets may not always prioritize these areas, leading to insufficient infrastructure to support improved environmental hygiene (World Bank, 2023).

The complexity of slum settlements poses another significant challenge. These areas are often densely populated with heterogeneous communities living in informal and unplanned structures. This makes it difficult to implement large-scale infrastructure projects and interventions. Additionally, slum dwellers may resist relocation or changes to their living conditions, further complicating efforts to improve environmental hygiene (Kurokawa, et al., 2023).

Socio-economic factors also play a vital role. Many slum residents face poverty and economic instability, which affects their ability to access and maintain improved sanitation facilities. High population density and informal housing arrangements exacerbate sanitation and waste management challenges, leading to environmental pollution and increased health risks (Rahaman et al., 2023).

Another challenge is the lack of community participation and awareness. Effective environmental hygiene interventions require active involvement and buy-in from the community. However, some slum residents may not fully understand the importance of sanitation and hygiene practices, or they may lack the resources to implement them. Education and awareness programs are crucial but may be limited in scope or reach (Tseklevs et al., 2022). Political and administrative challenges further hinder the implementation of environmental hygiene interventions. Coordination between different government departments and agencies involved in slum development can be complex and bureaucratic. Political will and administrative capacity are crucial for the effective implementation and monitoring of initiatives aimed at improving environmental hygiene (Yopa et al., 2023).

External and environmental factors, such as climate change, natural disasters, and pollution, also impact the sustainability and effectiveness of interventions. Slum communities are often more vulnerable to these external factors, which can undermine efforts to improve environmental hygiene and lead to setbacks in progress (Prüss-Ustün et al., 2016).

Women play a pivotal role in promoting environmental hygiene within urban slum communities and beyond. They are often at the forefront of household management, responsible for ensuring clean water, proper waste disposal, and maintaining hygiene practices. Women oversee the daily tasks of maintaining their homes and surroundings, which have a direct impact on the health and well-being of their families. Their leadership extends to community health advocacy, where they educate others about the importance of sanitation and hygiene, organize health campaigns, and participate in initiatives aimed at preventing waterborne diseases and improving overall public health (Agrawal, 2024).

In addition to their household responsibilities, women in slum communities often assume leadership roles within community organizations, advocating for improved infrastructure and services that contribute to better environmental conditions. Their efforts in promoting sustainable practices, such as waste reduction and recycling, contribute to environmental stewardship and resilience in the face of environmental challenges. Empowering women with education and economic opportunities not only enhances their capacity to improve environmental hygiene but also promotes community development and sustainable urban living (Mehrohasani et al., 2021). Recognizing and supporting the pivotal role of women in environmental hygiene is essential for achieving healthier, more resilient communities in urban settings.

Educating women on environmental hygiene is crucial for improving health outcomes and promoting sustainable development in urban slums. Women in these communities often play a central role in household management, responsible for ensuring clean water, proper waste disposal, and maintaining hygiene practices. By empowering women with knowledge and skills in environmental hygiene, they can act as change agents within their communities. This empowerment allows them to protect their families from waterborne diseases and other health risks associated with poor sanitation (Kayser et al., 2019)

Having access to clean water and adequate sanitation facilities is essential for reducing the rates of diseases such as diarrhoea, cholera, and typhoid. Educated women are more likely

to adopt and promote good hygiene practices within their households, leading to improved health outcomes for themselves and their children. Their knowledge also contributes to building resilient communities. Women can organize community health initiatives, advocate for better sanitation infrastructure, and mobilize resources to address environmental challenges. By fostering a culture of hygiene and cleanliness, they mitigate the impact of environmental health hazards and promote a safer living environment for everyone.

In Kampala's urban slums, a study demonstrated sustained behavioural changes through interactive sessions and peer education. Women maintained proper hygiene practices, such as hand washing and water purification, well beyond the intervention period, resulting in improved community health (Tumwebaze and Mosler, 2015). A comprehensive review analysed interventions across South Asia and Sub-Saharan Africa, identifying challenges such as cultural resistance and limited resources. Successful programs were those that adopted participatory approaches, involved community leaders, and ensured cultural sensitivity. Continuous funding and robust monitoring systems were also deemed crucial for long-term success (Awasthi et al., 2024).

These studies collectively demonstrate that educating women on environmental hygiene can lead to substantial improvements in health, economic empowerment, and social uplift. Effective interventions must be culturally tailored, community-driven, and supported by sustainable resources to overcome challenges and achieve a lasting impact. This approach not only enhances individual and community health but also addresses gender inequalities, fostering resilient and empowered urban slum communities.

Educating women in urban slums on environmental hygiene is a powerful strategy for promoting both health and economic empowerment. Improved health outcomes are a direct result of better hygiene practices, resulting in lower medical expenses for families. This financial relief is particularly significant in low-income areas, where healthcare costs can be prohibitive. Healthier women are also more productive, capable of engaging in economic activities, and better able to fulfil their roles within their households and communities, thereby contributing to overall economic growth.

Moreover, education in environmental hygiene opens up new job opportunities for women. The sanitation sector offers various roles, including sanitation workers, health educators, and community advocates. These jobs not only provide a source of income but also

position women as key players in public health initiatives. Similarly, women trained in hygiene can become community health workers, providing essential services and health education to their neighbours. These roles enhance their economic status and establish them as vital contributors to their community's well-being.

Addressing gender inequalities is another critical aspect of educating women on environmental hygiene. In many urban slums, women face significant barriers to education, such as early marriage, domestic responsibilities, and limited school facilities. Focused educational programs on hygiene can provide a relevant and accessible entry point for learning, breaking down these barriers. By equipping women with knowledge and confidence, these programs enable them to address health risks effectively and advocate for improved living conditions, thus actively participating in community decision-making processes (Demeter. et al., 2023).

For environmental hygiene education initiatives to be successful in the particular urban slum setting of the study, several issues need to be resolved. Financial limitations, ingrained cultural customs, and limited educational opportunities all impede the adoption of hygienic practices. Programs must be culturally sensitive and involve local leaders and stakeholders from the study region to guarantee community acceptability. Incentives, financial aid, and flexible learning schedules can all be used to promote involvement. Moreover, women can immediately apply their knowledge in income-generating activities by combining hygiene education with livelihood programs tailored to the socioeconomic circumstances of the targeted urban slum, ensuring both practical and financial benefits.

In conclusion, resolving gender inequities, promoting sustainable community development, and enhancing public health all depend on raising women's awareness of environmental cleanliness in this urban slum. Women can substantially improve sanitation practices in their homes and communities by acting as change agents, utilizing knowledge and skills tailored to their specific living circumstances. To ensure that the most disadvantaged groups gain from long-lasting hygiene improvements, effective interventions must be context-specific, culturally inclusive, and built to overcome local obstacles. This focused strategy will significantly alter the environmental health behaviours of urban slum households in the study area.

The current study, **“Impact of Creating Awareness on Environmental Hygienic Practices among Selected Urban Slum Households,”** aims to enhance the environmental

hygiene of specific urban slum areas by implementing an environmental hygiene Awareness programme among women, with the following objectives:

1. To assess the existing hygienic conditions in the chosen area across personal, interior, and exterior environments.
2. To assess the awareness of selected urban slum women on the concept of environmental hygiene
3. To formulate training content for environmental hygienic practices.
4. To conduct an environmental hygiene awareness programme among selected urban slum women.
5. To evaluate the impact of the environmental hygiene awareness programme conducted.

Hypotheses

The hypotheses of the study are as follows:

- ☐ Environmental hygiene awareness programme do not change urban slum women's knowledge about environmental conditions.
- ☐ Environmental hygiene awareness programme do not improve urban slum women's attitudes towards environmental conditions.
- ☐ Environmental awareness and hygiene initiatives among urban slum households enhance environmental conditions
- ☐ Education level does not significantly affect changes in knowledge, attitude, or practice scores following the intervention.
- ☐ Age does not significantly influence knowledge or attitude changes following the intervention, but significantly affects changes in hygienic practices.
- ☐ Occupation significantly influences pre-intervention practice and post-intervention knowledge gains, but not changes in attitude or practice.
- ☐ Family monthly income significantly influences post-intervention knowledge improvement but does not affect changes in attitude or practice scores.
- ☐ Higher baseline knowledge of interior and exterior hygiene significantly predicts greater improvement in overall hygiene awareness after the intervention

Limitations of the Study

- It was not easy to get permission from the higher authorities of the urban slum area
- Time constraints limited this study to one area.
- Difficult to observe the Disposal of sanitary Products in all the selected households.