CHILD MORTALITY IN SLUMS OF DHAKA: UNDERSTANDING THROUGH AN ANTHROPOLOGICAL LENS

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Abstract: Despite a substantial decrease in child mortality rates in Bangladesh (from 371.3 to 22.6 per 1,000 live births), significant disparities remain. This qualitative study utilizes a social autopsy approach to explore the social determinants of child death within under-five populations residing in the impoverished Dhaka slums of Hazribagh and Kamrangir Char. These areas grapple with limited healthcare access, socio-economic hardships, and inadequate living conditions. Moving beyond the established emphasis on medical and biological factors, the research employs in-depth interviews with 15 bereaved families and 5 healthcare providers. The social autopsy method delves into the complex socio-cultural dynamics surrounding child deaths by capturing the lived experiences of affected families and medical professionals. The findings show a multifaceted picture, highlighting the crucial role of structural, behavioral, and socio-cultural factors in determining a child's survival. This study broadens the scope beyond the dominant medical framework, illuminating the interplay between various social determinants and child health outcomes. Informed by these insights, the "Pathway to Survival" model is proposed. This community-based intervention integrates medical care with social and behavioral strategies. It emphasizes community education on child health and nutrition, improved access to maternal and child healthcare services, and fostering healthy behaviors within the community.
Keyword: Child mortality; Social autopsy; Bangladesh; Anthropology; Public health

1 INTRODUCTION

Life is characterized by inevitable aspects such as sickness, mortality and death. While biological factors contribute to unavoidable death, there exists a distinct realm of mortality influenced by social factors [1]. The boundary between biological and social causes of death often goes unnoticed, perhaps due to the overwhelming burden of accountability and liability that acknowledging such factors would entail [2].

One critical impediment to child development across nations is early child mortality [3]. Neonatal deaths, constituting over two-thirds of all deaths in the first year of life and approximately half of all under-five deaths, underscore the severity of the issue [4]. Despite a decrease in the infant mortality rate to 23 per 1000 births in 2022, the numerical improvement does not encapsulate the immeasurable suffering experienced by those who have lost their children [5]. Viewing child mortality solely as a health system indicator provides a snapshot of current health challenges, reveals persistent risk patterns in specific communities, and delineates trends in causes of death over time [6]. Recognizing that many causes of death are preventable or treatable, public health prevention efforts become imperative [7].

Child mortality analysis often prioritizes statistical data, leaving the narratives behind incidents untold and overlooked [8]. However, delving into these stories can offer valuable insights essential for reducing child mortality [9]. The lack of analysis of the information shows the importance of using a descriptive approach. [10]. Qualitative research uses new tools such as community autopsies that are useful for understanding patterns of death in specific regions, such as in countries such as Rwanda, Niger, Sudan, and Bangladesh.[11].

Considering that the infant mortality rate in Bangladeshi households is double the Bangladeshi average, it is clear that more research is needed on this topic [12]. Using the Social Autopsy technique, this study aims to determine the causes of the high rate of child death in Dhaka's impoverished regions. Employing Galtung's Structural Violence and Kleinman's Cultural Interpretive Model as theoretical frameworks, the study attempts to identify the avoidable structural and socio-cultural processes causing child death [13].

The study aims to determine and clarify the avoidable variables linked to the death of under-five children by conducting qualitative research in two main slum regions of Dhaka, namely Kamrangir char and Hazaribagh. Through subject investigation, it builds up associations between these components and, within the conclusion, recommends a community-based survival arrangement based on how these factors are forbid. The study's findings highlight the significance of adopting a comprehensive and community-driven approach to address the underlying socio-cultural and structural factors that contribute to the numerical decline in child mortality, in addition to ensuring the survival and well-being of children in susceptible communities [14].

In this account, an awful scene at a medical college in North Bengal is told, when an infant passed on due to a need of understanding and coordination on the portion of healthcare specialists [15]. Considers Bangladesh's child mortality problem in a larger context, highlighting ongoing difficulties but also pointing out statistical gains. As it suggests the necessity for a social autopsy to unearth hidden causes, the story emphasizes the need of comprehending non-biological variables leading to infant death. In examining and addressing the social issues contributing to child mortality in Dhaka's slums, it makes the case for an anthropological approach [16].

2 OBJECTIVE OF THE STUDY

There are 3 major objectives of the study. The objectives are given below:
- Investigating how social norms, beliefs, and practices influence child mortality rates in children under five.
- Analyzing how cultural factors like healthcare access, gender roles, and dietary practices impact child survival in early childhood.
- Understanding the Anthropological Perspectives related to Child Mortality

3 RELATED WORK

Child mortality is a critical indicator of societal well-being, reflecting the state of healthcare, socio-economic conditions, and cultural dynamics. Despite global progress in reducing child mortality rates, urban slums, such as those in Dhaka, Bangladesh, highlight persistent disparities in public health. This literature review examines child mortality in Dhaka's slums, exploring socio-cultural factors and their interplay with health outcomes.

This review synthesizes existing research on child mortality in urban slum settings, focusing specifically on Dhaka. By exploring the multi-faceted aspects of this issue, the aim is to provide a nuanced understanding of the challenges and opportunities for intervention. The concept of a "social autopsy" is employed to investigate contextual factors contributing to child mortality, considering immediate determinants and underlying social, cultural, and economic dynamics. Dhaka's slums exhibit unique characteristics of deprivation, limited healthcare access, social practices, and environmental challenges, necessitating an in-depth analysis of these interrelated factors.

The following sections delve into the significant investigations regarding child mortality in slums, emphasizing studies conducted in Dhaka. By integrating research from sociology, anthropology, and public health, the review aims to offer a comprehensive framework for understanding child mortality in this urban context. This investigation seeks to inform targeted interventions, policies, and community-based programs to mitigate the adverse effects of socio-cultural factors on child health in Dhaka's slums.

The concept of social autopsy, particularly the Pathway Analysis system for child fatalities and the Maternal and Perinatal Death Inquiry and Response program in India, provides valuable insights. Developed between 1995 and 2001, the Pathway Analysis format, based on the Pathway to Survival concept, has been widely adopted globally. It has enhanced data collection on children requiring care and facilitated disease-related interventions. The Maternal Death Audit, established over 50 years ago, significantly contributed to reducing maternal mortality. Recent maternal social autopsy studies in countries like India have led to data-driven health solutions [17]. Research in Rwanda identified causes and risk factors for child mortality in children under five. Despite a notable decrease in infant mortality, home births pose significant risks for neonatal fatalities. Infectious diseases were the leading cause of death, with higher household mortality linked to specific socio-economic and care-seeking characteristics. The study underscores the need for focused initiatives to address persistent challenges in reducing child mortality [18]. A study in the Thakurgaon district of Bangladesh in 2010 examined social factors influencing maternal deaths through a social autopsy intervention. Factors such as unskilled delivery attendants, delayed decision-making, and entrenched attitudes were identified as contributors to maternal mortality. The intervention demonstrated the effectiveness of social autopsy in raising community awareness and fostering a resolve for change [19].

An investigation into healthcare-seeking patterns and treatment delays among 1-5-year-old rural Rwandan children utilized verbal and social autopsy methods. The study examined factors at the household level, transportation, and the quality of care provided by the government-run healthcare system. The findings highlighted post-facility treatment adherence and delays in seeking care as major contributors to child mortality, suggesting improvements in clinician communication and adherence to treatment [20]. A survey study in North India from 2008 to 2012 used verbal and social autopsy methods to examine infant mortality. The Health and Demographic Surveillance System (HDSS) in Ballabgarh was the study area. The research aimed to identify medical causes of infant deaths and assess non-biological factors. Delays in seeking medical attention were measured using a three-delay model, with validated verbal autopsy methods determining causes of death. The three levels of delay included recognizing danger symptoms, reaching a medical facility, and receiving medical attention [21].

In developing countries, over half a million women die annually due to pregnancy and childbirth-related causes, despite known maternal care procedures. Many low-income women seek care from non-professional sources during pregnancy, posing a challenge for policymakers. Research in Bangladesh examined the role of alternative health practitioners in referring pregnant women to professional maternity care facilities. The study found that the term 'traditional birth attendant' encompassed individuals with varying motivations. Women sought care from different non-professional providers,

highlighting the need for policymakers to understand these roles to promote professional care in low-income settings [22]. India's efforts to reduce newborn and child mortality have been criticized by the countdown database for insufficient progress towards Millennium Development Goals. A PubMed/MEDLINE search identified risk factors contributing to neonatal and child mortality, including economic inequality affecting healthcare utilization and cultural beliefs. The review emphasized the correlation between child death rates, income, cultural behavior, and beliefs. To improve child survival, interventions should target community leaders and address socio-cultural barriers through tailored health education initiatives [23].

Proper hygiene, access to sanitation, and clean drinking water could prevent approximately 2.4 million deaths annually (4.2% of all deaths) globally, with the majority attributed to diarrhoea and malnutrition-related disorders. This overlooked opportunity to save lives and reduce the global disease burden by 6.6% has not received adequate attention from the international public health community. Experts highlight the crucial role of these basic necessities as pillars of health [24]. Research on the relationship between economic poverty metrics, undernourishment, childhood undernutrition, and child mortality in developing nations shows consistent links between various deprivation metrics, with regional variations. Sub-Saharan Africa has high rates of income poverty and child mortality, South Asia has the highest rates of childhood undernutrition, and the Caribbean has the highest proportion of individuals with inadequate calorie intake. The report suggests that standard theories struggle to explain these regional disparities, particularly in undernourishment and childhood undernutrition. Measurement challenges in assessing these factors may influence regional differences, leading to implications for future research and public policy [25].

A study in southwestern Nigeria examined childhood mortality in two communities, emphasizing the impact of environmental and maternal factors. Using an ecological perspective, the research found that domestic environmental conditions played a stronger role in predicting child mortality in the more modern town compared to the traditional town. However, maternal characteristics, such as age at marriage and parity, were consistently significant predictors in both locations. The association between mother's education and child mortality varied, with significance found only in the more urbanized center. Additionally, the availability of potable water and childcare practices contributed to child death rates across all locations [26]. In South Africa, child mortality rates are decreasing but remain high and have plateaued. A Child Death Review (CDR) pilot in the Salt River mortuary (Western Cape) and Phoenix mortuary (KwaZulu-Natal Province) analyzed 711 child deaths from January to December 2014. The findings revealed that 53.3% of deaths were natural and 42.6% were non-natural, with leading causes being road traffic injuries and homicide. The CDR teams have improved the identification of non-hospital deaths and pinpointed correctable causes, contributing to efforts to lower child mortality [27].

This literature review highlights significant gaps in current research, suggesting a need for more thorough examination of the particular socio-cultural elements influencing child mortality in urban slums. Understanding the nuances of local customs, beliefs, and behaviors, alongside a comprehensive analysis of the city's health infrastructure, including community awareness, healthcare access, and service quality, would provide a more holistic perspective. Additionally, exploring the temporal intensity of socio-cultural influences on child mortality and conducting comparative analysis of residential areas in Dhaka will enrich the research. Emphasizing the translation of findings into actionable policies and interventions, while incorporating stakeholder perspectives, will enhance the study's relevance for policymakers and healthcare professionals. Addressing these gaps will significantly advance our understanding of the complex socio-cultural interactions impacting child mortality in Dhaka's slums.

4 RESEARCH DESIGN

Kamrangirchar and Hazaribagh in Dhaka were selected for this study due to their high densities of slum dwellers and significant child mortality rates, predominantly resulting from severe malnutrition. Kamrangirchar, situated along the contaminated Buriganga River, is the largest slum in Dhaka, grappling with inadequate clean drinking water and limited access to affordable healthcare. Hazaribagh, historically known for its leather processing facilities, remains environmentally degraded despite the relocation of tanneries. It hosts numerous slums, suffers from high pollution levels, and lacks a dedicated government hospital. Both areas are characterized by male-majority populations, low literacy rates, and deficient sanitation facilities. This research underscores the critical need to address the healthcare challenges in these densely populated slums, where medical services are scarce, and the environmental conditions pose severe health risks. The findings emphasize the importance of targeted interventions to improve health outcomes in these vulnerable communities.

Figure 1 Environmental condition of Hazaribagh (*Source: Field work, 2022*)

4.1 Data Collection

The study involves two phases of data collection, focusing on maternal and child deaths. Phase 1 employs social autopsy and narrative inquiry methods, with a specific emphasis on the diverse perspectives within the social context. Unstructured interviews and field observations complement the data collection. Participants, selected through purposive and snowball sampling, are from urban low-income communities who lost children aged 0-5 in the last five years. The sensitive nature of the research requires a careful approach, and the researcher builds rapport through local connections for effective snowball sampling. Purposive sampling is also employed to ensure relevance to the research objectives. A total of 15 participants are involved in the study.

Table 1 Data Collection: phase 1

Data Collection Method	Number	Details		
• Narrative, Dialogue, Conversation done through semi structured interview • In-depth Interview	15	7 Interviews at slums of Kamrangir Char. Narrative taken from family members: 4 from Mother 1 from Father 2 from other family members	5 interviews taken in slums of Hazaribagh: 2 in Rangpur bosti, 3 in Joshim bosti. Narrative taken from family members: 1 from Mother 1 from Father 2 from Siblings 1 from other family member	3 interviews taken among lower middle-class families in Hazaribagh. Narrative taken from family members: 1 from Father 1 from Grandmother 1 from Mother

Note: Data collection tools for Social Autopsy in October, 2022. Source: Fieldwork, 2022.

In phase 2 of the research, data collection involved conducting semi-structured interviews and in-depth interviews (IDI) with health professionals. Semi-structured interviews followed a formal conversation format with open-ended questions, guided by specific research objectives. This method is suitable when there's only one chance to interview a participant or when multiple interviewers are collecting data in the field. In-depth interviews aimed to explore participants' thoughts, feelings, perceptions, beliefs, attitudes, or motivations in greater detail, allowing for more open and detailed responses. The sampling method used was purposive sampling, with a sample size of 5 participants.

Table 2 Data Collection: Phase 2

Data Collection Method	Number	Details		
• Expert Interview • Semi structures IDI	5	2 Interviews taken from hospitals of Kamrangir char. Narrative taken from medical practitioners. 1 from a duty doctor and 1 from a Nurse	2 Interviews taken from hospitals of Hazaribagh. Narrative taken from medical practitioners. 1 from a duty doctor and 1 from a Nurse	1 Interview taken from Hazaribagh. Narrative taken from a midwife.

Note: Health professionals' view on child mortality; interview taken in November 2022, Source: Fieldwork, 2022

4.2 Qualitative Data & Thematic Analysis

This study adopts postmodern epistemology, using thematic analysis to explore neonatal deaths in specific areas. The analysis identifies three major themes: socio-cultural reasons, structural barriers, and the role of health practitioners. Subthemes include delay in healthcare seeking, reliance on unprofessional healthcare, lack of trust in the medical sector, prejudice, hygiene maintenance, poverty, lack of medical facilities, and medical failures. The interconnected themes reveal insights into neonatal mortality. The study employs an inductive methodology, verifying codes and themes throughout the research stages. The findings aim to enhance understanding of factors contributing to neonatal deaths.
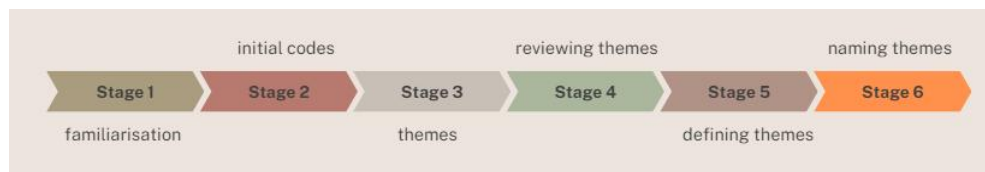
Figure 2 Stages of Thematic Analysis used in the Research.

5 RESULT & ANALYSIS

5.1 Socio-Cultural Factors Contributing to Child Mortality

Child mortality rates in Dhaka's urban slums are intricately linked to socio-cultural factors, explored through a social autopsy methodology in this study. It investigates how community behaviors, traditional healthcare practices, and cultural norms impact children's health outcomes. The research emphasizes understanding barriers that economically disadvantaged families encounter in accessing essential healthcare services for their children, beyond mere geographic accessibility.

Cultural beliefs influence health-seeking behaviors, attitudes towards modern medicine versus traditional remedies, and decision-making processes related to pediatric healthcare. The study also examines the role of social support systems, including community networks and extended family, in shaping childcare practices in these marginalized communities. It further analyzes socio-economic variables such as parental employment, economic status, and educational attainment, alongside societal norms, to uncover their collective influence on child health and mortality. Gender dynamics in childcare practices are scrutinized to identify opportunities for promoting gender-neutral healthcare approaches.

The study investigates the significant role of delayed health-seeking behaviors as a prominent social factor contributing to child mortality in Dhaka's urban slums. Delay in seeking medical attention is predominantly driven by cultural perceptions and beliefs about illness, as well as anxieties related to healthcare settings and practices. According to the findings, patient delay, stemming from self-diagnosis and reliance on home care, often precedes professional delay and exacerbates the severity of illnesses before medical intervention.

A mother of a dead child reflects on such delays, stating, *"We thought my child had a common fever... How could we understand it was dengue!"* This illustrates how initial misinterpretations and delayed action based on cultural norms can lead to fatal outcomes. Fear and distrust of biomedical treatments also contribute significantly to health-seeking delays. A father who lost her baby girl expresses skepticism: *"They put different medicines and rays... I heard doing ultrasound can cause cancer."* Such fears perpetuate a preference for home remedies or avoidance of formal healthcare, influenced by cultural interpretations and a perceived lack of holistic care in medical settings. The concept of Foucault's medical gaze underscores these dynamics, where medical interactions are perceived as problem-focused and intimidating, further deterring prompt medical consultations.

Case studies highlight the tragic consequences of delayed healthcare seeking. Hamim's (a dead infant) father delayed due to discomfort with hospital environments and concerns over financial costs, opting for medication from a local pharmacy instead. By the time Hamim was hospitalized, his condition had deteriorated irreversibly, reflecting a critical intersection of cultural beliefs and healthcare decision-making.

Moreover, entrenched cultural beliefs and prejudices, such as attributing illness to supernatural causes or avoiding medical interventions like C-sections due to unfounded fears, further contribute to delayed care and increased mortality rates among children. These findings underscore the complex interplay between cultural norms, healthcare behaviors, and child health outcomes in Dhaka's slum communities, urging targeted interventions that address cultural beliefs while improving access to timely and appropriate medical care.

Economic factors also play a significant role, as non-professional care often appears more affordable or accessible compared to formal healthcare settings. Additionally, personal relationships with caregivers like pharmacists or shamans provide a sense of comfort and familiarity, encouraging families to seek care from these individuals despite potential risks to the child's health.

Overall, addressing the reliance on non-professional healthcare providers requires targeted interventions that acknowledge and address deeply rooted cultural beliefs, economic barriers, and the need for improved access to reliable medical care in these underserved communities.

5.2 Structural Barriers Causing Child Mortality

The initial segment scrutinizes issues within the medical sector that significantly contribute to child mortality. It investigates the underfunded healthcare system and the inadequate distribution of resources, particularly in terms of medical staff. Insufficient training and limited professional experience further exacerbate these challenges, hindering healthcare professionals from effectively addressing the diverse and evolving health needs of the population. This scarcity underscores

the critical need for enhanced resource allocation and capacity building within the healthcare sector to mitigate the impact on child health outcomes.

Social inequality such as Poverty is identified as a key factor, contributing significantly to inadequate access to nutritious food and essential medical care, perpetuating a cycle of poor health outcomes. Additionally, the influence of low educational attainment among parents is analyzed, revealing its impact on their knowledge of preventive healthcare for children. These structural inequalities underscore the complex interplay between socioeconomic factors and child health outcomes in vulnerable urban communities like Dhaka's slums.

In Dhaka's slums, the third portion examines the physical obstacles that prevent people from accessing healthcare. The study emphasizes how difficult it may be for people to access healthcare services due to inaccessible infrastructure, such as inadequately constructed roads and transit systems. Inspected as well is the need of innovation ability in healthcare offices, highlighting the requirement for updating to meet modern healthcare needs.

The influence of congested living circumstances on child mortality is the next area of investigation for this project. The quick spread of infectious illnesses is attributed to high population density, and the space constraints that prevent adequate sanitation and hygiene practices are examined. Natural factors are too taken into consideration, with extraordinary center given to discuss contamination and sullied water sources as conceivable health hazards for children.

In Bangladesh, structural factors are the main cause of child death in the two major slum regions, Kamrangirchar and Hazaribagh. These include infrastructural barriers, lack of access to technology, poverty, illiteracy, limited awareness, and insufficient training of medical professionals and parents. The underdeveloped suburban setup with limited citizen services exacerbates the situation. Environmental pollution, particularly air and water pollution, poses a significant health risk to children, compounded by the lack of adequate hospitals and subpar infrastructure. The poverty rate in these areas is exceptionally high, influencing every aspect mentioned earlier, as impoverished parents struggle to meet the basic needs of their newborns. A staggering 46.66% of child deaths are linked to infrastructural and environmental barriers, with 60% of respondents identifying poverty as a major factor. Additionally, none of the surveyed parents had completed higher studies, emphasizing the educational gap in these communities.

5.3 Exploring Child Mortality from an Anthropological Lens: Probable Contribution of Anthropology to Reduce Child Mortality

In Anthropology, Social Autopsy is a modern tool to understand death. Where biological autopsy is the post mortem analysis of the cause of death, social autopsy refers to the systematic analysis of the beyond biological preventable causes of death. One of the core roles of applied anthropologists is to help solve problems. The major finding of this research is that child mortality cannot be seen as a homogeneous phenomenon. There are multiple causes behind a child's death and almost in every case the causes were interconnected. A better understanding of the cultural, socioeconomic, and health system determinants influencing health care utilisation is necessary for the effective implementation of child survival interventions. Despite this, there is no standardised tool for gathering and analysing data on how to prevent death and enhance the application of child survival interventions.

So, the anthropologists are the ones who can integrate the population level data along with the health care programs. Social autopsy can contribute to different sectors of anthropology in different ways. Apart from Applied Anthropology, it can be an important tool to understand body politics: how under state development goals deaths become mere numbers. Rather than addressing the issues of suffering, the government only highlights the story of success. There are many structural inequalities that are the reason for neonatal mortality that's been ignored for so long. Identifying the structural inequalities is not only a focus of medical anthropology but also of social anthropology.

Table 3 The intersection between social autopsy and anthropology.

Social Autopsy in Anthropology: Area of Connection	Nature of Connection
1. Applied Anthropology	- Implementing population-level data to health care programmers and policymakers for developing more effective strategies for delivering maternal and child health care technologies. - Enables down-top way approach for a more integrating policy making for child and mother health and wellbeing.
2. Medical Anthropology	- Peoples reasoning while explaining "health" and death. Using autopsy beyond Biology. - Explaining distrust on medical sector, structural barriers in health seeking, objectified body, death as number.
3. Cultural Anthropology	- Narratives to explain death - Belief, ideology, superstation contributing to death - Political economy of child mortality

At last, by utilizing a careful social autopsy approach, the consider looks for to clarify the socio-cultural subtleties that underlie child mortality in Dhaka's ruined regions. The work sheds light on these intricate processes, which advances academic understanding and offers useful information for public health programs and treatments. In this difficult metropolitan setting, the results should direct the creation of culturally aware policies meant to lower child mortality and enhance general health.

5.4 Anthropological Recommendation towards the Issue

From the experience and understanding of the fieldwork, we are proposing a pathway to survival model in this section. This is a community-based survival model. According to the data analyzed before, implementing this model in a practical level can decrease the rate of child mortality in the slum areas.
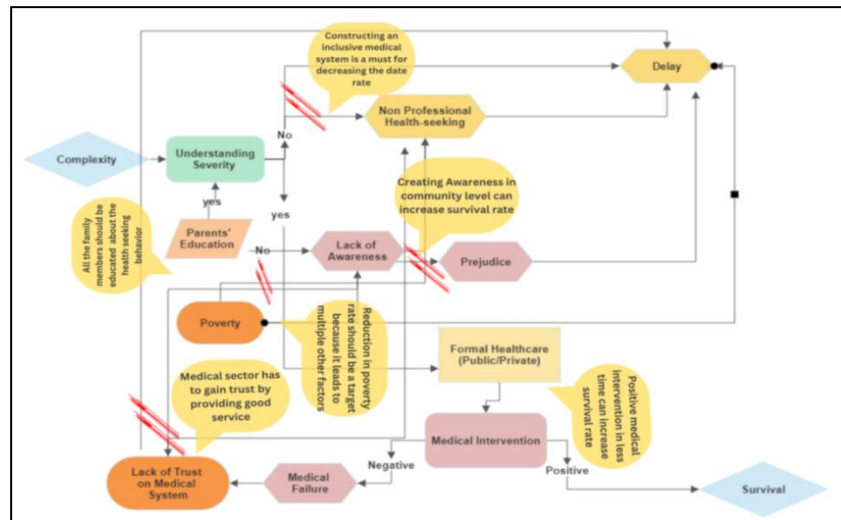

Figure 3 Survival Pathway

In the concluding section, the study synthesizes the findings and emphasizes the urgent need for comprehensive interventions. It reiterates the interconnected nature of the identified structural causes and advocates for a holistic approach. Utilizing and having access to health care services is a crucial aspect of the social environment this study looks at. This study aims to identify and investigate the obstacles that impoverished families face while trying to provide their kids with the medical treatment they require. This study examines how cultural norms influence people and behavior in seeking medical care, extending beyond a basic geographic approach. In this field of study, knowledge of available health services, opinions on the effectiveness of novel drugs, and concepts related to traditional treatment approaches may be significant variables.

6 CONCLUSION

The Social Autopsy Study on child mortality in Dhaka's slums reveals a complex web of social, cultural, and economic factors impacting children's well-being. This research underscores the critical need for comprehensive interventions that address not just healthcare deficiencies but also the underlying social determinants of health. Analysis of the data identifies factors like poor sanitation, income inequality, and limited healthcare access as significant contributors to child mortality rates. Furthermore, societal norms, practices, and beliefs significantly influence how families seek healthcare and how children's health progresses.

The study emphasizes the importance of a holistic, community-centered approach to tackle child mortality in slums. Effective solutions require interventions beyond healthcare improvements. Programs that challenge harmful cultural norms, promote education, and empower women are crucial. Collaboration between local communities, NGOs, and government agencies is essential to break the cycle of child deaths and develop sustainable solutions. This research contributes significantly to our understanding of the intersection of social and cultural determinants in health outcomes, informing future research and evidence-based policymaking. By understanding these complex factors, policymakers and healthcare professionals can develop strategies to reduce child mortality and improve the overall well-being of slum communities.

In essence, the Social Autopsy Study highlights the need for comprehensive, culturally sensitive interventions that address the root causes of child mortality. This empowers communities to build a healthier future for their children.

COMPETING INTERESTS

AUTHORS' CONTRIBUTIONS

NSF contributed to the design of the work, data acquisition, analysis, interpretation of data, and drafting of the work. MAR contributed to the analysis, interpretation of data, and substantively revising the work. Both authors critically revised subsequent manuscript drafts and provided input on discussion points. Both authors read and approved the final manuscript

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