

Exploring the Health Effects of Overcrowding and Infectious Disease Transmission in Hamar-Wayne District, Somalia

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Abstract: This paper explores the health effects of overcrowding and infectious diseases in Hamar-Wayne District, Mogadishu, Somalia. In Somalia, police instability, displacement, and high population density in informal settlements have occurred as a result of decades of political instability, displacement, and rapid urbanization. A qualitative descriptive design was followed, which is guided by the Social Determinants of Health framework and the disease transmission model. The sample size comprised 30 participants (household heads, caregivers, community elders, youth representatives and local health workers) to obtain lived experiences and perceptions of the health outcomes in congested households. The results showed that due to overcrowding, the rate of spreading infectious diseases due to high human contact, inadequate ventilation, poor sanitation and lack of access to clean water is greatly amplified. The most reported health problems were respiratory infections, gastrointestinal diseases, waterborne diseases, and skin infections. Psychological stress and anxiety, as well as lowered quality of life, were also caused by overcrowding, albeit indirectly undermining immunity. The research concludes that overcrowding is one of the key factors in the spread of infectious diseases and health outcomes in Hamar-wayne district. The recommendations include the improvement of housing conditions, the development of water infrastructure and sanitation, the empowerment of health provision, and the enhancement of community hygiene education to minimize the disease burden.

Keywords: Overcrowding, Infectious Diseases, Respiratory Infection, Gastrointestinal Diseases, Skin Infection, Psychological Health, Somalia.

1. INTRODUCTION

The fact of overcrowding is also acknowledged as one of the largest social and public health issues, especially in conflict-stricken and low-income countries. The World Health Organization defines overcrowding as a situation in which the number of occupants in a dwelling exceeds the available space, and this situation interferes with privacy, hygiene, and general health standards. Overcrowding in weak states is closely connected to displacement, poverty, and rapid urbanization, like in Somalia. The conflict, environmental crises, and cycles of displacement in Somalia have been long-term since the fall of the central government in 1991. These have led to the fast growth of informal settlements in the urban districts such as Hamar-wayne district in Mogadishu. Most households in Hamar-wayne district are extended-family setups occupying small residential structures made of temporary materials that lack proper ventilation systems, sanitation, and access to safe water.

In Somalia, the infrastructure, health systems, and housing development have been undermined by decades of political unrest after the fall of the central government in 1991. Rural-urban migration and internal displacement have resulted in increased pressure on the population in urban areas like Hamar-wayne district. Families live in tiny spaces, whereby at times, over six to ten people are living in a room or two. Crowded places are the perfect means of transmission of infectious diseases. Tuberculosis, measles, acute respiratory, and diarrheal diseases are diseases that are more easily transmitted in crowded homes. It has been found that house crowding is closely linked to respiratory illnesses and gastrointestinal disorders (Baker et al., 2013). These risks are further exacerbated by limited access to clean water or sanitation.

Although there has been an increased understanding of overcrowding as a health determinant, little qualitative research has been conducted to understand the lived experience and perceived health impacts of overcrowding in Hamar-Wayne district. This paper thus examines the effect of congested living conditions on the spread of infectious diseases and the health status of the district.

Crowded living places promote the spread of infectious diseases by exposing people to more physical human contact, contact with common surfaces, and inadequate sanitation facilities. In very populated environments, respiratory infections, tuberculosis, measles, diarrheal diseases, and some illnesses spread through vectors like malaria are more likely to spread. It has been shown that housing density strongly influences trends in communicable diseases, especially in humanitarian and post-conflict settings (Baker et al., 2018).

In Somalia, internal displacement and spontaneous urbanization have increased over the last decades due to armed conflict, political instability, climate shock and economic vulnerability. The capital city of Mogadishu has had a high rate of population increase

through rural-urban migration, displacement of people by drought and war-torn areas. Hamar-weyne district and other districts have been receiving a high population of internally displaced persons (IDPs), which has led to informal settlements with high population density, poor infrastructure, and inadequate health services.

Crowded housing puts a person in a situation where the spread of infectious agents is easy. The proximity is physical, which enhances the transmission of respiratory pathogens in droplets, spreads fecal-oral diseases through sharing of water sources and poor drainage systems breed vectors. In addition to the physical disease, overcrowding can lead to the development of psychological distress, chronic stress responses, and weakened immunity.

Despite growing recognition of overcrowding as a determinant of health, limited research has explored the lived experience and perceived health impacts of overcrowding in the Hamar-Wayne district, Somalia.

Therefore, this study aims to explore the health effects of overcrowding and infectious disease transmission in Hamar-Wayne district, Banadir Region, Somalia.

2. LITERATURE REVIEW

This part reviews existing literature related to overcrowding and its impact on health, particularly the transmission of infectious diseases. It discusses key theoretical frameworks such as the Social Determinants of Health and the chain of infection model, and examines previous studies on respiratory, gastrointestinal, waterborne, skin, and psychological health effects associated with overcrowded living conditions.

2.1 CONCEPT OF OVERCROWDING

Overcrowding is not only a housing problem but also a health problem and a public health problem. It is usually quantified in the proportion of the number of people living in a room or in a square meter. Research has revealed that overcrowding is intensively linked with exposure to infectious agents and particularly respiratory pathogens (Baker et al., 2018).

The causes of overcrowding in low-income environments are usually poverty, displacement, housing scarcities and informal urban development. Humanitarians often deal with internally displaced people (IDPs), who are usually crowded in camps or settlements and cannot engage in physical distancing. Overcrowding can be defined as an occurrence when the occupancy of a dwelling is more than the space that is safe, healthy and comfortable to live. The World Health Organization says that overcrowding leads to health risks because of close contact, poor ventilation, and poor sanitation. Usually, housing standards are used to determine overcrowding in terms of people per room or square meter (Mohaamed, 2026).

According to the United Nations Human Settlement Programme, adequate housing can accommodate enough space and security, as well as include access to basic needs like water and sanitation (UN-Habitat, 2020). Physical and psychological health outcomes can be experienced in a situation where these standards are not met. Crowding occurs in low-income communities, refugee settlements, and the informal settlements of cities. In weak countries like Somalia, local displacement and poverty are the major causes of high population density.

2.2 HEALTH EFFECTS AND OVERCROWDING

2.2.1 Overcrowding and Respiratory Infections.

Respiratory infections are one of the most prevalent diseases that are linked to overcrowding. Intimate contact heightens the chances of the transmission of droplets. Infection of tuberculosis, especially, has been closely associated with housing conditions of overcrowding and poor ventilation (Lönnroth et al., 2009). The outbreaks of measles are also common in congested communities with low vaccination levels. According to the United Nations Children's Fund, the settlements with poor immunization programs continue to be a high-risk area for vaccine-preventable diseases because of the high population density there.

Tuberculosis is one of the most disease that is overcrowding-sensitive in the world. According to the World Health Organization, congestion in housing leads to the transmission of TB, particularly in low-income communities (WHO, 2022). On the same note, viral diseases like influenza and measles quickly transmit in crowded homes because of space and the sharing of air.

2.2.2 Overcrowding and Gastrointestinal Diseases.

The chances of gastrointestinal diseases are increased due to overcrowding, since it is usually accompanied by poor sanitation, lack of water, and poor disposal of waste. The transmission of pathogens in contaminated food, water, and surfaces becomes frequent in overcrowded regions (World Health Organization, 2017). The common diseases in overcrowded communities are usually diseases like diarrhea, cholera, typhoid fever, and intestinal parasitic infections. These diseases propagate via the fecal-oral pathway, particularly in areas with a high level of hygiene deficiency and a high population density with a limited number of sanitation facilities (Prüss-Ustün et al., 2019). Children residing in overcrowded families are at the highest risk because they have lower immunity and lack protection against the infected environments (Troeger et al., 2017).

2.2.3 Waterborne and Sanitation-Related Diseases.

Most of the time, congested settlements do not have adequate sanitation. Communal latrines, impure water supply, and improper disposal of waste products predispose individuals to cholera pathogens, diarrhea, and typhoid fever. The Centers for Disease Control and Prevention identifies the lack of water and sanitation as primary contributors to the occurrence of diarrheal diseases worldwide. Young children below five years are very susceptible to water-borne infections because of the low levels of their immune system and nutrition

2.2.4 Overpopulation and Skin Infection.

Population explosion, especially in overpopulated societies, predisposes them to infectious diseases such as skin infections. Due to overcrowding, there is usually poor sanitation, low access to clean water, and close physical contact between people, which contributes to the spread of skin diseases (World Health Organization, 2018). Infections of the skin, like scabies, impetigo, and fungi, are rife in highly populated populations. The conditions are transmitted by direct skin contact, by means of shared clothing and bedding, as well as bad personal hygiene (Hay et al., 2014). Children and people who live in overcrowded homes are particularly prone since they are likely to be exposed to the disease due to high levels of physical contact (Andrews et al., 2009).

2.2.5 Indirect and Psychological Health Effects.

In addition to infectious diseases, overcrowding may harm mental health. Poor privacy, noise, and social tensions are some of the contributing factors to stress, anxiety, and sleeping disturbances. Stress experienced in the long run may cause a decline in immune power, making one prone to infections (Evans, 2003). Overcrowding can also increase the trauma and social instabilities in conflict-prone zones like Somalia.

2.3 RELATIONSHIPS BETWEEN IMPLICATIONS OF OVERCROWDING ON HEALTH AND INFECTIOUS DISEASE.

Overcrowding and the spread of infectious diseases are closely related. Crowding leads to more human interactions, which facilitates the spread of communicable diseases through droplets, physical contact, and contaminated environments (World Health Organization, 2018). Respiratory diseases like tuberculosis and influenza are easily transmitted in overcrowded houses due to inadequate ventilation and close contact among occupants (Lönnroth et al., 2009).

Gastrointestinal diseases are also associated with overcrowding. Sanitary conditions are poor and there is exposure to fecal-oral pathogens through poor sanitation, common water sources and poor disposal of waste. Such illnesses as diarrhea, cholera, and typhoid are frequent among crowded settlements, where hygiene infrastructure is poor (Prüss-Ustün et al., 2019). Moreover, overcrowded living conditions are also known to cause skin infections, e.g., scabies, fungi and impetigo. These diseases are transmitted by close skin contact and personal possessions, including bedding and clothing (Hay et al., 2014).

Moreover, there is overcrowding, which impacts mental health. Psychological distress, anxiety, and poor immune responses, which result from the lack of privacy, noise, and social stress, make people more prone to disease (Evans, 2003). Displacement and poverty are other contributing factors to these health risks in conflict-affected countries like Somalia.

3. METHODOLOGY

This part outlines the research design and methods used to conduct the study. It explains the qualitative descriptive approach, study area, target population, sampling techniques, and data collection methods. It also describes how data were analyzed to explore participants' lived experiences and perceptions regarding overcrowding and disease transmission.

The study employed a qualitative descriptive research design to explore the health impacts of overcrowding and the spread of infectious diseases in Hamar-Wayne District, Somalia. A qualitative approach was appropriate because it allowed for in-depth understanding of the participants' experiences, perceptions and views regarding overcrowded living conditions and their influence on disease transmission. Descriptive qualitative research is widely used in public health research to give in-depth descriptions of social phenomena from the perspective of the participants (Sadowski, 2000).

The study was conducted in the Hamar-Wayne District, one of the oldest districts in the Banadir region, Somalia. The Hamar-Wayne District experiences high population density resulting from rapid urbanization, rural-to-urban migration, and displacement of people due to conflict, drought and insecurity. Many neighborhoods are characterized by overcrowded housing, informal settlements, poor sanitation and limited access to clean water and health care facilities, making the area particularly vulnerable to the spread of infectious diseases.

The target population comprises households, mothers and caregivers, Community Elders, youth representatives and local health workers with knowledge and experience in housing conditions, community health and disease prevention. These participants were chosen since their experiences would bring a wide range of insight to the role of overcrowding in the transmission of infectious diseases. The sample size consisted of 30 participants, who were selected using purposive sampling based on their knowledge and experience of overcrowding and its health effects. The sample size was judged to be sufficient to ensure data saturation, that is, no new themes were found in the interviews. The data were collected using in-depth semi-structured interviews with open-ended questions, which allowed the participants to share their experiences and perceptions on housing conditions, sanitation, disease transmission and community health challenges.

4. FINDINGS AND DISCUSSION

This Part presents and analyzes the key findings of the study. It highlights the major health issues identified, including respiratory infections, gastrointestinal diseases, skin infections, and psychological stress. The discussion links these findings to existing literature and theoretical frameworks, providing a deeper understanding of how overcrowding influences health outcomes in the study area.

4.1 Findings

The findings of this research study strongly support global evidence that overcrowding is a major risk factor for infectious diseases and transmission. The Social Determinants of Health framework goes further to explain the fact that the outcomes of health are influenced by economic, social, and environmental conditions rather than biological conditions alone.

Infection by respiratory infections was also high in the study. The respondents also noted common occurrences of cough, symptoms of tuberculosis and flu-like diseases, and these were linked to inadequate ventilation and excessive proximity in living.

There were also gastrointestinal diseases. Diarrhea, typhoid and intestinal infections were common incidences of reported cases of the respondents, with the primary cause being access to clean water and lack of good sanitation facilities.

One of the most commonly reported diseases among children is skin infections. The spread of poor hygiene and the sharing of personal things led to diseases like scabies and fungi.

Other psychological impacts of the study included stress, anxiety, and privacy deprivation among the members of the household residing in crowded houses.

4.2 Discussion

The findings confirm that overcrowding is a significant public health determinant that affects the spread of infectious diseases. The findings can be attributed to the Social Determinants of Health framework that highlights that health outcomes are determined by housing and environmental conditions.

This was found to be high in respiratory infections, which is in line with past research that overcrowded housing favors the spread of airborne diseases (Baker et al., 2018). Poor ventilation causes the concentration of infectious droplets and thus increases the risk of infection.

Gastrointestinal disease findings also support global research results those diarrheal diseases are one of the primary causes attributable to poor sanitation and the absence of safe water (WHO, 2017). Sanitation facilities are generally reduced in developing and war-torn areas.

The prevalence of skin infection among children is also consistent with past research that shows that overcrowding and lack of hygiene enhance the transmission of skin illnesses (Andrews et al., 2009).

There were also psychological impacts on health. The overcrowding can result in stress, which can lead to the loss of immunity and exposure to infectious diseases (Evans, 2003).

5 CONCLUSION AND RECOMMENDATIONS

This part summarizes the main findings of the study and draws overall conclusions about the relationship between overcrowding and infectious disease transmission. It also provides practical recommendations aimed at improving housing conditions, sanitation, healthcare services, and community awareness to reduce health risks in overcrowded settings.

5.1 Conclusion

The paper concludes that overcrowding is one of the factors that have greatly contributed to the transmission of infectious diseases in Hamar-Wayne district, Somalia. Sanitation, poor ventilation, and poor access to clean water are the main causes of respiratory infections, gastrointestinal diseases, and skin infections among the overcrowded households.

The researchers also arrive at the conclusion that there are indirect health effects of overcrowding that encompass psychological stress and poor quality of life. To ensure that urban settlements can promote better health of the populace, however, overcrowding is a very necessary concern.

5.2 Recommendation

✓ Improve Housing Conditions

Housing programs should be encouraged by the government and humanitarian groups to alleviate congestion.

✓ Empower Water and Sanitation Services.

The government ought to increase the availability of clean water, sanitation systems and drainage channels.

✓ Encourage Community Health Training.

Education programs on hygiene, like washing hands and disposing of garbage, should be promoted within the community.

✓ Make Healthcare Services Stronger.

The local health facilities need to enhance disease screening, treatment and prevention programs.

✓ Improve Urban Planning

City officials are advised to establish measures that would regulate the levels of population and enhance settlement planning.

✓ Support Further Research

Mixed-method research should be employed in the future to quantify disease prevalence and health effects.

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