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A Study of Health Conditions and Socio-Economic Challenges among Urban Slum Dwellers in Sonipat City

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Abstract— *Rapid urbanization in India has led to the expansion of slum settlements marked by overcrowding, inadequate housing, poor sanitation, water scarcity, and limited access to healthcare services. These conditions collectively pose serious threats to the health and well-being of slum dwellers. The study employs a descriptive and analytical research design using primary data collected from 500 households through structured questionnaires. Major indicators analyzed include prevalence of vaccination coverage, maternal and child health practices, substance use, and social exclusion. Findings reveal that poor sanitation, open drainage, and water scarcity significantly contribute to the spread of waterborne and vector-borne diseases. Although polio vaccination coverage is universal, immunization for pneumonia and hepatitis remains inadequate, reflecting gaps in awareness and healthcare outreach. While institutional deliveries have increased due to government schemes, a substantial proportion of home births persists, exposing mothers and infants to avoidable risks. Economic vulnerability forces most households to depend on government hospitals, self-medication, or traditional healers, often delaying timely treatment. Alarmingly, nearly 45 percent of households reported fatalities due to financial constraints in accessing healthcare. Substance use, particularly tobacco and alcohol, is widespread, further aggravating health and economic stress. Poverty and unemployment emerged as the most critical challenges, underpinning poor housing, food insecurity, and health outcomes. The study underscores the need for integrated urban health policies focusing on strengthened primary healthcare, improved sanitation and water infrastructure, nutrition security, substance-abuse intervention, and inclusive social support systems.*

Keywords— ***Urban Slums, Environmental Conditions, Health Outcomes, Healthcare Accessibility, Socio-Economic Vulnerability***

I. INTRODUCTION

Urbanization is one of the most significant socio-spatial transformations shaping contemporary societies across the globe. In developing countries, particularly in Asia and Africa, rapid urban growth has occurred in a largely unplanned and uneven manner, resulting in the proliferation of informal settlements commonly referred to as slums. According to the United Nations, slums are characterized by inadequate access to safe water, poor sanitation, overcrowding, non-durable housing, and insecure tenure (UN-Habitat, 2003). These settlements represent a visible manifestation of urban poverty and socio-economic exclusion, posing serious challenges to sustainable urban development and public health. In India, where urbanization has accelerated sharply since the economic reforms of the 1990s, the expansion of slums has become an integral feature of urban landscapes, particularly in rapidly growing secondary cities and urban peripheries.

India's urban population increased from 27.8 percent in 2001 to 31.2 percent in 2011, and this share is projected to exceed 40 percent by 2035 (Census of India, 2011; UN DESA, 2019). This growth has been driven by natural population increase, rural-to-urban migration, and the

reclassification of rural areas into urban jurisdictions. However, the capacity of urban local bodies to provide adequate housing, infrastructure, and basic services has not kept pace with this expansion. As a result, a significant proportion of the urban poor are compelled to reside in slums and informal settlements, often located on marginal lands such as riverbanks, railway corridors, industrial zones, and flood-prone areas. These spatially and socially marginalized settlements reflect deep structural inequalities embedded within urban systems. Slums are not merely residential spaces; they are complex socio-economic systems shaped by poverty, informality, and vulnerability. Slum dwellers are predominantly engaged in informal and low-paid occupations such as construction work, domestic labour, street vending, waste picking, and small-scale manufacturing. The absence of stable employment and social security exposes households to chronic income insecurity, limiting their ability to invest in adequate housing, nutrition, education, and healthcare (Kundu, 2014). Consequently, slum populations experience multidimensional deprivation that extends beyond income poverty to encompass deficits in living conditions, health status, and social well-being.

The living environment in slums plays a critical role in shaping health outcomes. Poor housing quality, characterized by kutcha or semi-pucca structures, inadequate ventilation, and overcrowded living spaces, increases exposure to respiratory infections, tuberculosis, and other communicable diseases (Buttenheim, 2008). Inadequate access to safe drinking water and sanitation facilities contributes to the prevalence of waterborne diseases such as diarrhea, cholera, and typhoid, which disproportionately affect children and the elderly (WHO, 2019). Women and children, in particular, face heightened health risks due to malnutrition, reproductive health challenges, and inadequate maternal and child healthcare services (Gupta & Mitra, 2015). Although government initiatives such as the National Health Mission and Janani Suraksha Yojana have improved access to institutional deliveries and immunization coverage, significant gaps persist in healthcare outreach and service quality in slum areas.

Urban slums also reflect spatial inequities in the distribution of urban infrastructure and services. While cities are often portrayed as centres of opportunity and development, slum settlements remain excluded from formal planning processes and municipal service provision. In many cases, slums lack legal recognition, which restricts their access to piped water supply, sewerage networks, solid waste management, and electricity connections. This exclusion reinforces a cycle of neglect, where poor living conditions contribute to adverse health outcomes, which in turn undermine productivity and income generation, perpetuating poverty and vulnerability (UN-Habitat, 2016). In recent years, there has been growing recognition of the need to address slum conditions through inclusive urban development strategies. Global frameworks such as the Sustainable Development Goals (SDGs), particularly SDG 11, emphasize the importance of making cities inclusive, safe, resilient, and sustainable, with a specific target to improve the living conditions of slum dwellers. In the Indian context, policy initiatives such as the Pradhan Mantri Awas Yojana (Urban), Swachh Bharat Mission, and Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aim to enhance housing, sanitation, and basic urban services. However, the effectiveness of these programs varies across regions and cities, underscoring the need for localized, evidence-based assessments of slum conditions and health outcomes.

Haryana, one of the fastest growing states in India, has witnessed rapid urban expansion due to industrialization, infrastructural development, and its strategic location within the Delhi NCR. Sonipat City, in particular, has emerged as an important urban centre owing to its proximity to Delhi, improved connectivity, and growing industrial and educational base. This rapid growth has attracted a large migrant population from neighbouring states, leading to the formation and expansion of slum settlements within and around the city. These slums accommodate a heterogeneous population characterized by economic vulnerability, insecure livelihoods, and limited access to urban amenities. Despite its growing importance, Sonipat City has received limited scholarly attention with respect to the living conditions and health status of its slum population. Existing studies on urban slums in India have largely focused on metropolitan cities such as Delhi, Mumbai, and Kolkata, often overlooking medium sized and emerging cities where the pace of urban change is equally rapid. Understanding the socio-economic and environmental conditions of slum dwellers in such cities is crucial for designing context specific interventions that address local needs and challenges. The present study seeks to bridge this gap by providing a comprehensive analysis of the living conditions, environmental health risks, and health status of slum populations in Sonipat City. By examining housing quality, sanitation, water supply, drainage, income, education, and access to healthcare services, the study aims to elucidate the complex interrelationships between socio-economic vulnerability and health outcomes. Such an integrated approach is essential for capturing the multidimensional nature of deprivation experienced by slum dwellers and for identifying priority areas for policy intervention.

From a geographical perspective, the study underscores the importance of spatial context in shaping health and well-being. Slum settlements are not randomly distributed but are shaped by historical processes, land use patterns, and urban governance structures. Their location on environmentally fragile and infrastructure deficient sites exacerbates exposure to health risks and environmental hazards. By situating the analysis within the broader framework of urban geography and public health, the study contributes to an interdisciplinary understanding of urban poverty and health inequalities. This study, therefore, aims to contribute to the existing body of literature by providing a detailed and context-specific examination of slum living conditions and health outcomes in Sonipat City, with broader implications for inclusive and sustainable urban development.

II. VACCINATION GIVEN TO CHILDREN IN SLUMS

Poor sanitation, overcrowding, and polluted surroundings make slums highly vulnerable to infectious and vector borne diseases. Despite ongoing awareness initiatives by NGOs and government agencies, many slum residents still face significant health challenges. Vaccination coverage, maternal health, and hygiene-related behaviour are major indicators of the health status of such populations.

Table 1: Type of Vaccination Given to Children

Type of Vaccination	No. of Respondents	Percentage
Polio Drops	500	100.0
Pneumonia Vaccine	124	24.8
Tetanus Injection	398	79.6
BCG	383	76.6
Hepatitis Vaccine	201	40.2

Source: Prepared by research scholar based on Primary Survey, 2025

Table 1 shows the pattern of vaccination among children in the surveyed families. It is encouraging that 100% of respondents reported that their children received polio drops, reflecting the success of India's long-standing Pulse Polio Programme. However, coverage for other essential vaccines remains comparatively low. Only 24.8% of respondents reported that their children had received pneumonia vaccines, while 79.6% had received tetanus injections, and 76.6% reported BCG vaccination. 40.2% stated that their children were vaccinated against hepatitis. The data points to uneven vaccination coverage in slum areas, primarily due to lack of awareness, irregular healthcare access, and occasional negligence by health workers. Some parents also avoid visiting hospitals due to long waiting times, loss of daily wages, or misconceptions about vaccine safety. This inconsistency in immunization coverage highlights the urgent need to strengthen community level health education and door-to-door vaccination campaigns, especially targeting underprivileged and migrant families.

III. BIRTH PLACE OF CHILDREN IN THE SLUM

Table 2 reveals the preferred locations for childbirth among respondents' families. A majority (54.4%) reported that deliveries occurred in civil hospitals, while 20.2% preferred private hospitals, indicating a shift toward institutional delivery practices. However, a significant 25.4% of respondents still reported home births, which remain a concern for maternal and child health.

Table 2: Birth Place of Children in the Family

Birth Place of Children	No. of Respondents	Percentage
Civil Hospital	272	54.4
Private Hospital	101	20.2
Home	127	25.4
Total	**500**	**100.0**

Source: Prepared by research scholar based on Primary Survey, 2025

While institutional deliveries are gradually increasing due to government initiatives like Janani Suraksha Yojana (JSY) and LaQshya, home deliveries persist mainly due to poverty, traditional beliefs, lack of awareness, and limited accessibility to healthcare facilities. In some cases, cultural norms and the dominance of traditional birth attendants continue to influence women's preferences. Although around 80% of families now prefer hospital deliveries, one-fourth still rely on home births, which increases risks of infection, hemorrhage, and neonatal complications. Studies (NFHS-5, 2019-21) confirm that institutional deliveries reduce neonatal mortality significantly compared to home births. Thus, further strengthening maternal health outreach in slum areas is essential for ensuring safe motherhood and child survival.

IV. CAESAREAN DELIVERIES - A RISING TREND

Table 3 presents data regarding the medical methods of childbirth among respondents. It reveals that 95 percent of the respondents reported normal deliveries, while only 5 percent experienced caesarean sections. Globally, the World Health Organization (WHO) recommends that caesarean births should not exceed 15 percent of total deliveries.

Table 3: Method of Delivery of Child

Method of Delivery of Child	No. of Respondents	Percentage
Normal Delivery	475	95.0
Caesarean Delivery	25	5.0
Total	**500**	**100.0**

Source: Prepared by research scholar based on Primary Survey, 2025

The findings from this survey indicate that the selected slum areas are far below this threshold, suggesting a preference for natural childbirth. This may be attributed to limited access to expensive private hospitals, traditional beliefs about childbirth, and a lack of medical intervention facilities in nearby health centres.

Although a lower rate of caesarean delivery is medically desirable when unnecessary interventions are avoided, it may also reflect inadequate availability of emergency obstetric care for women who genuinely need it. Thus, while the statistics appear ideal, they may also point to challenges in access to specialized maternal health services for economically weaker families.

V. MANAGEMENT OF HEALTH EXPENSES

Table 4 presents how respondents manage their health related expenses. The data shows that 70 percent of respondents rely on their savings for medical treatment, while 30 percent depend on borrowing from relatives or friends. A significant 80 percent of respondents reported complete dependence on government hospitals for healthcare needs.

Table 4: Management of Health Expenses

Management of Health Expenses	No. of Respondents	Percentage
Through Savings	350	70.0
Borrow from Relatives or Friends	150	30.0
Totally Dependent on Government Hospitals	400	80.0
Total (Multiple Responses)	**500**	—

Source: Prepared by research scholar based on Primary Survey, 2025

This clearly highlights the economic fragility of slum dwellers, who cannot afford private healthcare. The overdependence on government hospitals reflects both affordability issues and trust in free medical services, even though such facilities often lack quality infrastructure, timely services, and specialist doctors. Strengthening public healthcare facilities, particularly in slum areas, is crucial for improving overall health standards and ensuring equitable access to essential medical services.

VI. TYPE OF HEALTH CARE AND FATALITIES IN THE FAMILY

Table 5 demonstrates the preferred healthcare options among respondents. A majority (62 percent) visit civil hospitals for treatment, while only 6.6 percent can afford private hospitals. Around 11.6 percent purchase medicines directly from pharmacies without prescriptions, and 19.8 percent rely on traditional healers or home remedies (Figure 1).

Table 5: Type of Hospital for Health Care

Type of Hospital / Health Care Source	No. of Respondents	Percentage
Civil Hospital	310	62.0
Private Hospital	33	6.6
Pharmacist / Medicine Shop	58	11.6
Home Remedies / Traditional Healer	99	19.8
Total	**500**	**100.0**

Source: Prepared by research scholar based on Primary Survey, 2025

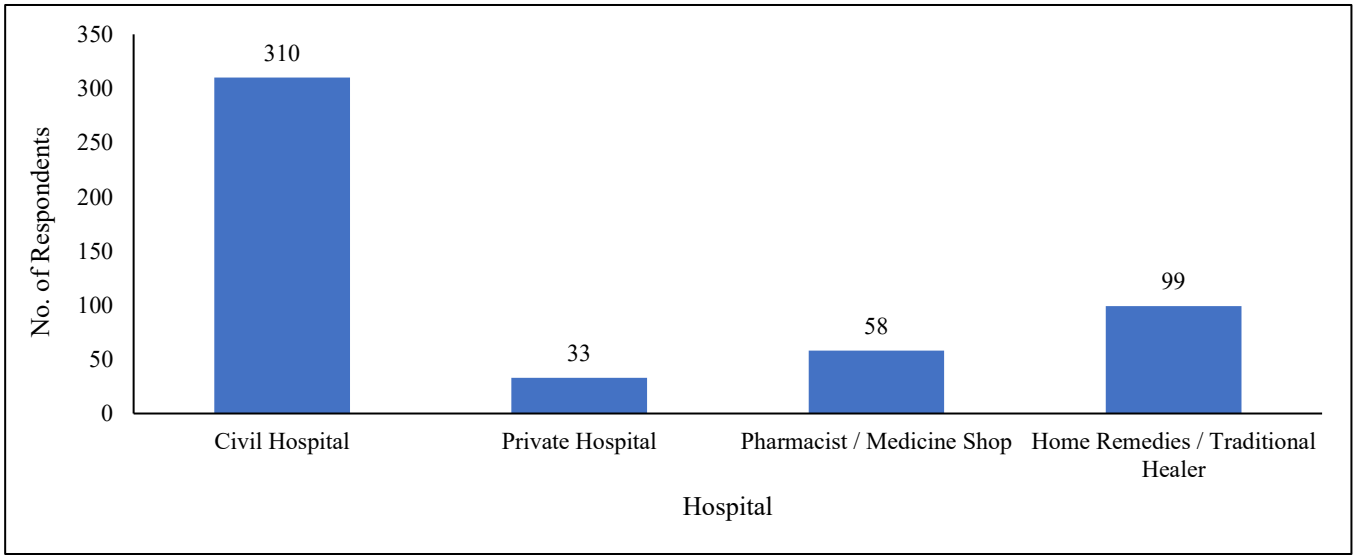

Fig.1: Type of Hospital for Health Care

Source: Based on table 5

Such practices indicate a concerning trend of self-medication and dependence on unqualified practitioners, often driven by economic constraints, limited awareness, and long waiting hours at government hospitals. These behaviours can lead to complications, delayed treatment, and even fatalities in severe cases. The findings highlight an urgent need for awareness campaigns on safe medical practices, improved public healthcare delivery, and stricter regulation of over the counter medicine sales.

Healthcare and hygiene practices in slum settlements are shaped by complex socio-economic realities. The data across these tables reveals that while the majority of respondents attempt to maintain hygiene and seek medical care, their efforts are often hindered by poverty, inadequate infrastructure, and limited awareness.

The overwhelming preference for normal deliveries, though medically desirable, must be viewed with caution, it may also signify restricted access to modern obstetric facilities. The presence of differently abled persons and their inadequate healthcare further reflect the marginalization of vulnerable groups. Most families lack savings or insurance coverage, leaving them dependent on government health schemes or informal borrowing networks.

Self-medication and reliance on traditional healers remain widespread, indicating a combination of cultural continuity and economic compulsion. Despite the availability of

government hospitals, their quality and accessibility remain questionable. Slum dwellers, therefore, oscillate between affordability and accessibility, often compromising their health and well-being. In essence, the findings call for policy interventions that focus on strengthening primary healthcare systems, ensuring consistent doctor availability, and conducting health awareness drives tailored for marginalized urban populations. Providing affordable insurance coverage and community based rehabilitation for differently abled individuals could significantly uplift the overall health profile of slum residents.

Table 6: Fatality in the Family Due to Financial Constraints

Causality (Deaths in Family)	No. of Respondents	Percentage
One	173	34.6
Two	52	10.4
Four	0	0.0
No Such Death	275	55.0
Total	**500**	**100.0**

Source: Prepared by research scholar based on Primary Survey, 2025

Table 6 highlights the fatalities reported by families due to lack of financial resources for timely or proper medical treatment. The findings reveal that 34.6 percent of households experienced one death in their family linked to financial hardship, while 10.4 percent of households lost two members under similar circumstances. The remaining 55 percent did not report any fatality caused by economic constraints. Thus, nearly 45 percent of the surveyed families have lost a family member primarily due to poverty-related treatment issues. This figure represents a serious social and public health concern. It indicates that, despite government welfare schemes and hospital facilities, a large proportion of slum residents still face preventable deaths because they cannot afford medical expenses, delay seeking treatment, or rely on unqualified practitioners.

Such data emphasizes the urgent need for healthcare reforms and income generation measures for slum dwellers. Improving accessibility to emergency medical services, providing free essential medicines, and implementing targeted health insurance coverage for urban poor families can reduce mortality caused by financial inability to seek treatment.

VII. FREQUENCY OF FAMILY SLEPT WITHOUT FOOD

Table 7 shows the frequency with which slum families had to sleep without food. Data indicates that 6.6 percent of households reported fasting involuntarily for an entire day due to lack of food, while 5.6 percent went without one meal in a day. Additionally, 2.8 percent stated that they had experienced hunger on multiple occasions. However, 85 percent of the respondents reported that they have not slept without food, indicating some level of food security within a majority of the families.

Table 7: Number of Times Family Slept Without Food

Frequency of Sleeping Without Food	No. of Respondents	Percentage
Whole Day	33	6.6
Without One Meal	28	5.6
Many a Times	14	2.8
Never	425	85.0
Total	**500**	**100.0**

Source: Prepared by research scholar based on Primary Survey, 2025

Despite this, the fact that nearly 15 percent of families have faced hunger at some point is deeply concerning, especially in an era when the Right to Food is recognized as a fundamental right under Article 21 of the Indian Constitution. These figures not only represent material deprivation but also psychological distress among families who live in constant uncertainty about their next meal.

Hunger among slum populations also undermines children's health, learning capacity, and overall well-being. Poor nutritional intake contributes to higher susceptibility to diseases, stunted growth, and fatigue, further perpetuating the cycle of poverty and malnutrition. To address these challenges, the government and civil society must ensure that no family is left out of food welfare programs. The introduction of urban nutrition missions, expansion of anganwadi services, and door-to-door distribution of essential food grains can significantly reduce food insecurity in slum settlements.

VIII. SUBSTANCE USE AND ADDICTIVE HABITS

In many economically disadvantaged households, the consumption of tobacco, alcohol, and other addictive substances is surprisingly widespread, despite persistent financial hardship. The prevalence of such behaviours reflects both social and environmental factors that influence household decision making and coping strategies. Financial stress, coupled with limited recreational options and chronic exposure to urban hardships, often leads adults to use substances as a means of temporary relief or escape. In turn, this behaviour can have cascading effects on family dynamics, household expenditure, and overall well-being.

Youth in slum areas are particularly vulnerable to developing addictive habits due to a lack of adequate parental supervision, weak community monitoring, and exposure to antisocial influences within their immediate environment. Peer pressure, informal social networks, and interactions with older community members who engage in substance use further reinforce these behaviours.

Table 8: Type of Addiction in the Family

Type of Addiction	No. of Addicts	Percentage
Tobacco	173	34.6
Beedi/Cigarette	418	83.6
Alcohol	250	50.0
Other Drugs	33	6.6
No Addiction	74	14.8
Total (multiple responses)	—	—

Source: Prepared by research scholar based on Primary Survey, 2025

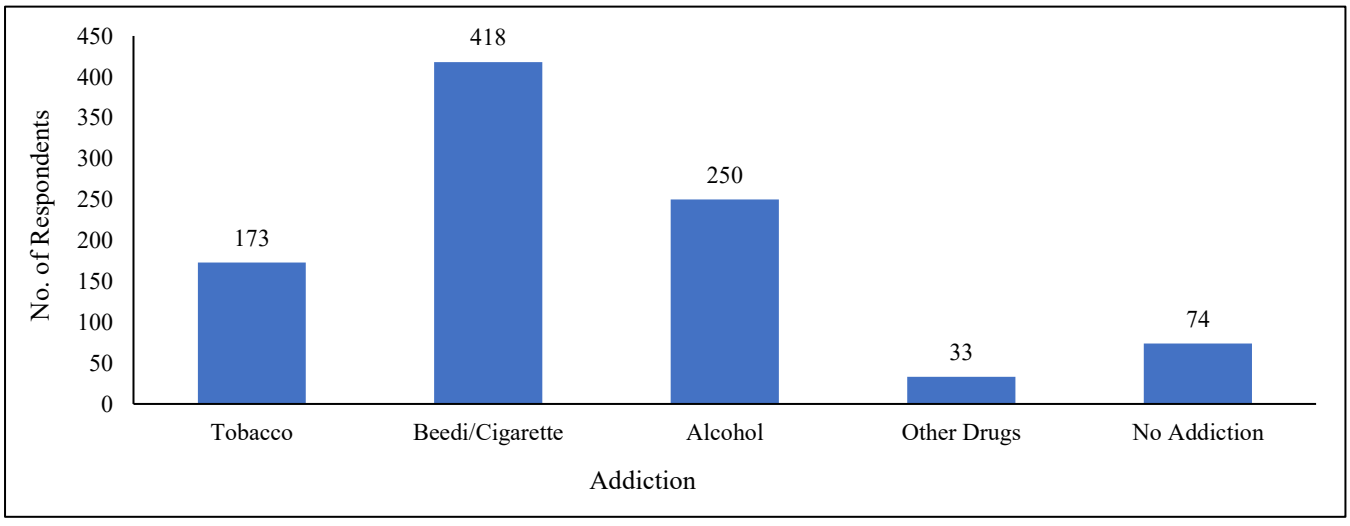

Fig.2: Type of Addiction in the Family

Source: Based on table 8

Additionally, the portrayal of smoking, drinking, and other substance related behaviours in popular media and entertainment contributes to their normalization, making such practices appear socially acceptable or aspirational among urban slum populations. The combined effect of these factors not only increases the risk of addiction but also exacerbates health disparities, reduces productivity, and perpetuates cycles of poverty and social vulnerability within these communities. Table 8 presents a detailed overview of substance use within households in the surveyed slum areas, revealing the prevalence and patterns of addiction. The data show that 34.6 percent of families had at least one member addicted to tobacco, highlighting the widespread nature of this habit even in financially constrained households. Tobacco consumption, in the form of cigarettes or beedis, was reported in as many as 83.6 percent of households, indicating that smoking is deeply ingrained and normalized within the community. Alcohol addiction was identified in 50 percent of households, suggesting that a significant proportion of adults rely on alcohol, which may be linked to stress relief, socialization, or cultural practices. Additionally, 6.6 percent of respondents reported drug use among family members, reflecting the presence of more severe forms of substance dependency in a smaller but critical segment of the population. In contrast, only 14.8 percent of respondents indicated that no member of their household was involved in substance use (Figure 2). These figures underscore a growing trend of substance use in slum communities, pointing to the gradual erosion of traditional social controls and family norms that might otherwise regulate behaviour. Factors such as parental absence, peer influence, economic hardship, and exposure to urban stressors contribute to the normalization of addictive behaviours. The high prevalence of tobacco and alcohol use also has broader implications for public health, household finances, and community well-being, as addiction often exacerbates health risks, reduces productivity, and perpetuates cycles of poverty. Collectively, these findings highlight the need for targeted interventions, including awareness programs, rehabilitation initiatives, and community based strategies to address substance use and strengthen social support networks in urban slum settings.

IX. PERCEIVED MAJOR PROBLEMS AMONG SLUM DWELLERS

Slum residents were asked to rank the main issues affecting their daily lives, such as poverty, unemployment, housing, and civic amenities. Their responses were recorded as follows:

Table 9: Problems Identified by Respondents

Rank	Type of Problem	No. of Respondents	Percentage
1.	Poverty	451	90.2
2.	Unemployment	426	85.2
3.	Inadequate Housing	377	75.4
4.	Lack of Water Supply	250	50.0
5.	Poor Sewage Facilities	179	35.8
6.	Rising Crime	129	25.8

Source: Prepared by research scholar based on Primary Survey, 2025

Their responses, summarized in Table 9, provide valuable insights into the priorities and lived experiences of urban slum populations. Poverty emerged as the most pressing challenge, cited by 90.2 percent of respondents, reflecting the pervasive economic deprivation that shapes nearly every aspect of life in these settlements. Unemployment was identified by 85.2 percent of respondents as another critical concern, highlighting the strong link between income insecurity and vulnerability to social and infrastructural hardships.

Housing-related issues were also significant, with 75.4 percent of respondents reporting poor housing conditions as a major problem. This includes overcrowding, inadequate structural quality, and limited access to durable shelter, which exacerbate physical and mental stress for slum dwellers. Inadequate water supply was reported by 50 percent of respondents, pointing to the ongoing challenges of access to safe and reliable drinking water despite partial integration into municipal services. Additionally, 35.8 percent of respondents highlighted the absence of proper sewage systems, indicating persistent sanitation deficits, while 25.8 percent expressed concerns over increasing crime and insecurity in their neighbourhoods (Figure 3). The overall ranking of issues clearly demonstrates that economic deprivation forms the root cause of most challenges faced by slum residents. Poverty and unemployment drive reliance on informal settlements, constrain access to adequate housing, and

limit the capacity of households to secure basic civic amenities. Moreover, these economic constraints often intensify vulnerability to health risks, social exclusion, and insecurity, creating a cycle of deprivation that is difficult to break. The findings emphasize the need for comprehensive urban development policies that prioritize poverty alleviation, employment generation, housing improvement, and infrastructure provision to address the multi-dimensional challenges faced by urban slum communities.

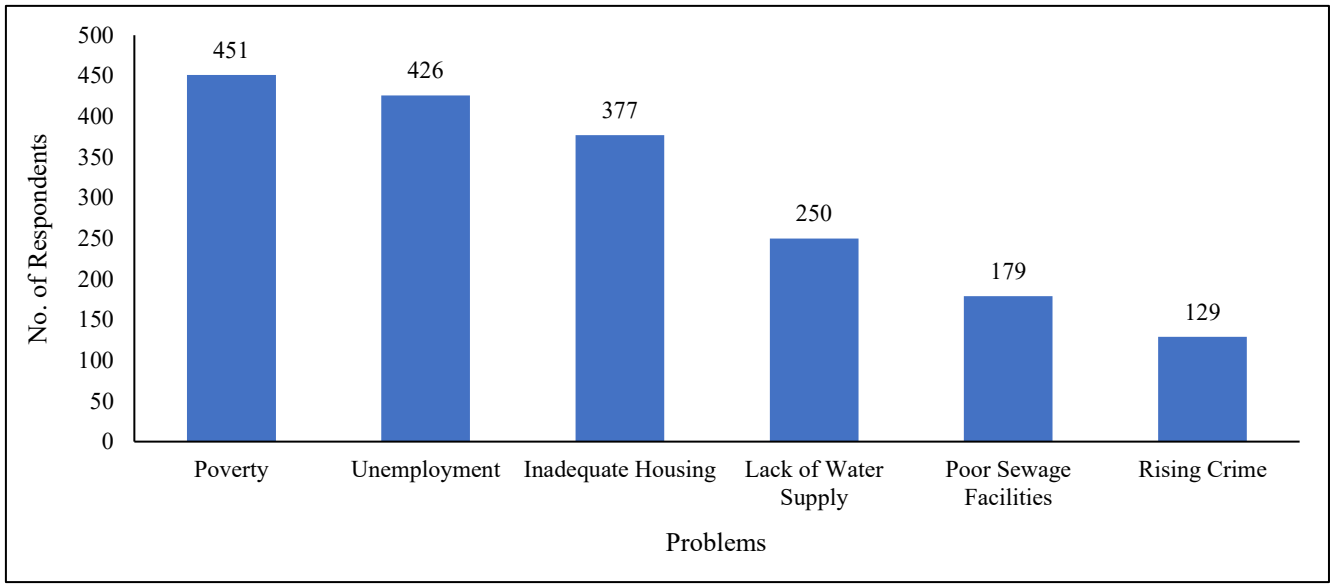

Fig.3: Problems Identified by Respondents

Source: Based on table 9

X. CONCLUSION

The study highlights that urban slums in Sonipat City are marked by persistent socio-economic deprivation, inadequate housing, poor sanitation, and limited access to basic health services, all of which collectively shape adverse health outcomes among slum dwellers. The close interlinkage between environmental conditions and health status underscores how deficiencies in water supply, drainage, and waste management intensify vulnerability to communicable diseases, particularly among women and children. Despite the presence of government health and welfare schemes, gaps in accessibility, awareness, and service delivery continue to limit their effectiveness at the grassroots level.

The findings emphasize the need for an integrated and inclusive approach to urban development that simultaneously addresses housing, infrastructure, public health, and livelihood security. Strengthening primary healthcare services, improving sanitation and water infrastructure, and incorporating slum settlements into formal urban planning processes are crucial for reducing health inequalities. Overall, the study contributes empirical evidence from a rapidly growing city in the Delhi NCR and reinforces the importance of context-specific, people centred policies for achieving equitable and sustainable urban development.

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