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Climate Change and Child Mental Health in Malawi: Community Perspectives on Anxiety, Trauma, Depression, and Psychosocial Wellbeing among Young Children

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ABSTRACT

Climate change has emerged as one of the foremost threats to child health, development, and wellbeing globally. While substantial evidence documents adverse consequences for nutrition, education, and livelihoods, considerably less attention has been devoted to understanding its psychological impacts on young children in low-income countries. Malawi is among the world's most climate-vulnerable nations, experiencing recurrent floods, prolonged droughts, tropical cyclones, food insecurity, disease outbreaks, and mass displacement. These environmental shocks expose young children to chronic adversity during the most sensitive periods of neurological and psychosocial development, potentially compromising lifelong mental health trajectories. This study explored community perspectives on the influence of climate change on anxiety, trauma, depression, emotional wellbeing, and psychosocial development among young children in Malawi. A qualitative exploratory study was conducted across six disaster-prone districts of Malawi: Karonga, Mzimba, Lilongwe, Dedza, Machinga, and Chikwawa. Data were generated through Focus Group Discussions (FGDs) with parents and community structures, and Key Informant Interviews (KIIs) with policymakers, district officials, child development practitioners, health professionals, education officers, disaster management personnel, and community leaders. Reflexive thematic analysis following Braun and Clarke's (2006, 2021) framework was employed to identify recurring patterns in children's psychosocial experiences and community responses. Eight interconnected themes emerged. Participants consistently described climate change as generating profound psychological consequences among young children. Floods, droughts, cyclones, food insecurity, displacement, destruction of homes, interruption of schooling, caregiver stress, and repeated disaster exposure produced fear, persistent anxiety, sadness, emotional withdrawal, grief, hopelessness, hypervigilance, and symptoms consistent with post-traumatic stress disorder (PTSD). Children frequently experienced psychological distress indirectly through household poverty, parental anxiety, disrupted caregiving, malnutrition, and educational interruptions. Protective factors included strong family relationships, community solidarity, religious support, local resilience mechanisms, and emerging psychosocial interventions. Climate change constitutes not only an environmental and economic crisis but also a major child mental health emergency in Malawi. Climate adaptation strategies must integrate child mental health services, psychosocial support, trauma-informed care, family strengthening interventions, and community resilience programming into national climate governance and early childhood development systems.

INTRODUCTION

Climate change has evolved from an environmental concern into one of the preeminent global public health, developmental, and human rights challenges of the twenty-first century. While its consequences are commonly framed in terms of economic losses, environmental degradation, biodiversity decline, food insecurity, and infrastructure destruction, the effects of climate change extend considerably beyond physical environments. A growing scholarship recognises that climate change poses a fundamental threat to psychological wellbeing, social functioning, and human development across the life course. Among all demographic groups, young children are particularly susceptible, as climate-related adversities disproportionately coincide with critical windows of rapid neurological, cognitive, emotional, and social development (Vergunst & Berry, 2022; Helldén *et al.*, 2021). The early childhood years of life represent

an exceptionally sensitive developmental window during which environmental inputs exert a formative influence on brain architecture development, emotional regulation, attachment formation, stress-response systems, and cognitive functioning (Bhutta *et al.*, 2017; Olson & Metz, 2020). Adverse exposures occurring within this window, such as chronic stress, displacement, trauma, malnutrition, and caregiver distress, have the potential to disrupt neurodevelopmental processes with consequences that may persist throughout life course. As such, the psychological consequences of climate change in the early childhood ought to be conceptualised not as transient emotional disturbances but rather as significant determinants of lifelong human capital development and developmental outcomes.

A substantial body of international evidence demonstrates that climate-related disasters such as floods, droughts, cyclones, wildfires, and prolonged heatwaves

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expose children to cumulative psychosocial stressors, including forced displacement, bereavement, disruption of schooling, food insecurity, family separation, loss of community networks, and destruction of homes. Such multifactorial stressors are associated with substantially increase in children's risks of internalising and externalising psychopathology including anxiety disorders, depressive symptoms, PTSD, behavioural difficulties, toxic stress, developmental delays, and impaired educational outcomes (Burke *et al.*, 2018; Lawrance *et al.*, 2022; Cianconi *et al.*, 2020). However, little is known about the community perspectives on these climate change induced psychological effects on young children in resources-constrain settings like Malawi.

Malawi represents a particular salient geopolitical and ecological context for the investigation of these phenomena. Ranked among the African continent's climatologically vulnerable country, Malawi is characterised by recurrent climate change-induced crises like floods, droughts, tropical cyclones, rising temperatures, disease outbreaks, and dependence on rain-fed agriculture. Over the period spanning 2019 to 2024, the country endured a sequence of catastrophic climate events, including Cyclones Idai, Ana, Gombe, Freddy, and Chido, alongside prolonged El Niño-associated droughts. These compounded events have precipitated the displacement of hundreds of thousands of people, widespread destruction of homes and schools, severe disruption of agricultural production, intensified household food insecurity, and repeated exposure of children to traumatic experiences (Kalanda *et al.*, 2025; World Bank, 2020).

Despite the recurrence of these climate disasters, empirical investigations into their psychological consequences for young children in Malawi remain comparative scarce. The extant body of research has predominantly concentrated on agricultural productivity, livelihoods sustainability, food security, disaster risk reduction, and environmental management, with remarkably limited scholarly attention directed towards community views and experiences of climate change on child mental health outcomes. Moreover, prevailing climate adaptation frameworks continue to privilege infrastructure reconstruction, agricultural resilience, and emergency relief while according to insufficient consideration to psychosocial recovery and mental health support.

This study sought to redress the identified gaps by exploring community perspectives on the influence of climate change on child mental health across six disaster-prone districts in Malawi. Drawing upon qualitative data elicited from a diverse range of stakeholders including parents, caregivers, community leaders, child development practitioners, education officials, healthcare professionals, disaster management officers, and policymakers, this study systematically examines the pathways through which climate-related adversities shape children's experiences of anxiety, trauma, depression, emotional wellbeing, and psychosocial developmental trajectories. It

further identifies protective factors that bolster children's resilience in the face of climate shocks and identifies strategic entry points for the systematic integration of child mental health considerations into national climate change adaptation policies and programming in Malawi.

LITERATURE REVIEW

Climate Change as a Global Mental Health Crisis

The scholarly discourses on climate change has profoundly undergone epistemological shift in recent years from its traditional framing as a critical environmental or geopolitical and economic challenge to emerge as a significant determinant of global public health. A growing consensus within the scientific community posits that climate crisis constitutes an important population mental health emergency, which causes emotional instability, undermines psychosocial functioning, disrupts neurocognitive development and erodes the foundational safety nests of individual and community resilience across human life cycle (WHO, 2022; Cianconi *et al.*, 2020; Lawrance *et al.*, 2022). The pathogenic impacts of climate change emergencies on mental health are mediated by a multifaceted and complex aetiology, constituting both direct and indirect pathways of exposure. At the immediate level, direct exposure to climate-related emergencies manifests in the acute psychological trauma, which is empirically linked to increased incidences of post-traumatic stress disorder (PTSD), depression episodes, generalised anxiety and complex grief. Concurrently, indirect exposure operates through chronic psychological burden of ecological precarity, which manifests through persistent awareness of environmental degradation, anticipation of worsening climatic conditions, and chronic uncertainty (Berry *et al.*, 2010; Hayes *et al.*, 2018).

A growing corpus of empirical evidence demonstrates that climate-related disasters systematically undermine nearly every recognised determinant of mental health. The cascading impacts of extreme weather events extend beyond physical destruction, encompassing damage to homes, schools, healthcare facilities, and critical community infrastructure. These events also erode family stability, weaken social cohesion, disrupt educational continuity and community social capital. Crucially, these cumulative adversities impose a disproportionate burden upon young children. They are rendered especially vulnerable as their developmental ecosystems become increasingly unstable, schools close, primary caregivers experience elevated distress, household economic security decline, and their protective community safety deteriorates (Vergunst & Berry, 2022; Lawrance *et al.*, 2022). Notwithstanding the growing international acknowledgement of climate change as a salient determinant of mental health outcomes particularly among young children, pronounced geographical disparities persist within extant research landscape. Most empirical research has concentrated in high-income regions such as Europe, North America, and Australia. There exists a paucity of scholarly evidence on

the psychological experiences of children in low-income countries where the deleterious manifestations of climate change are acutely observable through recurrent disasters and humanitarian crises (Brophy *et al.*, 2022). Lack of contextually relevant evidence constitutes a significant impediment to the development of culturally sensitive, contextually responsive mental health interventions for the world's most climate-vulnerable young populations.

Eco-Anxiety, Climate Distress, and Emerging Psychological Concepts

Over the past decade, climate psychology has grown rapidly into a field focused on the the emotional, cognitive, and behavioural impacts of climate change. Researchers have put forward several interrelated terms such as eco-anxiety, climate anxiety, climate distress, ecological grief, and solastalgia, which collectively capture the psychologicalburden associated with the climate crisis (Passmore *et al.*, 2022; Mosca *et al.*, 2025). Eco-anxiety in particular is generally understood as persistent worry, fear, or emotional distress arising from awareness of climate change and ecological degradation. Importantly, contemporary scholars stress that eco-anxiety should not be automatically pathologizedas a mental disorder but rather be seen as rational and proportionate psychological response to a real threatening environmental situation (Brophy *et al.*, 2022; Boluda-Verdú *et al.*, 2022).

A landmark systematic review by Cosh *et al.* (2024), synthesizing evidence from 35 studies involving 45,667 participants, found consistent positive associations between eco-anxiety and psychological distress, depression symptoms, anxiety symptoms, and stress. In a complementary study, Mosca *et al.* (2025) surveyed over1,000 Italian adults and reported that eco-anxiety was significantly associated with general psychological distress, reduced quality of life, and elevated psychosis-risk indicators. Notably, participants with prior exposure to floods, droughts, wildfires, and landslides exhibited substantially higher levels of eco-anxiety than those without prior disaster exposure. Critically, within the context of the present study, children's psychological distress stems primarily from repeated direct exposure to disasters rather than anticipation of future climate threats, a distinction that carries important implications for the design of targeted interventions.

Climate Change, Child Development, and Early Childhood Mental Health

Children are among the populations most vulnerable to climate change because their physical, neurological, cognitive, emotional, and psychosocial development occurs during periods of rapid growth and heightened environmental sensitivity (Burke *et al.*, 2018; Vergunst & Berry, 2022). Climate change increasingly threatens developmental foundations through extreme weather events that damage homes, schools, healthcare facilities, and community infrastructure while simultaneously disrupting family livelihoods, educational continuity,

healthcare access, and social support systems. Such disruptions expose children to multiple adverse childhood experiences (ACEs), including poverty, hunger, displacement, bereavement, parental unemployment, and interrupted schooling, substantially increasing vulnerability to anxiety, depression, behavioural disorders, developmental delays, and lifelong mental health difficulties (Cuartas *et al.*, 2024; Helldén *et al.*, 2021).

Vergunst and Berry (2022) posit that climate change disrupts child development across multiple domains, including biological development through stress physiology, psychological development through emotional dysregulation, social development through disrupted relationships, educational development through interrupted schooling, and community development through weakened institutional support. Similarly, the Lancet Planetary Health scoping review by Helldén *et al.* (2021) concludes that mental health consequences, including anxiety, PTSD, behavioural disorders, and emotional dysregulation, remain among the least investigated outcomes despite their potentially lifelong implications.

Trauma, PTSD, and Climate-Related Disasters

Trauma constitutes one of the most widely documented psychological consequences of climate-related disasters. Floods, cyclones, droughts, wildfires, displacement, and associated humanitarian crises expose children to life-threatening experiences that may overwhelm coping capacities and produce enduring psychological distress. While many children demonstrate remarkable resilience following disasters, repeated or severe exposure substantially increases the likelihood of PTSD, anxiety disorders, depression, emotional dysregulation, sleep disturbances, behavioural difficulties, and impaired psychosocial functioning (Morganstein & Ursano, 2020; Lawrance *et al.*, 2022).

Climate-related disasters present unique challenges because they frequently involve repeated exposures rather than isolated traumatic events. Communities experiencing annual floods, prolonged droughts, or recurrent cyclones may develop cumulative trauma characterised by chronic uncertainty, anticipatory fear, persistent hypervigilance, and diminished psychological recovery between disasters. Such repeated exposures increase the risk of complex trauma, particularly among children whose developing stress-response systems remain highly sensitive to environmental adversity (Morganstein & Ursano, 2020). Meta-analytic evidence further demonstrates that displaced populations experiencing repeated environmental and social disruptions exhibit substantially higher PTSD prevalence than populations exposed to single traumatic events (Oakley *et al.*, 2021).

Theoretical Framework

This study is underpinned by an integrated theoretical framework that synthesises Bronfenbrenner's Ecological Systems Theory, Family Stress Theory, and Resilience

Theory to explain how climate change influences children's mental health within the Malawian context. Together, these complementary theories provide a multilevel understanding of how environmental adversity affects child development, the mechanisms through which climate-related stressors disrupt family functioning, and the protective processes that enable children to adapt despite adversity.

Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979, 2013) provides a comprehensive framework for understanding children's development as the product of dynamic interactions between individuals and multiple interconnected environmental systems. These include the microsystem, comprising immediate environments such as the family, school, and peer relationships; the mesosystem, which reflects interactions between these immediate settings; the exosystem, encompassing indirect influences such as healthcare services, disaster management institutions, and parental employment; the macrosystem, representing broader cultural values, socioeconomic conditions, and public policies; and the chronosystem, which captures the influence of time, life transitions, and repeated environmental experiences on development (Bronfenbrenner, 1979; Bronfenbrenner, 2013; Paquette & Ryan, 2001). This ecological perspective is particularly relevant to climate change because environmental disasters simultaneously disrupt multiple systems that collectively support children's healthy development. Floods, droughts, cyclones, displacement, food insecurity, interrupted schooling, and weakened community services affect not only children directly but also the families, institutions, and social structures upon which their wellbeing depends.

Complementing this ecological perspective, Family Stress Theory explains how climate-related adversities influence children's mental health through disruptions to family functioning. Originally proposed by Hill (1949) and later expanded through the Double ABCX Model by McCubbin and Patterson (1983), the theory posits those major external stressors, including natural disasters, economic hardship, displacement, and food insecurity place considerable strain on family systems. These stressors can overwhelm caregivers' coping capacities, reduce emotional availability, disrupt family routines, and compromise household stability, thereby increasing children's vulnerability to anxiety, depression, traumatic stress, and psychosocial maladjustment. Rather than affecting children solely through direct exposure to environmental hazards, climate-related adversity often exerts its strongest psychological effects indirectly by altering the quality of caregiving and family relationships. Recent developmental research similarly demonstrates that climate-related disasters generate cascading family stress processes through livelihood loss, poverty, food insecurity, caregiver distress, and interrupted caregiving, all of which shape children's emotional, behavioural, and developmental trajectories (Burke *et al.*, 2018; Cuartas *et*

al., 2024; Olson & Metz, 2020; Vergunst & Berry, 2022). Resilience Theory provides a complementary strengths-based perspective by explaining why many children continue to demonstrate positive psychological adaptation despite experiencing significant adversity. Rather than conceptualising resilience as a fixed individual trait, contemporary resilience theory views it as a dynamic developmental process that emerges through interactions between personal strengths, supportive relationships, protective family environments, schools, communities, and broader social resources (Werner, 2000; Zimmerman *et al.*, 2013). Within the Malawian context, resilience may be strengthened by protective factors including cohesive family relationships, extended kinship networks, faith communities, positive school environments, cultural values of collective responsibility, and community solidarity. These protective resources can buffer the adverse psychological consequences of climate-related disasters by fostering emotional security, adaptive coping, social connectedness, and hope.

Collectively, these theoretical perspectives provide a comprehensive conceptual foundation for the present study. Bronfenbrenner's Ecological Systems Theory identifies the multiple environmental systems through which climate change influences children's development; Family Stress Theory explains the family-level mechanisms through which climate-related adversity translates into psychological distress; and Resilience Theory illustrates how protective factors across individual, family, community, and societal levels promote positive adaptation despite repeated environmental shocks. The integration of these theories offers a robust framework for understanding children's mental health within disaster-prone communities in Malawi and informs the interpretation of the study findings as well as the development of multilevel interventions and climate-responsive mental health policies.

Evidence and Knowledge Gaps

Significant empirical, methodological, developmental, and policy gaps persist in the within the exact literature. Geographically, most climate-mental health research has been conducted high-income countries and tends to focus predominantly on eco-anxiety associated with anticipated future climate threats rather than on the direct impacts of disaster exposure (Cianconi *et al.*, 2020; Cosh *et al.*, 2024). From a developmental perspective, existing studies frequently conceptualise children as a homogeneous population group, failing to adequately distinguish between infancy, early childhood, middle childhood, and adolescence. Methodologically, there remains a notable scarcity of qualitative research into community-level interpretations of children's emotional wellbeing in disaster-prone contexts, particularly within low-income countries. In the specific case of Malawi, despite recurrent and devastating climate events including Cyclones Idai, Ana, Gombe, Freddy, and El Niño-associated droughts, rempirical investigations into their

psychological ramifications for young children remain comparatively limited. The present study addresses these gaps by generating contextually grounded qualitative evidence on the intersection of climate change and child mental health across six climate-disaster prone districts in Malawi.

MATERIALS AND METHODS

Research Paradigm and Approach

This study was guided by the constructivist-interpretivist paradigm, which assumes that reality is socially constructed through individuals' experiences, interactions, and interpretations of the world (Lincoln & Guba, 1985). Within this paradigm, knowledge is viewed as context-dependent and co-constructed between researchers and participants. Rather than seeking a single objective truth, interpretivist research aims to understand how people make meaning of their experiences within particular cultural, social, and environmental contexts. A qualitative research approach was adopted because qualitative inquiry facilitates in-depth understanding of lived experiences, perceptions, meanings, and contextual realities that cannot be adequately captured through standardised quantitative measures (Creswell & Poth, 2018; Patton, 2015).

Research Design

The study adopted an exploratory qualitative descriptive design, which is appropriate when limited empirical evidence exists and researchers seek to understand participants' perceptions, experiences, beliefs, and contextual realities without imposing predefined theoretical explanations (Sandelowski, 2000). This design enabled detailed exploration of community perceptions of climate change, children's emotional and behavioural responses to climate-related disasters, perceived psychological consequences, family and community coping mechanisms, existing psychosocial support systems, and recommendations for strengthening child mental health within climate adaptation programmes.

Study Setting

The study was conducted across six climate-vulnerable districts of Malawi purposively selected to represent diverse geographical regions and varying climate-related hazards: Karonga, Mzimba, Lilongwe, Dedza, Machinga, and Chikwawa. These districts have experienced repeated climate-related disasters including floods, prolonged droughts, cyclones, food insecurity, displacement, and environmental degradation over the past decade. Together, they provide variation in ecological conditions, disaster exposure, agricultural systems, socioeconomic characteristics, rural-urban contexts, and cultural diversity.

Participants and Sampling

This study sought perspectives from individuals with direct roles in children's care, protection, education, health, psychosocial support, disaster response, and

climate adaptation. The participant pool encompassed parents and caregivers, community and traditional leaders, Early Childhood Development (ECD) caregivers, primary school teachers, healthcare workers, social welfare officers, child protection officers, disaster management personnel, environmental officers, district education officials, civil society representatives, and faith leaders.

Purposive sampling was employed to ensure the intentional recruitment of individuals possessing substantive knowledge, lived experience, or professional expertise relevant to the research phenomenon (Patton, 2015). Maximum variation sampling was applied concurrently to capture diverse perspectives across geographical regions, occupational backgrounds, gender, and community settings. Sample size was determined by the principles of information power and thematic saturation rather than statistical representativeness (Malterud *et al.*, 2016). Focus Group Discussions (FGDs) comprised approximately 8–12 participants each and were conducted with parents, caregivers, community volunteers, ECD caregivers, and community development structures. Key Informant Interviews (KIIs) engaged district government officials, healthcare professionals, education officers, disaster management personnel, environmental specialists, policymakers, NGO representatives, and child protection specialists. Data collection continued until thematic saturation was reached.

A total of 179 participants were purposively recruited to provide in-depth perspectives on climate change impacts on children's mental health and psychosocial wellbeing across climate-vulnerable communities in Malawi. Primary qualitative data were generated through 12 FGDs and 35 KIIs conducted across six climate-vulnerable districts representing Malawi's three administrative regions: Karonga and Mzimba (Northern Region), Lilongwe and Dedza (Central Region), and Chikwawa and Machinga (Southern Region).

The 12 FGDs comprised two distinct groupings: six discussions with parents and caregivers of young children attending Community-Based Childcare Centres (CBCCs), and six discussions with community leadership structures, including ECD Centre Management Committees, Village Health Committees, Child Protection Committees, Disaster Risk Management Committees, community volunteers, and traditional leaders. Each focus group engaged approximately 12 participants, collectively generating perspectives from 144 community-level respondents.

The 35 KIIs included 30 district-level participants, five officials drawn from each of the six study districts alongside five national-level policymakers and programme managers. District-level participants comprised District Social Welfare Officers, ECD Coordinators, Child Health and Nutrition Officers, Meteorological or Disaster Risk Management Officers, and Directors of Planning and Development. National-level participants included senior officials with responsibilities spanning child protection, disaster risk management, education, health, and nutrition.

All participants were selected on the basis of their direct involvement in early childhood development, disaster risk reduction, climate adaptation, child protection, health, education, or community leadership, ensuring the inclusion of individuals with rich experiential and professional knowledge of children's circumstances before, during, and after climate-related events. Sampling proceeded until thematic saturation was achieved, defined as the point at which successive interviews and focus group discussions yielded no substantially new concepts or themes, confirming sufficient depth and breadth in the qualitative dataset.

Table 1: Participant Characteristics and Study Sample Distribution

Participant Category	Number
Total participants	179
Focus Group Discussions	12
Participants in FGDs	144
Key Informant Interviews	35
District-level KIIs	30
National-level KIIs	5
Districts included	6
Regions represented	3
Parent/Caregiver FGDs	6
Community Committee FGDs	6

Data Collection

Two complementary qualitative methods were employed. FGDs explored collective community perspectives regarding children's emotional wellbeing, climate-related experiences, family coping, community resilience, and psychosocial support. Semi-structured KIIs explored expert perspectives regarding climate adaptation, child protection, education, disaster response, psychosocial interventions, health systems, and policy development. Interview guides were developed for each method, reviewed by experts in psychology, climate change, public health, and qualitative research, and pilot tested prior to data collection.

Ethical approval was obtained prior to fieldwork, with additional permissions secured from district authorities, local government, traditional leaders, and participating institutions. Participants received detailed information regarding study objectives before providing written informed consent. Interviews and FGDs were conducted in English or local languages depending on participant preference. With permission, discussions were audio-recorded. Researchers maintained detailed field notes documenting observations, contextual information, participant interactions, non-verbal communication, and researcher reflections. Transcription was undertaken verbatim before translation into English where necessary.

Data Analysis

Data were analysed using reflexive thematic analysis following Braun and Clarke's (2006, 2021) six-phase approach: familiarisation with data, generation of initial

codes, searching for themes, reviewing themes, defining and naming themes, and producing the final analytical narrative. Coding was conducted manually and supported by qualitative data analysis software (NVivo 14). Themes were continuously refined through comparison across interviews, FGDs, districts, and participant categories. Both inductive coding (allowing themes to emerge from participants' narratives) and deductive coding (guided by the theoretical frameworks) were employed.

Trustworthiness

Trustworthiness was established using the four criteria proposed by Lincoln and Guba (1985). Credibility was enhanced through prolonged engagement in the field, triangulation of data sources and participant groups, member checking where appropriate, and peer debriefing among the research team. Transferability was ensured through rich descriptions of the study context, participants, and methodology. Dependability was maintained through an audit trail documenting methodological decisions, coding processes, and theme development. Confirmability was demonstrated through researcher reflexivity, audit documentation, and verbatim quotations grounded in participants' perspectives.

Ethical Considerations

Ethical approval was obtained from the appropriate institutional research ethics committee. Ethical principles included voluntary participation, informed consent, confidentiality, anonymity, privacy, and the right to withdraw without penalty. Research data were stored securely. Because discussions involved potentially distressing experiences related to disasters and child wellbeing, participants experiencing emotional discomfort were offered referral information for appropriate psychosocial support services where available.

Findings

Thematic analysis generated eight major themes and

Table 2: Overview of major themes and subthemes.

Theme	Focus
Theme 1	Community understanding of climate change
Theme 2	Children's emotional and psychological responses
Theme 3	Climate-related trauma and disaster experiences
Theme 4	Family disruption and psychosocial wellbeing
Theme 5	Educational disruption and developmental consequences
Theme 6	Community resilience and coping mechanisms
Theme 7	Barriers to child mental health support
Theme 8	Recommendations for climate-responsive child mental health services

several interconnected subthemes illustrating how climate change affects children across all ecological levels. The chapter presents participants' voices through verbatim quotations to ground the themes in their experiences.

Community Understanding of Climate Change

Participants demonstrated a sophisticated understanding of climate change, describing it as a major threat affecting nearly every aspect of community life. Most participants associated climate change with unpredictable rainfall, prolonged drought, severe flooding, cyclones, crop failure, food shortage, displacement, and increasing poverty, and emphasised that these conditions had intensified markedly in recent years.

One participant explained: "The seasons have completely changed. We no longer know when rains will begin or end. Sometimes we receive too much rain at once, and other times nothing grows because of drought." Community leaders consistently linked environmental change to increasing social vulnerability, with one village leader stating: "When crops fail, everything else fails. Children stop eating well, parents become stressed, diseases increase, and everyone suffers emotionally."

Children's Emotional and Psychological Responses

The strongest theme across all interviews concerned children's emotional wellbeing. Participants consistently reported that children experience fear, anxiety, sadness, grief, hopelessness, confusion, emotional withdrawal, and nightmares following floods, cyclones, and prolonged drought. Persistent fear was especially prominent. One caregiver explained: "Since the floods, my child becomes frightened whenever heavy clouds appear." Teachers similarly observed increasing emotional distress: "Many children have difficulty concentrating after disasters. Some become very quiet while others become aggressive."

Participants also reported increasing anxiety about the future, with older children worrying about food shortages, school attendance, family income, and further disasters. One social welfare officer described: "Children ask difficult questions that parents cannot answer. They worry about whether life will ever return to normal." These observations are consistent with literature documenting elevated anxiety and anticipatory distress among climate-affected children (Burke *et al.*, 2018; Brophy *et al.*, 2022).

Climate-Related Trauma

Participants described repeated exposure to traumatic events including witnessing floods, destruction of homes, deaths, displacement, hunger, family separation, and evacuation. Healthcare workers described symptoms consistent with traumatic stress: nightmares, hypervigilance, emotional withdrawal, irritability, avoidance, and sleep disturbance. One healthcare worker explained: "Some children continue reliving the disaster months after it has happened."

Crucially, participants emphasised that psychological recovery becomes increasingly difficult because disasters

occur recurrently: "Before children recover from one disaster, another one arrives." Many children also experienced grief following loss of relatives, destruction of homes, loss of livestock, loss of familiar places, and disrupted friendships after displacement.

Family Disruption and Psychosocial Wellbeing

Participants consistently underscored the inseparability of children's mental health from the broader wellbeing of their families. Climate change was reported to undermine parenting capacity, caregiving quality, household income, nutrition, housing stability, and social support networks. One father captured this dynamic plainly: "Parents become stressed because they cannot provide food. Children see everything." Caregiver stress, depression, anxiety, hopelessness, and intrafamilial conflict were perceived to exert direct adverse effects on children's emotional functioning, as reflected in one participant's observation: "When parents cry, children also become afraid."

Food insecurity emerged as a particularly prominent driver of psychological distress among children. Participants described hunger as producing irritability, diminished concentration, persistent sadness, and school absenteeism. A community volunteer noted: "Hungry children cannot play normally." These accounts are consistent with Family Stress Theory and developmental research establishing links between household economic hardship, compromised parenting practices, and heightened child emotional vulnerability (Burke *et al.*, 2018; Cuartas *et al.*, 2024).

Family Stress Theory (Hill, 1949; McCubbin & Patterson, 1983) posits those external pressures, including disasters, droughts, floods, displacement, and economic shocks, affect child development indirectly through their corrosive effects on family functioning, caregiver wellbeing, and household coping capacity. In the context of escalating climate change, repeated environmental disruptions intensify family stress, destabilise caregiving routines, erode economic security, and amplify psychological distress among caregivers, collectively heightening children's susceptibility to adverse mental health outcomes (Cuartas *et al.*, 2024; Vergunst & Berry, 2022).

Educational Disruption

Teachers and education officials reported widespread educational disruption resulting from floods, cyclones, damaged school infrastructure, displacement, and prolonged school closures. Participants observed declining concentration, reduced academic performance, emotional withdrawal, and increased absenteeism. One teacher stated: "Children lose months of learning after floods." Others noted that affected children often "sit quietly but their minds are somewhere else."

These findings reinforce developmental literature demonstrating that climate change disrupts educational continuity, cognitive development, social learning, and psychosocial adjustment (Helldén *et al.*, 2021; Vergunst

& Berry, 2022). Schools serve not only educational functions but also provide predictable routines, peer relationships, emotional support, nutrition programmes, and resilience-building opportunities. Disruption of schooling therefore may have long-lasting consequences extending well beyond academic achievement.

Community Resilience and Protective Factors

Despite significant adversity, participants identified numerous resilience-promoting factors including family support, faith, community solidarity, schools, traditional leadership, psychosocial support, recreation, and children's play. Participants consistently described caregivers as children's strongest protective factor, with families promoting resilience through reassurance, emotional support, routines, storytelling, and prayer: "Even when we have little food, we try to comfort our children."

Faith communities emerged as particularly important providers of psychosocial support, offering counselling, prayer, hope, and material assistance. One faith leader stated: "Children regain hope when they know the community has not abandoned them." These findings support Resilience Theory by illustrating that resilience emerges through supportive ecological relationships rather than solely through individual psychological characteristics (Werner, 2000; Zimmerman *et al.*, 2013).

Barriers to Child Mental Health Services

Participants identified numerous barriers to mental health support including shortages of psychologists, inadequate counselling services, stigma, poor transportation, limited funding, and weak referral systems. One healthcare worker stated: "Mental health services for children are almost non-existent in many rural areas." These findings are consistent with evidence indicating that many low-income countries face substantial shortages of mental health professionals while simultaneously experiencing increasing climate-related psychological needs (WHO, 2022).

Recommendations for Strengthening Climate-Responsive Child Mental Health Services

Participants proposed several priority recommendations. Regarding schools, they recommended school counselling, teacher training in psychological first aid, psychosocial education, and peer support programmes. Regarding disaster response, they emphasised that emergency responses should include psychological first aid, child-friendly spaces, family counselling, and long-term follow-up. Community awareness campaigns regarding climate change, child mental health, trauma, resilience, and psychosocial support were also strongly advocated. Finally, participants called for increased government investment in specialist training, community mental health services, climate-resilient schools, and stronger child protection systems.

RESULTS AND DISCUSSION

Climate Change as a Lived Mental Health Reality

Consistent with global evidence, this study found that climate change constitutes both an environmental crisis and a public mental health emergency. However, unlike much of the literature originating from high-income countries that emphasises eco-anxiety and anticipatory climate distress, participants described children's mental health challenges as arising primarily from repeated direct exposure to real and recurring disasters, including floods, droughts, cyclones, displacement, and food insecurity (Boluda-Verdú *et al.*, 2022; Cosh *et al.*, 2024; Mosca *et al.*, 2025). These findings contribute important evidence from a low-income African context where climate change is experienced as an immediate lived reality rather than a future concern, extending current theoretical frameworks and calling for context-sensitive intervention approaches.

Children's Emotional Wellbeing and Trauma

The study found that fear, anxiety, sadness, grief, emotional withdrawal, nightmares, and hopelessness were among the most commonly reported psychological responses among children. These findings strongly support previous studies demonstrating that climate-related disasters substantially increase children's risk of anxiety disorders, depressive symptoms, traumatic stress, emotional dysregulation, and behavioural problems (Burke *et al.*, 2018; Hayes *et al.*, 2018; Lawrance *et al.*, 2022; Vergunst & Berry, 2022). Participants further highlighted that children often experience repeated disasters before recovering from previous events, reflecting the concept of chronic traumatic stress, whereby repeated environmental disruptions overwhelm coping capacities and increase vulnerability to long-term mental health disorders (Berry *et al.*, 2010; WHO, 2022). Such findings underscore the importance of integrating trauma-informed approaches into climate adaptation and disaster response programmes.

Ecological Pathways: Family, School, and Community

The study demonstrated that children's psychological wellbeing is profoundly shaped by family functioning. Crop failure, poverty, unemployment, food insecurity, caregiver stress, and disrupted parenting practices collectively contribute to children's psychological vulnerability, aligning with extensive evidence showing that climate change affects child mental health indirectly through disruptions in family systems and socioeconomic conditions (Burke *et al.*, 2018; Cuartas *et al.*, 2024; Olson & Metz, 2020). Educational disruption also emerged as an important pathway, consistent with developmental literature demonstrating that climate change disrupts educational continuity, cognitive development, and psychosocial adjustment (Helldén *et al.*, 2021; Vergunst & Berry, 2022). Participants also emphasised substantial gaps in mental health service provision, reinforcing

international calls for routine integration of mental health and psychosocial support within humanitarian and disaster response frameworks (WHO, 2022).

Resilience and Protective Factors

Despite considerable adversity, participants identified numerous protective factors that promoted children's resilience. Family support, faith communities, schools, traditional leadership, peer relationships, and community solidarity were consistently viewed as essential sources of emotional recovery and hope. These findings strongly support Resilience Theory, which proposes that positive adaptation occurs when protective factors buffer the effects of adversity (Werner, 2000; Zimmerman *et al.*, 2013; Van Breda, 2001). The findings highlight the importance of culturally embedded resilience resources frequently overlooked in climate change research originating from high-income countries, supporting calls for climate adaptation strategies that simultaneously reduce environmental risk and strengthen psychosocial resilience across families, schools, healthcare systems, and communities.

Theoretical Contributions

The findings strongly support the integrated Ecological-Resilience Framework by demonstrating that children's mental health is influenced by multiple interconnected environmental systems rather than isolated traumatic events. Climate change affected children at the microsystem level through family stress, caregiver wellbeing, food insecurity, and disrupted parent-child relationships; at the mesosystem level through weakened coordination among families, schools, healthcare providers, and community organisations; at the exosystem level through limited access to mental health services and disaster response systems; at the macrosystem level through national poverty, cultural beliefs, and policy gaps; and at the chronosystem level through recurrent floods, droughts, and cyclones creating cumulative developmental risks over time. The study further extends Resilience Theory by illustrating that resilience is socially constructed through relationships, institutions, and community resources rather than residing exclusively in individual characteristics, a finding with important implications for intervention design in climate-vulnerable low-income settings.

Contribution to Climate Change and Child Mental Health Scholarship

This study contributes to the growing body of research on climate change and child mental health by providing context-specific evidence from Malawi, one of the world's most climate-vulnerable countries. While existing research has largely focused on high-income settings, this study highlights how recurrent floods, droughts, cyclones, displacement, and food insecurity affect children's psychological wellbeing within a low-income African context.

The study advances theoretical understanding by integrating Bronfenbrenner's Ecological Systems Theory, Family Stress Theory, and Resilience Theory into a unified framework. This integrated perspective demonstrates how climate-related adversities disrupt multiple ecological systems, place stress on family functioning, and influence children's mental health while recognising the protective role of supportive families, communities, and cultural resilience.

Methodologically, the study demonstrates the value of qualitative inquiry in capturing the lived experiences of children and those who care for them. Evidence generated from Focus Group Discussions and Key Informant Interviews across six climate-vulnerable districts provides rich insights into the complex social and psychological impacts of climate-related disasters that are often overlooked in quantitative research.

The findings also have important policy implications. They underscore the need to integrate child mental health and psychosocial support into climate adaptation, disaster risk reduction, education, health, and social protection programmes. Rather than focusing solely on physical recovery, climate responses should adopt child-centred and family-oriented approaches that strengthen resilience alongside infrastructure and livelihood recovery.

CONCLUSION

Principal Conclusions

Climate change has become one of the most significant emerging threats to children's mental health and psychosocial wellbeing in Malawi. Its effects extend well beyond physical destruction to include profound emotional, developmental, educational, and social consequences. Children experience climate-related psychological distress not only through direct exposure to disasters but also through the cumulative disruption of the ecological systems that normally support healthy development. The study concludes that climate-related mental health problems cannot be understood solely from an individual psychological perspective. Children's wellbeing is shaped and supported by interactions among families, schools, healthcare systems, communities, social institutions, and broader societal structural conditions. Furthermore, resilience remains possible despite repeated adversity when supportive relationships, stable caregiving, community solidarity, and accessible psychosocial services are available.

Policy and Practice Implications

National climate adaptation strategies should explicitly incorporate child mental health as a priority area rather than focusing exclusively on physical infrastructure and disaster response. The Government of Malawi should integrate mental health and psychosocial support within national climate adaptation plans, disaster risk reduction frameworks, child protection policies, and education sector strategies. The Ministry of Health should expand investment in child and adolescent mental

health services and strengthen workforce development through increased training of psychologists, psychiatric nurses, social workers, and counsellors. The Ministry of Education, Science and Technology and ministry of Gender, Community Development and Social Welfare should incorporate psychosocial preparedness into communities and school disaster management policies and establish community and school counselling systems within climate-vulnerable districts. Cross-sector collaboration among ministries responsible for health, education, social welfare, disaster management, environment, agriculture, and local government should be strengthened to ensure coordinated responses.

Mental health and psychosocial support should become a routine component of disaster preparedness and humanitarian response, encompassing psychological first aid, trauma-informed care, child-friendly spaces, school-based psychosocial support programmes, and community-based mental health services. Faith-based organisations, traditional leaders, and community volunteers should be actively engaged in psychosocial support because participants consistently identified these institutions as trusted sources of emotional assistance.

Directions for Future Research

Future research should conduct longitudinal studies examining long-term developmental consequences of repeated climate-related disasters; investigate the prevalence of PTSD, anxiety, depression, and eco-anxiety among children using quantitative methods; evaluate the effectiveness of school-based psychosocial interventions following climate-related disasters; examine resilience trajectories among children exposed to multiple disasters over time; explore the mental health experiences of particularly vulnerable populations including children with disabilities, displaced children, and orphaned children; develop and validate culturally appropriate climate-related child mental health assessment tools for Sub-Saharan Africa; and compare children's climate-related mental health experiences across different African countries to strengthen regional evidence.

Limitations

Several limitations should be acknowledged. The qualitative design does not permit statistical generalisation to the entire Malawian population; rather, the study provides in-depth contextual understanding. Findings relied on participants' perceptions and recollections, which may be influenced by recall bias or social desirability. The study explored community perspectives rather than interviewing young children directly, an approach adopted due to ethical considerations surrounding research involving young children exposed to potentially traumatic experiences. Despite these limitations, triangulation across participant groups and districts strengthened the credibility and richness of the findings.

Final Statement

Climate change has emerged as one of the defining threats to children's health, development, and future wellbeing in the twenty-first century. This study demonstrates that its consequences extend far beyond damaged infrastructure, failed harvests, and environmental degradation to include profound psychological, emotional, educational, and developmental challenges affecting children across multiple ecological systems. Protecting children from the mental health consequences of climate change requires a paradigm shift: climate adaptation must move beyond engineering and environmental solutions to embrace child-centred, trauma-informed, resilience-oriented, and ecologically integrated approaches that safeguard psychological wellbeing alongside physical survival. By positioning children's mental health at the centre of climate adaptation policy and practice, Malawi has an opportunity not only to respond to today's climate crisis but also to protect the wellbeing, resilience, and human potential of future generations, advancing commitments to the Sustainable Development Goals, the United Nations Convention on the Rights of the Child, and the Paris Agreement.

Declarations

Funding and Data Ownership

This study was commissioned by ECDC Malawi and funded by AfECN. Publication has been approved by ECDC Malawi, and the funder (AfECN) has confirmed permission to publish.

Table 3: Author contributions.

Author	Contribution
Kizito Chimowa (Author 1)	Manuscript Conceptualization, methodology, project administration, Project supervision, data collection, report writing, editing, referencing, interpretation of findings
Happy Nkhonya (Author 2)	Data collection, data analysis, report writing, field coordination, interpretation of the findings, discussion development, interpretation of the findings
Alfred Shumba Hara (Author 3)	Manuscript conceptualization, theoretical framing, literature review development, thematic synthesis, interpretation of findings, discussion development, referencing, manuscript editing, journal targeting, corresponding author
Joylet Genda (Author 4)	Data collection, data analysis, report writing, field coordination, project administration, project conceptualization

Conflict of Interest

The authors declare no conflicts of interest.

Ethical Approval

Ethical approval was obtained from the appropriate institutional research ethics committee prior to data collection. All participants provided written informed consent.

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