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Hygiene and Sanitation Practices among Rural Population of Bihar

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ABSTRACT

Hygiene and sanitation practices critically determine the health condition of populations in developing countries like India. Rural populations in Bihar continue to encounter considerable challenges due to poor sanitation infrastructure, limited access to safe drinking water, and insufficient awareness towards hygienic practices. The study further evaluates the effectiveness of government initiatives such as the Swachh Bharat Mission, the Jal Jeevan Mission, and WASH in schools and Anganwadis in managing sanitation gaps and developing behavioral change among rural population. The poor sanitation practices significantly contribute to the prevalence of diarrhoea, viral infections, typhoid, cholera, parasitic infections, undernutrition and death in critical condition, which disproportionately impact children and vulnerable population. Based on a comprehensive study of previous reports and policies, the study recommends the strengthening of sanitation infrastructure, systematic monitoring and evaluation of government schemes, promotion of hygiene education at schools and Anganwadi levels, and the adoption of community-based proper waste management practices.

KEYWORDS: *Bihar, Hygiene, Jal Jeevan Mission, Open defecation, Rural population, Sanitation, Swachh Bharat Mission.*

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INTRODUCTION

Sanitation and hygiene are crucial to public health and wellbeing, particularly in rural areas where access to basic amenities is frequently restricted. Rural sanitation issues still exist in India, despite notable advancements under initiatives like the Swachh Bharat Mission. Inadequate sanitation and poor hygiene habits greatly increase the burden of infectious diseases among rural women. The major challenge is to encourage rural population for consistent and sustained utilization of constructed toilets (Kumar and Ghosh, 2023).

Research shows that only 42% of teenage girls in rural areas use hygienic menstrual practices, underscoring the lack of accessibility, awareness, and social taboos (Singh et al., 2022).

Inadequate sanitation infrastructure also makes people more vulnerable, which impacts their safety, dignity, and general quality of life (Vogel et al., 2022).

Women are crucial to upholding health and hygiene in rural communities. However, their practices are frequently impacted by elements like low literacy, ignorance, and restricted access to healthcare services (Coffey and Spears, 2017; WHO, 2023). Even where sanitation facilities are accessible, the usage of proper toilets is often prevented due to lack of awareness or deeply rooted cultural beliefs. In comparison to other Indian states, Bihar has historically reported poor sanitation indicators, according to national survey data. Disparities between rural and urban areas continue to be significant despite advancements over time.

In order to find gaps and enhance general health outcomes, it is crucial to evaluate rural population's hygiene and sanitation practices. Thus, the main aim of this study is to assess rural population's sanitation and hygiene habits in the Bihar, an eastern state of India.

OBJECTIVES OF THE STUDY

The main objectives of the present study include -

- To study the status of hygiene and sanitation practices in rural areas of Bihar.

- To study the government initiatives for hygiene and sanitation.
- To study the health hazards associated with poor sanitation practices.

STATUS OF HYGIENE AND SANITATION PRACTICES IN RURAL BIHAR

Poor Access to Water Supply:

Rural areas of Bihar encounter significant challenges in water access and sanitation practices, primarily due to groundwater contamination by arsenic, fluoride, iron, microbes and large water scarcity after floods (Sarkar and Sharma, 2025). Even though Government initiatives such as Mukhyamantri Gramin Peyjal Nishchay Yojana aim to improve access to piped drinking water, still a greater range of the population depends on handpumps. While awareness towards hygiene is progressively increasing, practices like open defecation and unhygienic water storage practices remain common, exerting negative impacts on public health status.

Open Defecation and Behavioral resistance to use toilets:

The sanitation practices in rural Bihar have been remarkably improved because of infrastructure development, but people still encounter challenges due to **inadequate behaviour** and ongoing non utilization of toilets. Approximately two-third (64.2%) of surveyed respondents from rural blocks of Patna, Bihar practices open defecation (OD) despite having access to household toilets, demonstrating a large gap between availability and practical utilization. OD were primarily associated with men, schedules caste, low-income status, lack of water access, and adoption of toilets in later ages (Muthukumaran et al., 2024). Providing toilets alone cannot eradicate OD. Significant improvements are required in behavioural changes at both individual and contextual levels (Suthar et al., 2019). Behavioral resistance continues to hamper the eradication of open defecation in rural India. It is also significantly impacted by deeply ingrained social norms about caste, pollution, purity (Coffey et al., 2017), inadequate awareness, restricted sanitation knowledge, and insufficient community participation (Chawla, 2024).

Menstrual Hygiene:

Menstrual hygiene remains a challenge in rural areas of Bihar. Studies reported that only about 27–58% of young females using sanitary pads or clean clothes. Lack of awareness, high costs, cultural stigma, and privacy issues cause many to utilize poorly sanitized clothes, enhancing the infections and resulting in major school absence (Singh et al., 2023; Sarkar et al., 2017; Maharana, 2022). According to statistics, insufficient menstrual hygiene facilities cause 24% of teenage girls in rural India to drop out of school after menarche. Misinformation, dietary and mobility restrictions, and social stigma could make the problem worse. Awareness has significantly increased through government programs like the Swachh Bharat Mission and mobile learning tools like SAATHIYA. However, because of enduring cultural beliefs and inadequate infrastructure in rural India, their influence is still restricted (Chaliawala and Dubey, 2025).

Household Hygiene:

Household hygiene in rural Bihar is adversely affected by improper disposal of solid wastes, such as yard dumping and burning, along with poor drainage systems, giving rise to waterborne diseases. Co-residence with livestock increases the prevalence of zoonotic disease transmission. Furthermore, frequent flooding, affecting approximately 76% of the state, worsens sanitation conditions and leads to perpetual water contamination (Priyadarshini and Gundimeda, 2025). Poor drainage contributes to stagnant water, which serves as a breeding site for mosquitos and other vectors, which in turn elevate the transmission of infectious diseases (Yadav et al., 2025; Kumar and Ranjan, 2018).

Social and Economic Determinants:

Several studies have been reported that poor socioeconomic conditions, bad housing setups, and insufficient availability of water are significantly linked with poor sanitation practices (Ghosh et al., 2022; Biswas et al., 2024). Poverty is a major determinant, inhibiting people from constructing and maintaining household toilets.

Literacy:

Previous studies conducted in rural areas of Bihar demonstrated that population with lower literacy exhibit limited awareness regarding hygiene and sanitation. The lack of awareness restricts people from proper usage of toilets and diseases prevention (Patel et al., 2022). High literacy levels in females elevate awareness and promote the usage of toilets, while lower literacy rates are notably associated with continued open defecation (Bhardwaj et al., 2017).

GOVERNMENT INITIATIVES FOR HYGIENE, AND SANITATION

Swachh Bharat Mission (SBM):

The Swachh Bharat Mission (SBM) is a nationwide initiative launched by the Indian Government on 2nd October, 2014, with the main objective of securing an open defecation–free India (Swachh Bharat Mission – Grameen). The SBM (Gramin) has remarkably improved sanitation status in rural areas of Bihar by increasing toilet access and reducing open defecation.

However, challenges such as behavioural resistance, improper maintenance, and restricted hygiene awareness continue to hamper its enduring effectiveness. Prolonged behavioural transition and improved infrastructure management are essential for achieving sustainable sanitation outcomes.

Jal Jeevan Mission (JJM):

Jal Jeevan Mission, launched in the year 2019, aims to supply clean and adequate tap water to every rural household in India. This mission has significantly increased rural tap water supply, with rapid extension in household connections in rural regions of Bihar. In order to reduce reliance on contaminated sources and improve rural sanitation outcomes, adequate water availability is crucial for toilet usage, cleaning, and maintenance. To maintain open defecation-free (ODF) villages, the mission collaborates with the SBM (Grameen). In general, JJM improves rural sanitation in Bihar by combining infrastructure for sanitation and hygiene with a safe water supply (Ministry of Jal Shakti; Naik et al., 2024).

WASH in Schools and Anganwadis:

WASH stands for water, sanitation, and hygiene. This mission aims to provide clean drinking water, sanitation facilities, and hygiene knowledge in educational institutions like government schools and Anganwadis. Improving infrastructure, combined with advanced awareness and persistent monitoring, is important for achieving long-term effectiveness (Kar et al., 2025).

HEALTH HAZARDS

Inadequate sanitation and hygiene practices and poor human waste disposal increases the risk of exposure to pathogens present in faecal discharges, thereafter enhancing the prevalence of infectious diseases including diarrhoea, viral infections, typhoid, and cholera, which cause significant health complications (Saleem et al., 2019). Inadequate sanitation and contaminated water usage contribute to diseases such as diarrhoea, one of the major reasons of death, specifically among children. Contaminated drinking water and substandard waste management contribute to the spread of bacterial infections like typhoid, cholera, and dysentery. Poor sanitation also increases the risk of exposure to parasitic infections, such as hookworms and roundworms, leading to undernutrition and weakness. In the critical conditions, death may also occur in children and more susceptible people (Waddington et al., 2023; WHO, 2024; Rani, 2020; UNICEF).

RECOMMENDATIONS

- Regular government initiatives and awareness programs should be conducted to encourage personal and public hygiene practices.
- Hygiene and sanitation knowledge should be provided at schools and Anganwadi centers.
- Sanitation infrastructures should be provided and maintained under government schemes.
- Proper dry and wet waste management systems should be installed at rural level to prevent contamination.

CONCLUSION

Improper hygiene and poor sanitation in rural areas of Bihar remain a significant public health concern, directly influencing the quality of life and overall living status of the population. Limited access to safe drinking water, inadequate disposal of waste materials, and insufficient sanitation facilities give rise to the persistence and transmission of waterborne and infectious diseases including diarrhoea, cholera, typhoid, and helminthic infestations. Such conditions disproportionately affect the health status of children and other vulnerable groups, leading to undernutrition, weakened immunity, restricted growth, and in severe cases, enhanced mortality rates.

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