

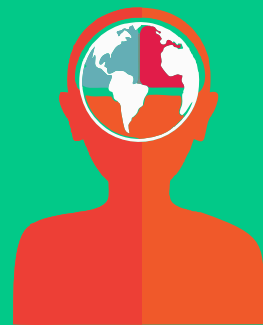
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abstract

Treatment Abandonment in Pediatric Brain Tumors in Low- Resource Settings: A Systematic Review And Meta-Analysis

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abstract

Treatment Abandonment in Pediatric Brain Tumors in Low-Resource Settings: A Systematic Review And Meta-Analysis

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Introduction: Paediatric brain tumours (PBTs) are the most common solid tumours in children and a major cause of cancer-related mortality. In low-income countries (LICs) and lower-middle-income countries (LMICs), treatment abandonment remains a critical barrier to effective care, significantly undermining survival outcomes. Despite its impact, the true burden and underlying drivers of abandonment in these settings remain inadequately characterized.

Methodology: A systematic review and meta-analysis were conducted in accordance with PRISMA 2020 guidelines. Searches were performed across PubMed/MEDLINE, Scopus, Embase and Cochrane library for studies published until June 2025. Four independent reviewers screened 5,063 studies, with those reporting treatment abandonment rates in PBT patients in LICs and LMICs were included. Data on abandonment rates, country income level, tumour type, region, and reported reasons were extracted.

Results: Twenty-six studies were included, 2 comprising 2,735 paediatric patients. The pooled treatment abandonment rate was 21.5% (95% CI: 17.1–27.0%), with low heterogeneity ($I^2 = 0.8\%$). Abandonment was comparable in LICs (21.7%) and LMICs (19.1%). Regionally, abandonment was 22.6% in Africa and 19.9% in South Asia. Sensitivity analysis showed similar abandonment rates in studies with ≥ 30 participants (20.8%). Commonly cited reasons included financial constraints (reported in 100% of Pakistan studies), distance from treatment centres, cultural beliefs, health system limitations, poor prognosis, and low health literacy.

Conclusions: Treatment abandonment affects approximately one in five children with brain tumours in low resource countries, driven by economic hardship and systemic gaps in care. These findings emphasize the urgent need for interventions focused on financial support, decentralized care delivery, caregiver education, and health system strengthening to improve treatment adherence and

outcomes.

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