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Sanitation and Social Stratification: Examining Socio-Economic Factors Shaping Hygiene Adoption Among Rural Women in Bihar

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ABSTRACT

This research study conducted in the Samastipur district of Bihar aimed to investigate the relationship between socio-economic factors and the adoption of appropriate health, hygiene, and sanitation practices among rural women. The study focused on the Pusa block and specifically examined two villages, Harpur and Bhuskaul, utilizing a random stratified sampling approach to select 120 female participants. A structured interview schedule was employed to collect data from these respondents. The study's findings demonstrated a significant correlation between socioeconomic factors and the adoption of proper health, hygiene, and sanitation practices, with statistically significant results at the one percent level (Chi-square value of 163.10** with 1 degree of freedom). Furthermore, the research revealed that the relationship between socio-economic factors and the adoption of these practices was more pronounced in Bhuskaul village when compared to Harpur village.

Keywords: *Adoption, Impact, Health, Hygiene, Sanitation, Socio-economic.*

Introduction

Women often face numerous obstacles when it comes to embracing personal health, hygiene, and sanitation practices. First and foremost, their limited understanding of their own health often leads to prevalent poor hygiene practices. Additionally, women frequently encounter challenges related to accessing clean drinking water and adequate sanitation facilities, which significantly increase their susceptibility to illnesses. Furthermore, entrenched cultural taboos and gender-based discrimination routinely hinder women from utilizing public restrooms and other sanitation amenities, leaving them with limited options for

maintaining sanitary practices. The lack of education and awareness also plays a significant role in contributing to women's suboptimal personal health, hygiene, and sanitation practices.

Patel *et al*. (2020) emphasized the fundamental importance of health and cleanliness for the overall well-being of individuals. Their study underscored that one of the most cost-effective strategies to improve public health is the promotion of proper sanitation and hygiene. Adequate sanitation not only has a direct impact on health but also plays a pivotal role in shaping people's perceptions of their status, safety, comfort, and dignity. These factors collectively contribute to enhancing public welfare and overall public health. Tamene and Afework (2021) pointed out that inadequate sanitation has emerged as a critical challenge, especially for developing nations. This challenge poses significant hurdles to both their public health and economic structures. To address this issue, it is crucial for every country to ensure that its citizens have equitable and affordable access to toilet facilities and related services. These services should not only be cost-effective but should also prioritize safety, hygiene, reliability, and cultural and social compatibility with the norms of the population. Ravindra *et al.* (2019) stressed the significance of ensuring sufficient access to clean water and sanitation facilities as a key strategy in reducing waterborne infections. This not only forms an essential component of a healthy lifestyle but also serves as a vital benchmark for social development. Access to clean water and sanitation facilities significantly contributes to national progress and the promotion of overall public health. In essence, these studies highlight the critical role that sanitation and hygiene play in the well-being of individuals and the advancement of society.

Singh et al. (2022) conducted a study in rural India and discovered that around 70 percent of the population in these areas still engages in open defecation, which is a troubling and unhygienic practice. Furthermore, their findings revealed that only 42 percent of young women in rural regions adhere to proper hygiene practices during menstruation. This is a concerning statistic given the substantial challenges and health risks associated with menstruation for Indian women. Despite India's recent impressive economic growth, there has been no corresponding improvement in the country's public health conditions. This is particularly evident in the persistently high rates of child malnutrition. As noted by Dwivedi *et al.* in 2019, inadequate sanitation practices and unsafe conditions continue to have a significant impact on the health of children, especially in densely populated areas.

Michael, C. (2019) pointed out a concerning issue prevailing in numerous low-income countries, where the quality of water, hygiene, and sanitation facilities is severely subpar. This situation has significant implications for public health and school attendance rates in these regions. According to survey findings, a mere 51 percent of schools in these low-income nations have access to proper water sources, and only 45 percent possess sufficient sanitation facilities. This lack of basic infrastructure has far-reaching consequences, negatively impacting the overall well-being of communities and limiting educational opportunities for children. Garn *et al*. (2017) highlighted an alarming statistic, indicating that approximately 2.4 billion individuals worldwide still face challenges in accessing improved hygiene and sanitation facilities. Moreover, a staggering 946 million people are forced to resort to open defecation due to the absence of proper facilities. This not only poses health risks but also hinders social and economic

development. To address this global issue, the World Health Organization (WHO) has made extensive efforts to develop a comprehensive set of health and sanitation guidelines. These recommendations were not only carefully crafted but also meticulously examined and analyzed to gauge their effectiveness. The WHO's commitment to promoting better sanitation practices is crucial in improving the well-being and quality of life for millions of people worldwide, especially in low-income regions facing these pressing challenges.

After conducting an extensive examination of a broad array of studies, it has become clear that only a limited number of research endeavors have been devoted to the specific subject at hand. This observation holds particularly true in regions where numerous cases are left unreported and a substantial portion of the population remains uninformed about the vital importance of upholding personal health, cleanliness, and sanitation. The primary purpose of the present study was to fill this research gap with the objective of studying the relationship between socio-economic variables and the adoption of proper health, hygiene, and sanitation practices.

Methodology

In a research endeavor conducted within the Samastipur district of Bihar, the primary focus was to explore the impact of adoption on health, hygiene, and sanitation practices among rural women. To establish a suitable study area, the researchers deliberately chose the Pusa block within Samastipur. Within this block, they proceeded to select two villages, Harpur and Bhuskaul, using a random sampling method. The aim was to ensure a well-rounded representation of the local population. For the purpose of gathering data, a random stratified sampling technique was employed. This approach was aimed at obtaining a diverse sample of participants. As a result, a total of 60 women were chosen from each of the selected villages, bringing the overall number of respondents for the study to 120. To acquire pertinent information from the participants, the researchers utilized a structured interview schedule. This method allowed for systematic data collection and ensured consistency in the questions asked and responses received. Additionally, in order to supplement their primary data, the research team accessed secondary data from reliable sources, including published reports, research papers, statistical manuals, and other reputable references. These secondary data sources served as valuable context and background information for the study. To effectively analyze the collected data and derive meaningful conclusions, the researchers employed statistical tools. Two significant tests, namely the chi-square test and Karl Pearson's coefficient of correlation test, were used. The chi-square test helped in assessing the relationships between categorical variables, while Karl Pearson's coefficient of correlation test allowed for the examination of linear relationships between variables. These statistical analyses provided the necessary insights and evidence for the study's findings and conclusions.

Results and discussions

Table 1: Impact analysis significance level of adoption using Chi-square test

Statistics	Impact
Chi-Square Test	163.10**

Df	1
Significant level	0.001

Pearson's chi-square test was used to assess the impact of adoption. The results of the chi-square test are presented in Table 4.1. Indicated that the adoption had a significant impact on proper health, hygiene, and sanitation at the one percent level with a corresponding chi-square value of 163.10** at 1 degree of freedom. But chi-square is always positive; therefore, to determine the direction of the association, the correlation coefficient was calculated.

Table 2: Correlation analysis of independent variables with adoption of proper health, hygiene and sanitation among women in Harpur village (N=60)

Sl. No	Independent Variables	Harpur (N= 60)	
		Pearson correlation coefficient (r)	Significant level(p)
1	Age	**-0. 344****	**0.007**
2	Caste	**-0.343****	**0.007**
3	Family type	-0.029	0.828
4	Family size	-0.007	0.955
5	Education	**0.677****	**0.001**
6	Occupation	-0.133	0.310
7	Family annual income	0.093	0.480
8	Housing type	**-0.696****	**0.001**

**. Correlation is significant at the 0.001 level (2-tailed).

Table 2 presents the findings concerning the relationship between various independent variables and the adoption of personal health, hygiene, and sanitation practices among female respondents. In the case of Harpur village, a negative correlation was observed between the age of women and their adoption of these practices (r = -0.344, n = 60, p = 0.007). This suggests that older women are less inclined to adopt proper health, hygiene, and sanitation practices. Additionally, when considering caste, there was a negative and statistically significant correlation with women's adoption (r = -0.343, n = 60, p = 0.007), indicating that women from lower castes exhibit less favorable adoption of these practices due to financial and educational limitations. In relation to family type and family size, a negative and significant correlation was identified, implying that women living in joint families with more family members tend to show less favorable adoption of proper health, hygiene, and sanitation practices. This could be attributed to the challenges associated with maintaining financial support, education, and household chores in larger families, all of which impact hygiene and sanitation. Conversely, women's education displayed a positive and statistically significant correlation with the adoption of proper health, hygiene, and sanitation practices at the 0.001 significance level (r = 0.677, n = 60, p = 0.001). This suggests that women with higher levels of education possess greater knowledge and awareness, leading to increased adoption of these practices. Occupation

among women exhibited a negative correlation with adoption (r = -0.133, n = 60, p = 0.310), indicating that women who are more occupied with work tend to adopt these practices less frequently. This is likely because they have limited time to devote to their health and activities related to hygiene and sanitation. Regarding the income earned by women, a positive and significant correlation was found, potentially due to engagement in agricultural and farming activities. Lastly, housing type among women demonstrated a negative and statistically significant correlation with adoption (r = -0.696, n = 60, p = 0.001). This indicates that individuals residing in poor housing conditions are less likely to adopt proper hygiene and sanitation practices, likely due to the limitations imposed by their housing structures and the environmental factors in their surroundings.

Table 3: Correlation analysis of independent variables with adoption of proper health, hygiene and sanitation among women in Bhuskaul village (N=60)

Sl. No	Independent Variables	Bhuskaul (N= 60)	
		Pearson correlation coefficient (r)	Significant level(p)
1	Age	**-0.382****	**0.003**
2	Caste	**-0.411****	**0.001**
3	Family type	-0.045	0.731
4	Family size	-0.096	0.464
5	Education	**0.666****	**0.001**
6	Occupation	-0.048	0.718
7	Family annual income	**0.029***	**0.829**
8	Housing type	**-0.650****	**0.001**

**. Correlation is significant at the 0.001 level (2-tailed).

*. Correlation is significant at the 0.005 level (2-tailed).

The results presented in Table 3 demonstrate the correlations between various independent variables and the adoption of proper health, hygiene, and sanitation practices by women. In the case of Bhuskaul village, a negative and statistically significant correlation was observed (r = -0.382, n = 60, p = 0.003), indicating that as women's age increases, their propensity to adopt proper health, hygiene, and sanitation practices decreases. This trend may be attributed to older women being less inclined to embrace these practices. Regarding caste, there was another negative and statistically significant correlation with adoption (r = -0.411, n = 60, p = 0.001), suggesting that women from lower castes exhibit lower levels of adoption, likely due to financial and educational limitations. These constraints hinder their ability to adhere to these practices. Family type and size also displayed negative and statistically significant correlations with adoption, with coefficients of -0.45 (n = 60, p = 0.731) and -0.096 (n = 60, p = 0.464), respectively. This indicates that women in joint families with more members tend to face financial difficulties in managing health, education, and household activities related to hygiene and sanitation. In contrast, education exhibited

a positive and statistically significant effect on adoption at the 0.01 level (r = 0.666, n = 60, p = 0.001). This suggests that women with higher levels of education possess greater knowledge and awareness of proper health, hygiene, and sanitation practices, leading to better adoption. Occupation, on the other hand, displayed a negative correlation with adoption (r = -0.048, n = 60, p = 0.718), indicating that women engaged in various occupations tend to adopt these practices less. This may be due to time constraints, as they have limited time to focus on their health and maintain hygiene and sanitation at home. Income showed a positive and statistically significant correlation with adoption at the 0.005 level (r = 0.029, n = 60, p = 0.829), signifying that higher income allows for greater financial stability, improved education, and overall family welfare, resulting in more favorable adoption of proper health, hygiene, and sanitation practices by women. Housing type exhibited a negative and statistically significant correlation with adoption (r = -0.650, n = 60, p = 0.001), indicating that women living in poorer housing conditions tend to have less favorable adoption of these practices.

Conclusion

In conclusion, the adoption of appropriate health, hygiene, and sanitation practices among rural women is a multifaceted issue influenced by various socioeconomic, cultural, and environmental factors. While higher income and education levels are generally associated with better practices, several other elements, including resource accessibility, cultural norms, and community support, also play significant roles. This study highlights the concerning trend of women lagging behind in education, emphasizing the need for comprehensive educational efforts to enhance their awareness of the importance of health, cleanliness, and sanitation. Women represent a valuable human resource, and as such, it is imperative to eliminate gender bias and restrictions within families and society. Doing so will promote better education, health, and overall development for women, thereby contributing to the growth of the country. To address this complexity, interventions and policies must be tailored to the specific needs of women, particularly in the realms of education, health, and other social benefits. Monitoring and supervision of such initiatives are crucial. Variables such as annual income and education should be given greater consideration in efforts to enhance health, hygiene, and sanitation practices.

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