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The Socioeconomic Toll of Pediatric Cancer in Bangladesh: A Cross-Sectional Study on Family Hardships

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Abstract

Background: Pediatric cancer is a rising public health concern in Bangladesh, where an estimated 9000 new cases occur annually among children under 18. Despite this burden, survival rates remain below 30% due to diagnostic delays, limited access to specialized care, and treatment abandonment. In low- and middle-income countries (LMICs), the socioeconomic consequences of childhood cancer often include financial distress, caregiver unemployment, stigma, and school dropout, yet these impacts remain under-researched in the Bangladeshi context. **Objective:** This study investigates the socioeconomic impact of childhood cancer on affected families in Bangladesh, with a specific focus on financial hardship, social isolation, and disruption of children's education. **Methods:** A cross-sectional exploratory study was conducted with 54 families of pediatric cancer patients actively receiving treatment at three major oncology centers in Bangladesh. Purposive sampling was used, prioritizing diversity in region, socioeconomic status, and cancer type. Data were collected through structured interviews using pre-tested questionnaires, and analyzed descriptively. **Results:** Diagnostic delays exceeding 12 months were reported by 57% of families, though 89% began treatment shortly after diagnosis. Monthly treatment costs ranged from BDT 40,000 - 100,000 (USD $470 - 1179), far surpassing average household incomes of BDT 10,000 - 16,000 (USD $94 - 150). Over 53% of families sold assets, and 42.6% of mothers quit their jobs to provide full-time care. Social exclusion was reported by 15% of families, often linked to cancer-related stigma. Educational disruption was noted in 20% of children, primarily due to prolonged absences and lack of school support. **Conclusion:** Pediatric cancer in Bangladesh destabilizes family systems economically, socially, and educationally. These findings highlight the urgent need for comprehensive policies that address both clinical and non-clinical needs through financial aid programs, decentralized oncology services, school reintegration strategies, and psychosocial support for caregivers.

Keywords

Pediatric Cancer, Bangladesh, Financial Burden, Caregiver Impact, Educational Disruption, Healthcare Access, LMICs

1. Introduction

Childhood cancer, though less prevalent than adult cancers, imposes severe personal and social costs. Global estimates suggest that approximately 300,000 children are diagnosed annually (Steliarova-Foucher et al., 2017). In high-income countries, survival rates exceed 80%, whereas in LMICs like Bangladesh, rates remain below 30% due to diagnostic delays, treatment abandonment, and under-resourced healthcare systems (WHO, 2021). Beyond the medical implications, families face emotional trauma, economic disruption, and social isolation. This study investigates these broader effects in Bangladesh, contributing to the limited regional literature on the social dimensions of pediatric oncology.

2. Literature Review

Pediatric cancer in low- and middle-income countries (LMICs) is increasingly recognized not only as a clinical challenge but also as a driver of profound socio-economic and psychological hardship. The World Health Organization (2021) identifies major contributors to poor outcomes in LMICs, including diagnostic delays, lack of trained personnel, and inadequate infrastructure. These factors are especially relevant in Bangladesh, where treatment abandonment rates remain high due to logistical and financial constraints (Islam et al., 2015). Studies across LMICs have emphasized the pivotal role of out-of-pocket expenditure in treatment discontinuation. Sumit et al. (2015) reported that prolonged treatment costs for pediatric cancer are financially unsustainable for most families in South Asia, forcing asset liquidation, borrowing, and withdrawal from employment. Similar findings have been noted in Latin America and Sub-Saharan Africa, where treatment costs often surpass household income by several-fold, resulting in catastrophic health expenditures (Howard et al., 2018). Beyond financial strain, the psychosocial toll on caregivers—especially mothers—is substantial. Tolkkinen et al. (2018) highlighted the impact of socioeconomic status on caregiver mental health and child survival. Cultural misconceptions around cancer often lead to stigma and social withdrawal, particularly affecting female caregivers in patriarchal societies. In Bangladesh, Begum et al. (2016) and Hossain et al. (2020) found that caregivers face emotional exhaustion, social isolation, and minimal institutional support. The educational impact of childhood cancer remains underexplored, although disruptions to schooling are consistently observed. Studies in India and Pakistan have shown high rates of academic disengagement and dropout among pediatric cancer patients due to prolonged hospitalizations and the absence of school support systems (Kumar et al., 2017). This study builds on this growing body of evidence by providing a comprehensive analysis of the financial, psychological, and educational consequences of pediatric cancer in Bangladesh. By integrating quantitative indicators and caregiver narratives, it offers a multidimensional perspective that can guide policy and intervention design.

3. Methodology

Study Design: A cross-sectional exploratory study was conducted between January and December 2022 in three leading pediatric oncology units in Bangladesh. The study aimed to investigate the socioeconomic impact of childhood cancer on families.

Sampling and Participants: Purposive sampling was used to select 54 families of children under 18 years old, currently undergoing active cancer treatment. Inclusion criteria included a confirmed diagnosis and ongoing treatment, while families receiving only palliative care were excluded.

Questionnaire Development and Validation: A structured questionnaire was developed based on existing literature and expert consultation. The questionnaire included both closed-ended and open-ended items covering demographics, healthcare access, economic impact, social support, and education. The draft instrument was pre-tested with a small sample of five families from a separate pediatric unit to ensure clarity, relevance, and cultural appropriateness. Based on feedback, minor adjustments were made before final implementation.

Data Collection and Researcher Training: Structured, face-to-face interviews were conducted with primary caregivers—mostly mothers. Interviewers received prior training over a two-day workshop led by a senior researcher with expertise in qualitative and quantitative data collection. The training covered ethical considerations, sensitivity in handling emotional topics, standardized interviewing techniques, and proper data recording procedures. The goal was to ensure consistency and minimize interviewer bias.

Ethical Approval: Verbal informed consent was obtained from all participants. The study received ethical clearance from a recognized institutional review board. Confidentiality and anonymity were strictly maintained throughout the study period.

4. Results

Demographics and Diagnosis: Among the 54 participating children, 72.2% (n = 39) were male, and the majority (64.8%) were between 6 - 15 years old. Diagnostically, 46.3% (n = 25) were suffering from acute lymphocytic leukemia (ALL), followed by 37% (n = 20) with other hematologic malignancies such as lymphoma. The mean time from initial symptom onset to confirmed diagnosis was 13.6 months (SD = 4.7), indicating substantial diagnostic delays across the cohort.

Economic Impact: More than half of the families (53.7%, n = 29) reported selling key assets, including land, jewelry, or livestock, to finance treatment. The average monthly treatment cost was BDT 67,000 (USD ~$790; SD = 19,400), significantly higher than the average household monthly income of BDT 13,000 (USD ~$153; SD = 3800). Approximately 42.6% (n = 23) of mothers left employment to serve as full-time caregivers. Only 18.5% (n = 10) received any institutional or NGO support. The majority relied on loans, personal savings, or informal donations. A t-test comparing monthly income and treatment cost revealed a statistically significant disparity ($p < 0.001$).

Social and Psychological Burden: About 15% (n = 8) of families reported noticeable social exclusion, with stigma directed primarily toward mothers. Caregivers frequently cited emotional fatigue, with 63% (n = 34) rating their stress level as high (above 7 on a 10-point scale). Qualitative responses highlighted a lack of empathy from relatives and the community.

Healthcare Barriers: Families traveled an average of 82 kilometers (SD = 25 km) to access oncology centers, often facing overcrowded wards and unsanitary conditions. Only 24.1% (n = 13) reported receiving clear communication from healthcare staff regarding treatment plans. Caregiver frustration was primarily due to long wait times and inconsistent physician availability.

Education: Educational disruption was prevalent, with 20.4% (n = 11) of the children dropping out of school. Among those still enrolled, 62% (n = 27) reported reduced academic performance. Schools lacked flexibility or structured support for children with long-term medical needs, leading to disengagement and discontinuation.

Visual Representation of Findings (Table 1, Table 2):

Table 1. Demographic and diagnostic data.

Category	N	Percentage (%)
Total Participants	54	100.0
Male Children	39	72.2
Age 6 - 15	35	64.8
ALL Diagnosis	25	46.3
Other Blood Cancers	20	37.0

Table 2. Economic burden summary.

Economic Variable	Mean or Percentage
Average Monthly Treatment Cost (BDT)	67,000
Average Monthly Household Income (BDT)	13,000
Families Selling Assets (%)	53.7
Mothers Leaving Employment (%)	42.6
Received NGO/Institutional Support (%)	18.5

Statistical analyses were conducted using SPSS Version 25. Descriptive statistics (mean, SD, and frequency) were reported alongside inferential analysis (e.g., t-tests) to assess the relationship between socioeconomic variables and treatment-related burdens.

5. Discussion

The findings of this study confirm that pediatric cancer in Bangladesh imposes a profound socioeconomic toll that extends beyond the clinical sphere. Diagnosis delays, although eventually followed by rapid treatment initiation, are common and result in prolonged uncertainty and worsened prognoses. This aligns with existing literature from LMICs, where healthcare delays are often linked to poor awareness, under-resourced diagnostic facilities, and centralized oncology services (Islam et al., 2015; Begum et al., 2016). The economic burden observed in this study was considerable. With average treatment costs nearly five times higher than monthly household income, families were forced into distress financing, over 53% liquidated critical assets, and 42.6% of mothers left paid work. These findings corroborate similar patterns seen in other LMICs, where out-of-pocket spending is the dominant financing mechanism for cancer care. The statistically significant income-treatment cost gap underscores the urgent need for subsidized care or health insurance mechanisms. Only 18.5% of families received institutional or charitable support, indicating a vast unmet need for financial assistance. Social consequences were also significant. Stigmatization—particularly directed at mothers—led to social exclusion in 15% of families. High caregiver stress levels (reported by 63%) reflect not only emotional fatigue but also the absence of psychosocial support structures. These outcomes echo global concerns about the mental health of caregivers in pediatric oncology settings and highlight the need for structured counseling services. Educational disruptions further amplify long-term consequences. With over 20% of children dropping out and most others reporting poor academic engagement, cancer treatment compromises educational attainment. This jeopardizes the future prospects of pediatric patients, many of whom will already face long-term medical follow-up. Taken together, these outcomes point to a systemic failure to support families coping with childhood cancer. Addressing these issues requires multi-sectoral coordination. Based on the findings, we recommend the following actionable policies:

1) **Government-Sponsored Financial Assistance Programs:** Introduce income-based subsidies or reimbursements for treatment-related expenses to prevent asset liquidation.

2) **Decentralization of Pediatric Oncology Services:** Establish regional oncology centers with diagnostic and treatment capabilities to reduce travel burdens and treatment delays.

3) **School Reintegration and Flexible Learning Programs:** Collaborate with the education sector to provide curriculum adaptations, virtual learning options, and reintegration support.

4) Psychosocial Support Units in Hospitals: Embed counseling services within pediatric oncology departments to support caregivers and mitigate stigma.

5) Public Awareness Campaigns: Destigmatize childhood cancer through nationwide outreach using mass and social media platforms, emphasizing early diagnosis and family support.

These measures, if implemented effectively, can alleviate the multidimensional strain on families and improve treatment outcomes for children with cancer in Bangladesh.

6. Conclusion

This study reveals that pediatric cancer in Bangladesh imposes a multidimensional burden on families—economically, socially, and emotionally. The high costs of care, limited institutional support, caregiver job loss, and school dropout collectively undermine family stability and the child's long-term development. Addressing these challenges requires a comprehensive, system-wide response. Holistic interventions must be embedded within both healthcare and social policy frameworks. We recommend five pillars of action: 1) targeted financial assistance for treatment, 2) decentralization of oncology services to improve access, 3) robust public awareness initiatives to reduce stigma, 4) school reintegration programs for affected children, and 5) hospital-based psychosocial counseling for caregivers. Only through such integrated and sustained strategies can Bangladesh safeguard the well-being of its youngest cancer patients and their families, ensuring dignity, continuity, and hope throughout the care journey.

7. Limitations

While this study provides valuable insights, several limitations must be acknowledged. The sample size of 54 families, though diverse, may not capture the full range of regional, socioeconomic, or ethnic variability in Bangladesh. Additionally, the use of purposive sampling and self-reported data introduces the possibility of selection and response biases. Further research should consider broader geographic representation, include control groups for comparison, and explore longitudinal designs to assess changes in socioeconomic and psychosocial outcomes over time. Mixed-method studies incorporating in-depth qualitative interviews could also enhance our understanding of nuanced caregiver experiences.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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