

CONSUMPTION EXPENDITURE AND POVERTY'S RECKLESS EFFECTS ON DELHI SLUM CHILDREN'S HEALTH

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Abstract

Rapid urbanisation in the 20th century contributed to the expansion of slums. More than 60% of urban populations in the world's least developed countries live in slums, including hundreds of millions of children. Extreme poverty, overcrowding, poor water and sanitation, substandard housing, a lack of access to necessary health and education services, and a high possibility of being victims of crime are only some of the social and health dangers faced by children living in slums. Little is known about how living in slums may affect the health of children and teenagers, despite the severity of the issue. All too often, intraurban discrepancies are overlooked in statistics that demonstrate overall improvements in mortality and health outcomes in urban areas. Children living in slums have a higher baby and under-5 mortality rate than children living in non-slum areas, according to the scant research that exists. Malnutrition, infectious diseases, and lack of immunisations are common among children. Women giving birth in slums are less likely to have access to prenatal care and medical professionals. Adolescents are more likely to engage in risky behaviour, such as having their first sexual experience at a younger age and becoming infected with HIV. The effects of this type of upbringing in early life on later health-related behaviours (such as nutrition and exercise) and on the development of chronic, non-communicable diseases including obesity,

heart disease, and mental illness are also little understood. For paediatricians and other advocates for children's health, a top focus is learning more about and improving conditions in urban slums.

Keywords: Children, Child Development, Poverty, Resources, Skills

INTRODUCTION

Growing up in the city is becoming the norm for children and teenagers. Around 90% of the world's urban population growth is happening in the world's least developed countries¹. Urban areas in the world's poorest countries are seeing a rise in their numbers because of the influx of young people². Slums, or informal or illegal settlements, have arisen as a result of the fast and uncontrolled expansion of cities. These low-income neighbourhoods can expand at a rate twice that of the rest of the city. Nearly a third of the world's population now resides in urban slums, the majority of whom are low- and middle-income citizens, and among whom are hundreds of millions of children^{2,3}.

There is a lack of information about how slum life may affect the health of children and adolescents, despite the fact that development and slums pose serious hazards to public health^{4,5}. Five out of six studies demonstrate that child health is better in urban areas than in rural areas. Child health statistics in cities, however, often rely on aggregated data that may fail to represent major intraurban inequalities⁷ due to the predominance of slums with large numbers of undocumented persons. The limited research that was done found that the health of children and teenagers living in slums was lower than that of their counterparts living in non-slum districts of the same city. In this overview, we present the current state of research on children's health in urban slums and discuss the implications this information may have for paediatricians and others concerned with children's health around the world.

About four percent of India's GDP goes towards healthcare. However, federal, state, and local governments spend only 1% of GDP on health care, with the remaining 3% coming from private and international sources. Public funding accounts for only around 20% of total health expenditure, with families contributing another 70%, virtually entirely in the form of out-of-pocket (OOP) costs. Those working in the official sector, who constitute a majority in India, are the most likely to receive reimbursement of any kind. There are drawbacks to such high

amounts of OOP spending by families. While other people have much less access to medical care, those who do seek treatment often confront the crushing cost of that care, putting them in peril of poverty. Recent years have seen intensive research on how sickness affects the quality of life, particularly for the poor. The Rashtriya Swasthya Bima Yojana (RSBY), which was formally launched in October 2007 and became operationalized from April 2008, was the first concrete move in recognising and tackling the situation from a policy viewpoint. In the next five years, the scheme plans to give all below poverty line (BPL) households in the unorganised sector with cashless health insurance coverage of up to Rs 30,000 via smart cards. The plan is to gradually expand the scheme to all 600 districts across the country, where an estimated six crore BPL workers live and work. There have been 25 states and union territories that have taken attempts to adopt the RSBY, and as of May 31, 2011, over 2.34 crore smart cards had been issued. Services under this programme are limited to in-home hospitalisations, as is the case with the vast majority of health insurance plans. However, non-hospitalized morbidity is more common and typically incurs lower treatment costs than hospitalisation does. In addition, the latest NSS round on morbidity (2004) demonstrates that, because of long wait times at public facilities, patients often choose private service providers for outpatient care. In urban India, 65 percent of casual labour households (who could be presumed to be one of the beneficiaries of the proposed system) seek out private care for non-hospitalized illnesses. In this context, the results of a case study of slum households in south Delhi are presented.

BACKGROUND: CHILDREN'S HEALTH AND SLUMS

Throughout the majority of the twentieth century, urban centres were linked to better child health and lower death rates than their rural counterparts^{6,8}. To maximise its impact, Chadwick's sanitary revolution focused on improving access to clean water and sanitation, immunisations, antibiotics, and obstetric and gynaecological care for expecting mothers. Living in a city offered my family and I better job prospects, better access to nutritious food, and better medical care⁹. While urban health statistics are generally positive, some authors have drawn attention to significant differences between countries and even within cities, as well as the possible influence of slums^{6,10,11}.

Rapid and unplanned urbanisation, especially in the last 50 years, is largely responsible for the development of slums. As cities expanded economically, immigrants from disadvantaged rural areas followed in search of better opportunities.

Slums provided low-cost, readily available accommodation in cities that promised better access to public amenities and more reliable supplies of food and water¹². Poorly prepared economies in transition, poor urban planning, and overburdened or inattentive political structures all played a role in fueling the tandem expansion of cities and slums¹³. Poorly built and home to anywhere from thousands to millions of people, slums can be found anywhere from the heart to the outskirts of cities, on floodplains to hillsides. See figure 1. They share at least one of the following five characteristics, as operationally defined by the United Nations: unstable residential status; poor structural quality of housing; overcrowding; inadequate access to safe water, sanitation, and other facilities; and inadequate housing¹².



FIGURE 1: DELHI SLUM AREA

The United Nations (UN) uses a combination of physical and legal characteristics, including extreme poverty and appallingly low standards of living, to identify slums. The social disadvantages faced by children and their families are exacerbated by the lack of safe public transportation, policing, playgrounds, and recreational facilities in these areas¹². Some of the social issues that affect these regions include:¹³ broken homes, low levels of education,

economic or sexual exploitation, and the trafficking and abuse of alcohol and drugs. Unemployment or work in the informal economy is common, and the threat of physical harm, homelessness, or calamity is always present. They frequently lack access to social buffers such as tradition, extended family, and community support^{14,15}

The health of children and teenagers may be affected in numerous ways by social factors. Childhood experiences can have long-lasting effects on adult health or put people on paths that shape how healthy they turn out to be^{16,17}. However, there is a lack of evidence supporting the link, which is especially true in complex slum environments. Associations can be seen at the individual, household, and neighbourhood levels, and factors can be either immediate (like uncovered sewers) or more 'upstream' and structural (like geography or government policies)^{18,19,20}. Potentially harmful health effects of living in slums are summarised in Table 1. In the next section, we will discuss what is known regarding the relationship between the conditions of slum life and a variety of negative health outcomes for children living in these environments.

Characteristic	Physical/legal outcome	Potential adverse health outcome
Insecure residential status		
▶ Lack formal title deeds to land or residence	▶ Threat of eviction	▶ Poor access to health sector
▶ No proof of tenure	▶ Exposure to hazardous environments (eg, pollution, flooding)	▶ Low service utilisation
	▶ Lack of access to formal health care infrastructure	▶ Unable to advocate for self
	▶ No data for health service planning	▶ Exposed to accidental injuries
		▶ Poisoning or respiratory diseases, for example, asthma
Poor structural quality of housing		▶ Industrial/polluted areas
▶ Inferior building materials (cardboard, tin, mud, low-grade concrete)	▶ Risk from natural or other disasters (flooding, landslides, fire)	▶ Unintentional injuries
▶ Substandard construction	▶ Poor ventilation	▶ Falls, burns, drowning, electrocution
Overcrowding	▶ Susceptible to collapse	▶ Asthma or infectious respiratory illness
▶ Less than 5 square metres per person	▶ Social stressors	
▶ More than 2 people per room	▶ Facilitates disease transmission	▶ Stress
Inadequate access to safe water		▶ Scabies
▶ Less than 50% have access to household connection, public stand pipe or rainwater collection	▶ Contaminated water	▶ Tuberculosis and other respiratory illnesses
	▶ Privatisation and high cost of water	▶ Diarrhoeal diseases, cholera, typhoid, hepatitis
	▶ Water scarcity	▶ Poor hygiene and bacterial skin infections
Inadequate access to sanitation and other infrastructure		
▶ Less than 50% have public sewer, septic tank, pour-flush latrine or ventilated pit latrine	▶ Increased rat density	▶ Water-borne or vector-borne diseases
	▶ Open or broken sewers	▶ Under-usage of services, maternal health complications, vaccine-preventable diseases
	▶ Inadequate or inappropriate municipal services (eg, waste disposal, policing)	▶ Mental illness
		▶ Drug-resistant infections
		▶ Lack of prevention for non-communicable diseases, for example, HTN, DM

DANGERS TO CHILDREN'S HEALTH IN SLUMS

Mortality

Urban areas have lower death rates than rural areas, according to demographic data, especially for children under the age of five. But in other places where slums are particularly common, such as sub-Saharan Africa, these decreases have stalled⁶. Mortality among children under five is greater in Nairobi than in rural Kenya, where just 5% of the city's population resides in slums, and it has been rising steadily over the past two decades. Child mortality rates are two and a half times as high in Kibera and Mathare as they are in the rest of Nairobi^{21,22}. High child mortality in slums and diverse urban regions with varied mortality based on domicile is not unique to the United States; similar results may be found in Bangladesh and Nigeria^{23,24}. The disparity in urban death rates between various neighbourhoods is not limited to underdeveloped countries, as evidenced by the correlation between residential segregation and newborn mortality rates for black Americans²⁵.

Communicable diseases

Flooding, inadequate water drainage, open sewers, and overcrowding are only a few of the many risk factors for parasitic, waterborne, and vector-borne diseases that are concentrated in slums²⁶. Inadequate hygiene practices along with elevated rates of malnutrition in children contribute to the spread of intestinal parasites and diarrhoeal illnesses including persistent entero-aggregative *Escherichia coli* diarrhoea²⁷. Babies in slums may have a 4.8-fold higher risk of dying from diarrhoea if they do not have access to piped water^{28,29}. Among children under the age of seven in New Delhi, 50% of deaths are caused by diarrhoea^{27,30}. In addition, young children bear the brunt of cholera's impact in these city centres³¹. Children living in slums are especially vulnerable to mosquito-borne and other vector-borne diseases like dengue, which are aggravated by the substandard housing and dense populations found there³². School absences, lower academic performance, and impaired cognitive development have all been linked to chronic or recurrent illness in children caused by infectious diseases³³.

Vaccine-preventable and respiratory diseases

Outbreaks of vaccine-preventable diseases including pertussis, measles, & diphtheria tend to cluster in areas with poorer vaccination coverage in regions with high population density, home overcrowding, and poor nutrition^{34,35,36}. Several studies show that there is a lack of health centres and immunisation activities in close proximity to slums, leading to lower rates of complete immunisation there than in other urban areas^{37,38}. Poor vaccination rates in slums are caused in part by mothers' lack of knowledge and education³⁹. In Niger, 35% of the population was vaccinated compared to 86% in regions of the city that were not shantytowns⁴⁰. Other respiratory infections, such as respiratory viruses (eg, SARS, H1N1, N meningitidis), and tuberculosis, may be spread more easily under slum conditions due to droplet or aerosol transmission. Children in Manila's squatter colonies, for instance, have a ninefold higher risk of contracting tuberculosis than their urban counterparts.

HIV/AIDS

Previous research had indicated that urban poverty mitigated the danger of contracting HIV⁴¹. According to recent data that allows for greater statistical precision, the risk of HIV infection is much higher among the urban poor, especially among women⁴². Girls between the ages of 10 and 14 in Kenya's slums are more likely to have had sexual relations (14.8% vs. 8.7%) than their peers in Kenya's non-slum districts⁴³. Youth between the ages of 15 and 19 living in slums had an HIV prevalence that was 5.0% greater than that of youth living in non-slum urban regions (0.6%). It is possible that factors such as a lack of parental or community supervision, the effect of community norms, and the scarcity of recreational opportunities for teenagers in urban poor areas increase their vulnerability⁴⁴. Poverty and living in informal settlements have been associated to a lack of access to antiretroviral medication and subpar prenatal care in areas with a high HIV prevalence⁴⁵. Finally, the effects of HIV/AIDS on children are exacerbated in households where members are struggling with disease and poverty⁴⁶.

Non-communicable diseases

It is widely acknowledged that malnutrition is a significant factor in child mortality worldwide (by as much as 56%), particularly in informal settlements^{47,48}. Children living in slums have a higher risk of being undernourished and stunted than their metropolitan peers⁴⁹. These results could be the result of chronic or recurrent malnutrition or a lack of a particular nutrient (e.g.,

calories, protein, micronutrients)⁵⁰. Children living in slums in Nairobi have a 57% higher frequency of stunting than children living in other parts of urban Kenya (28%). The results are the same in Ethiopia, Niger, and India⁵¹. Children living in slums are more likely to be malnourished if their mothers do not receive an education or do not nurse. Mothers in informal settlements may not breastfeed because of economic pressures, a lack of breastfeeding support, or a decline in breastfeeding practises owing to modernization. Slum dwellers' subpar diets may have far-reaching consequences for their health and education⁵². Slum populations have both under- and over-nutrition, and there is evidence that nutritional stunting in children is linked to obesity⁵³⁻⁵⁶. Due to a lack of healthy dietary alternatives and recreational opportunities, children living in informal settlements are at a greater risk of becoming overweight^{57,58}. and suffer from a greater prevalence of obesity-related diseases such obstructive sleep apnea⁵⁹.

Accidental and non-accidental injuries

In informal settlements, both the man-made and natural environments pose significant risks to children. The 2010 earthquake in Haiti provided a stark illustration of the vulnerability of slums to natural catastrophes caused by the interplay of inadequate building materials and practises, high population density, and unstable topography⁶⁰. One-third of disaster casualties may be children because of how easily they can be hurt or killed⁶¹. Asthma is just one of many negative health effects that pollution and environmental circumstances have on children^{62,63,64}. Family resilience, including the ability to respond to and recover from disasters, is hampered by housing instability. As a result, children are more likely to sustain injuries from things like falling, drowning, being electrocuted, being exposed to toxins, and being involved in car accidents, the latter of which is the second largest cause of mortality for children aged 5-14 around the world. Children and teenagers living in slums face an additional major risk: violence^{65,66,67}. For instance, in Brazilian slums, teenage mortality rates are significantly higher than in more affluent areas of the same towns⁶⁸.

Mental illness

The children and their families living in slums encounter a number of challenges on a daily basis, including overcrowding, noise & environmental pollution, interpersonal and community violence, a lack of formal employment opportunities, and limited future prospects. The people living in slums are quite vocal about the detrimental effects these strains have on their daily

life⁶⁹. A WHO literature analysis indicated that slum residents have greater rates of mental illness and suicide than other urban residents, suggesting that there are strong linkages between the characteristics of slum life and mental health⁷⁰⁻⁷². Children who grow up in slums are at increased risk for developing emotional and behavioural issues, as well as underachieving academically. Children living in slums are overrepresented in the child labour force, putting them at risk for a variety of adverse outcomes include workplace injuries, physical and other types of abuse, and vehicular accidents. Also, slum youth, especially children and teenagers, are more vulnerable to sexual exploitation.

DATA COLLECTION AND RESEARCH

It is important to collect detailed information about urban areas. Censuses and city data that are disaggregated to include slums often exclude the most marginalised segments of society. Slums that were not counted in the 2011 Indian census had a higher rate of malnutrition than those that were counted. There are a number of approaches that may be explored to achieve a more precise count of these people, including increased or targeted data collecting, over-counting of some urban areas, and standardising metrics or gradients of socioeconomic status in areas of generalised poverty. How slum conditions affect children's health at the individual or household level, as well as the potential consequences of the surrounding community, are among the many pressing research questions that have yet to be answered.¹⁸ Research on slum-upgrading projects has been impeded by poor study designs and contradictory health and social effects. Additional research is needed to identify the most effective strategies for improving child health, increasing utilisation by families, and employing the most cost-effective delivery mechanisms.

FUTURE DIRECTIONS AND IMPLICATIONS

Parents, paediatricians, and public health advocates all face formidable challenges as a result of slum expansion because of the effects it has on children. Many improvements will not be possible without a shift in political and economic policy, as well as the addressing of larger structural or "upstream" challenges. If the issue is well acknowledged, lobbying and actions to eliminate health inequalities among urban children may be feasible in the short term. While it's crucial to invest in children's healthcare facilities, repairing the youngster won't be the only solution. When moms and families are healthy, they are better able to give their children with

opportunities for growth and development, such as a high-quality education and a safe place to play. Water-borne infections and their related costs could be mitigated through investments in slum infrastructure such water and sanitation systems, rubbish collection, and drainage. Paediatricians may need to lobby for this in the government and political arenas. Children in informal settlements, like children elsewhere, have a high need on their mothers' health. Children born to mothers in slums who received prenatal care and skilled delivery support were more likely to be properly immunised, according to the available evidence. Slum moms and their families' access to affordable healthcare is significantly connected with positive child health habits like immunisation uptake.

CONCLUSION

There is evidence to suggest that the health benefits of city life for children are diminished in urban slums. The urban health benefit may no longer be relevant in today's diverse cities, especially in the context of urban poor neighbourhoods. Slums have worse outcomes for children on several measures of health compared to nearby urban regions or even rural areas. Extreme poverty, substandard housing and sanitation, and negative social factors all converge in slum environments. Long-term improvements in slum children's health will depend critically on addressing demographic, socioeconomic, and political variables. The analysis sheds light on a number of key areas that could be immediate targets for change to reduce the negative impacts of slums on children's health. Expanding efforts to monitor children's health in slum settings and tackling socioeconomic determinants of disease must be prioritised by paediatricians and others worldwide who are dedicated to improving the health of children.

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