

Climate Change Vulnerability and Resilience Processes among out of School Children of Chitungwiza

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Abstract

This current study sought to develop a better understanding of the processes of vulnerability and resilience among out-of-school children in the context of climate change in Chitungwiza. Specifically, the research examined the climate-related issues these children face in their everyday lives and how they differently respond to the ongoing environmental and socio-economic adversity. The qualitative and phenomenological research design was utilised to explore the lived experiences and personal realities of the participants. Data was collected through semi-structured interviews from ten purposively selected out-of-school children. The findings suggest that climate change continues to seriously affect the mental health of out-of-school children. Participants reported continued feelings of anxiety, fear, stress, hopelessness and emotional distress, often in relation to recurrent droughts, food insecurity and water scarcity. Their stories revealed not only the physical impact of climate change, but also the emotional and psychological toll of living in a state of chronic uncertainty and deprivation. In spite of these challenges, participants demonstrated resilience through the use of social support systems, emotional regulation, problem-solving strategies, spiritual coping, and adaptive livelihood practices. The study further revealed that peer relationships, family support, and community solidarity play an important role in strengthening resilience among vulnerable children. The study recommends that the Ministry of Health and Child Care develop a climate-sensitive mental health strategy for children and adolescents. Similarly, the Ministry of Public Service, Labour, and Social Welfare ought to strengthen social protection systems and access to psychosocial support services for vulnerable children and families.

Keywords: vulnerability, resilience, climate change, schoolchildren, out of school

Introduction and background to the study

Climate change has emerged as one of the most pressing global challenges of our time, with far-reaching implications for human life, ecosystems, and sustainable development (Costanza, 2017). All members of society experience the impacts of climate change such as extreme weather events, resource scarcity, and disruptions to agricultural systems. However, certain

vulnerable groups, including out-of-school children, are disproportionately affected and face heightened difficulties in adapting to these transformative changes (Inoue, 2021). The susceptibility of out-of-school children is made even more vulnerable by the effects of climate change, notably water availability, crop yields, and food security. These children face health hazards and higher mortality rates due to a lack of access to clean water sources, a rise in the prevalence of waterborne infections, and other factors World Health Organization (2023). Their physical and cognitive development is badly impacted by inadequate availability to nutrient-rich food because of crop failures and rising food prices, which feeds a cycle of poverty and marginalisation.

In the context of Chitungwiza, a dormitory town of Harare, the capital city of Zimbabwe, the issue of climate change vulnerability and resilience processes among out-of-school children is particularly salient. Chitungwiza comprises mostly high-density suburbs and is home to a significant population of children who are not enrolled in formal education, often due to socioeconomic factors, family circumstances, or various barriers to accessing schooling (Dube & Chirisa, 2012). These out-of-school children are particularly susceptible to the impacts of climate change, as they frequently reside in informal settlements that lack adequate housing, sanitation, and access to essential services (Bartlett, 2021). It is crucial to look at the larger context of climate change in Zimbabwe in order to comprehend the history of climate change vulnerability in Chitungwiza. Due to its reliance on rain-fed agriculture, inadequate infrastructure, and inadequate disaster response systems, Zimbabwe, like many other African nations, is extremely vulnerable to climate change (Chineka, 2016).

In addition, Chitungwiza faces extra difficulties related to the effects of climate change due to its rapid urbanisation and insufficient sanitation infrastructure. Rapid urbanisation is an important factor increasing Chitungwiza's vulnerability to climate change. In order to address the housing shortage in Harare, the government authorised the creation of the satellite town of Chitungwiza in 1978. However, the town experienced unplanned and quick growth as a result of poor planning and infrastructure development, which led to overpopulation, subpar housing, and restricted access to essential services. The population's susceptibility to the effects of climate change, particularly children who are not in school, was made worse by the urbanisation process (Kasperson & Kasperson, 2012).

The psychological perspective is crucial in understanding the multifaceted challenges faced by out-of-school children in Chitungwiza in the face of climate change. These children not only

grapple with the direct physical impacts of extreme weather events but also experience a range of psychological stressors, including emotional distress, disruptions to their daily routines, and heightened feelings of vulnerability and insecurity (Manning & Clayton, 2018). The lack of educational opportunities and limited access to support systems further exacerbate the psychological toll on these children, undermining their overall well-being and adaptive capacity.

Exploring the climate change vulnerability and resilience processes among out-of-school children in Chitungwiza from a psychological perspective is essential for several reasons. The vulnerability of children who are not in school was not expressly taken into account in the early stages of climate change vulnerability assessments. However, growing data has revealed their increased susceptibility as a result of resource scarcity, ignorance of climate change, and the escalation of poverty, inequality, and eviction brought on by its effects (McNamara & Buggy, 2017). First, it provides a deeper understanding of the unique challenges and coping mechanisms employed by this marginalised group, which can inform the development of targeted interventions and support systems (Mupfumira, 2021). Second, it sheds light on the psychological impacts of climate change on children, a critical consideration in promoting holistic and equitable climate adaptation strategies (Sheffield & Landrigan, 2011). Finally, it contributes to the broader body of knowledge on the complex interplay between environmental, social, and psychological factors in shaping the resilience and adaptive capacity of vulnerable populations.

This study therefore sought to investigate climate change vulnerability and resilience processes among out-of-school children in Chitungwiza, Zimbabwe, from a psychological perspective. The study specifically explored the climate-related vulnerabilities experienced by out-of-school children and examined the coping strategies, support systems, and resilience processes they utilised in adapting to the impacts of climate change.

Literature review

Cognitive reframing

Climate change has increasingly become a pressing issue for communities worldwide affecting several aspects of life including agriculture, infrastructure and health (Delfet, 2017). The most vulnerable groups impacted by climate change, who often lack necessary resources and support, are out-of-school children who struggle to adapt and cope with its effects. It is therefore important to study the psychological resilience mechanisms used by these youngsters

in order to understand their coping strategies with the challenges of climate change (Mkwambisi & Tirivangasi, 2017).

Psychological resilience refers to the capacity to cope with, adapt to, and function in the face of challenges, trauma, and severe stressors. Climate change can exacerbate the challenges for already disadvantaged out-of-school children who have limited access to education and resources (Hanna, 2016). Notwithstanding these difficulties, numerous children who are not attending school demonstrate exceptional fortitude in response to the effects of climate change. Cognitive reframing is a frequently used psychological resilience method among youngsters who are not attending school. This entails altering a child's perception and understanding of the issues presented by climate change, enabling them to cultivate a more optimistic and hopeful perspective. Zhao (2020) asserts that cognitive reframing plays a crucial role in psychological resilience by enabling individuals to re-evaluate their experiences in a manner that diminishes discomfort and fosters adaptive coping.

Social support networks

Another crucial aspect of building resilience in out-of-school children involves using social support networks. These youngsters frequently depend on their family, friends, and community members for emotional, practical, and tangible assistance during difficult times. Strong social support has been identified as a critical element in fostering resilience among vulnerable populations (Intergovernmental Panel on Climate Change, 2014). Access to supportive relationships enhances the ability of out-of-school children to effectively deal with the problems posed by climate change. Moreover, the development of problem-solving and coping abilities greatly contributes to the cultivation of resilience in children who are not attending school. They frequently utilise diverse problem-solving methodologies to mitigate the consequences of climate change, including identifying other sources of sustenance and hydration, seeking refuge, and altering their means of livelihood. The capacity to proficiently handle and adapt to difficulties has been recognised as a fundamental element of psychological resilience (FAO, 2015).

Cultural identity and sense of belonging

In addition, preserving a strong cultural identity and sense of belonging can also enhance the ability of children who are not attending school to withstand the effects of climate change. Through the preservation of their cultural traditions, values, and beliefs, these children are able to derive resilience and assistance from their cultural heritage, empowering them to overcome

the difficulties presented by climate change (Zimbabwe Agenda for Sustainable Socio-economic Transformation, 2015). Zhao (2020) argue that out-of-school children, despite their psychological resilience, still experience severe hardships and vulnerabilities as a result of climate change. Factors such as poverty, restricted access to education, and scarce resources might worsen the effects of climate change on young children, hindering their ability to achieve their maximum capabilities.

Resilience mechanisms

It is imperative to provide out-of-school children impacted by climate change with psychosocial support and mental health services to foster their resilience. Interventions that include counselling, therapy, and other mental health resources can assist children in acquiring coping mechanisms, dealing with traumatic experiences, and cultivating a sense of agency and control when confronted with environmental difficulties (Chineka, 2016). These treatments can enhance mental health and well-being in the context of climate change by attending to the psychological needs of out-of-school children.

The significance of education, as a resilience mechanism for out-of-school children impacted by climate change, cannot be exaggerated. The provision of high-quality education enables children to acquire the necessary knowledge, skills, and resources to comprehend and adjust to the consequences of environmental shifts (Mugambiwa & Tirivangasi, 2017). Interventions in education that give priority to the needs of out-of-school children, such as programmes that are not part of the formal education system and alternative learning programmes, can assist in developing cognitive and emotional resilience (Shanker et al., 2015).

Resilience theory

Resilience theory emphasises the dynamic processes that allow children to adapt positively in the face of significant adversity or risk factors (Ungar, 2016). A key tenet of resilience theory is that positive adaptation can occur despite the presence of risk factors through a combination of individual, familial, and community-level protective factors (Masten, 2021). Scholars such as Masten (2021), Michael Ungar (2011, 2018, 2019), and Froma Walsh (2016) have made significant contributions to understanding the complex, interactive processes that shape child resilience. Masten's work on "ordinary magic" highlights how common, everyday resources and relationships can foster resilience in children facing adversity (Masten, 2018). Masten (2018) emphasises the importance of considering children's developmental assets, such as

cognitive and self-regulation skills, as well as the protective role of caregiving environments and community-level supports.

Similarly, in the social-ecological model of resilience, Ungar (2018) underscores the bidirectional influences between individual characteristics and the sociocultural context. Ungar (2018) argues that resilience is not solely an individual trait, but rather an interactive process shaped by the availability and accessibility of health resources within a child's social environment. In the work on family resilience, Froma Walsh (2016) highlights the crucial role of family processes, such as organisational patterns, communication, and belief systems, in promoting positive adaptation among children facing adversity, including climate-related challenges.

This body of resilience theory and research suggests that understanding climate change vulnerability and resilience among out-of-school children in Chitungwiza requires examining the interplay between individual, familial, and community-level factors. It is important to explore how out-of-school children's personal characteristics, family dynamics, and access to community resources and support systems contribute to their ability to navigate and adapt to climate-related risks and stressors. Some scholars have emphasised the importance of considering the unique developmental needs and perspectives of children when examining their experiences of climate change (Tanner, 2010). Children often face disproportionate risks due to their stage of development, dependence on caregivers, and limited agency. However, children can also be important agents of change, contributing valuable insights and influencing their families and communities.

In addition to the foundational resilience theory, this study is further informed by recent literature examining the unique experiences and adaptive capacities of children facing the impacts of climate change. Researchers have emphasised the crucial need to elevate children's voices and perspectives in climate change discourse and policymaking (Ojala, 2023). One of these researchers, Ojala (2016) highlights how children can develop adaptive coping strategies, such as problem-solving, optimism, and social engagement, to manage their climate change-related worries and fears. However, Ojala (2023) also cautions that children's resilience can be undermined by a lack of agency, limited access to supportive resources, and the compounding effects of other life stressors.

Nurturing child resilience in the face of climate change requires a holistic, child-centred approach that addresses physical, emotional, social, and cognitive needs (Tucci, 2007). In addition, Tucci (2007) emphasises the importance of stable caregiving relationships, community-based support systems, and opportunities for children to actively participate in climate change adaptation and mitigation efforts. Scholars have therefore explored the intersections between climate change, poverty, and child well-being.

Methodology

Research design

The study was a qualitative phenomenological research to explore the lived experiences of out of school children affected by climate change in Chitungwiza. The phenomenological approach was considered suitable since it enabled the researcher to obtain detailed knowledge of the participants' subjective experiences, perceptions, emotions and coping mechanisms regarding climate-related vulnerabilities. The design enabled the researcher to investigate the meaning attributed by participants to their experiences and how processes of resilience are developed in difficult environmental and socio-economic settings.

Selection criteria and sampling strategy

The study focused on out-of-school children residing in climate-affected communities in Chitungwiza. A purposive sampling technique was employed to select participants who possessed rich and relevant information regarding climate change vulnerability and resilience processes. Purposive sampling was appropriate because the study sought participants who had directly experienced the impacts of climate change and could provide detailed accounts of their coping strategies and lived realities.

A total of ten participants were selected based on the following inclusion criteria:

- i) Being an out-of-school child
- ii) Residing in Chitungwiza
- iii) Having lived experience of climate-related challenges such as drought, food insecurity, or water shortages
- iv) Willingness to participate in the study

Where necessary, guardian consent and participant assent were obtained prior to participation.

Data collection

Data were collected using semi-structured interviews, which are well suited to eliciting rich, in-depth accounts of participants lived experiences, perceptions, and coping strategies. The interview guide was designed to explore children's experiences of climate-related challenges, their psychological and emotional responses, as well as the coping mechanisms and support systems they utilised. Interviews were conducted in Shona to ensure cultural relevance and to facilitate authentic expression. Each interview took place in a private and comfortable setting, with participants assured of confidentiality and anonymity throughout the process. With consent, interviews were audio-recorded, transcribed verbatim, and subsequently translated into English for analysis. In addition, observational notes and relevant documents were utilised to provide contextual insight into climate change impacts and available community support systems.

Data analysis

Data were analysed using reflexive thematic analysis, following the framework proposed by Braun and Clarke (2006, 2019). This method was selected for its flexibility and its suitability for exploring under-researched phenomena. The analysis involved an iterative process beginning with familiarisation with the data through repeated reading of transcripts, followed by the generation of initial codes. A combination of inductive (data-driven) and deductive (theory-informed) coding approaches was employed to capture both emerging patterns and concepts grounded in existing literature (Fereday & Muir-Cochrane, 2006). Codes were subsequently organised into potential themes, which were reviewed, refined, and defined to ensure coherence and distinctiveness. Both semantic and latent levels of meaning were examined to provide a comprehensive and nuanced understanding of participants' experiences. To enhance the trustworthiness of the analysis, strategies such as member checking, reflexive journaling, and maintaining an audit trail were employed (Nowell et al., 2017; Creswell & Poth, 2016), ensuring that the findings accurately reflected participants' perspectives and that the analytical process remained transparent and rigorous.

Ethical Considerations

The study adhered to established ethical principles governing research involving vulnerable populations, particularly children. Informed consent and assent were obtained from all participants and their guardians where applicable, ensuring that they were fully aware of the study's purpose, procedures, and their right to withdraw at any stage without penalty.

Confidentiality and anonymity were strictly maintained using pseudonyms and secure data storage. Attention was paid to the principle of beneficence, with efforts made to maximise the potential benefits of the research while minimising any risk of harm. Given the sensitivity of the subject matter, a trauma-informed and child-sensitive approach was adopted throughout the data collection process. This included the use of empathetic and non-intrusive questioning techniques, as well as monitoring participants for signs of distress. Where necessary, participants were provided with information and referrals to appropriate psychosocial support services, ensuring that their wellbeing was prioritised throughout the research process.

Findings

Resilience and coping strategies

Despite the significant challenges they faced, many out-of-school children in Chitungwiza demonstrated remarkable resilience in adapting to the changing climate. The participants had to find clever ways to solve problems, using their own ideas and traditional knowledge to get food, water, and shelter as the environment changes around them. Even though it was really challenging, this process of adapting helped them feel more in control and self-reliant, which was good for their mental well-being.

CH3: We are learning to grow crops that can withstand drought.

CH4: I try to learn about saving water to help my family.

CH2: We are working together with our neighbours to prevent weather disasters.

CH3: I thank God because he gives us the strength to keep going.

Crucially, many out-of-school children in Chitungwiza also found strength and solace in their communities as they navigated the impacts of climate change by sharing their experiences, pooling resources, and supporting one another. These children built vital networks of mutual aid and emotional sustenance. This sense of collective resilience, rooted in shared cultural values and traditions, has proven pivotal in helping them cope with the psychological toll of the climate crisis and maintain hope for the future.

Coping mechanisms and strategies

In the face of the significant stress and uncertainty brought on by climate change, the participants developed remarkable emotional regulation skills. Through practices like deep breathing, positive self-talk, and connecting with supportive community members, these children found ways to manage their fear, anxiety, and despair. This ability to self-soothe and maintain emotional stability served as a critical foundation for their overall resilience.

CH5: When I'm scared about what's going on, I just cry. But when I talk to my dad, he helps me.

CH8: I try to remember that there is hope by thinking about other good things.

CH3: When there isn't enough water, we dig a new well to get water for drinking and farming.

CH1: I help my parents gather rainwater in a variety of containers.

Alongside their emotional coping strategies, the participants also demonstrated remarkable problem-solving skills and resourcefulness in adapting to climate change. Rather than succumbing to feelings of helplessness, these children approach the challenges they face with creativity and determination. Whether it was finding alternative water sources, cultivating drought-resistant crops, or generating income through small-scale enterprises, they persistently employed innovative ways to secure their basic needs and livelihoods. This drive to continuously problem-solve in the face of adversity was a key factor in their resilience.

Social support networks

Despite the heightened tensions and conflicts that climate change has fuelled within some households; the participants also found vital sources of support and resilience in their families. In the face of adversity, these families gathered their deep wells of love, care, and interdependence to bolster one another's emotional and practical needs. For the children, this familial safety net provided a crucial anchor of stability, comfort, and encouragement as they navigated the daunting challenges of the climate crisis.

CH5: My parents give me hope, they help me get ready for the future and tell me that everything will be okay.

CH1: When things get tough, my relatives help us out. We always work together.

CH2: When we play with other kids in our neighbourhood, it takes our minds off our issues.

CH4: I feel strong because of my friends. We talk about what we see in the weather.

Expanding beyond the family unit, out-of-school children in Chitungwiza also found strength and resilience through their broader community and peer support networks. By coming together to share resources, exchange knowledge, and provide emotional sustenance, these young people forged vital webs of mutual aid and solidarity. Whether it was organising collective farming initiatives, establishing child-led savings groups, or simply offering a listening ear, the

community-based support systems that the children cultivated played a pivotal role in fortifying their resilience and ability to cope.

Knowledge and awareness

Even without the benefit of formal schooling, many out-of-school children in Chitungwiza developed a nuanced understanding of the climate crisis and its impacts on their lives. Through their lived experiences and traditional ecological knowledge, the participants pieced together a sophisticated awareness of the complex, interconnected factors driving climate change in their community. This understanding served as a vital foundation for their ability to devise effective coping strategies.

CH1: About climate change, I have understood that it rains less and storms happen more often.

CH4: I learnt about it when I used to go to school, but I also see some of it for myself.

CH7: They tell me what they know about it, and I also watch TV and listen to the radio about it.

CH10: I need to know more about it to figure out what to do.

While formal educational opportunities may be limited, out-of-school children in Chitungwiza have nevertheless found ways to access critical information and knowledge related to climate change adaptation. Through informal channels, such as community forums, intergenerational knowledge sharing, and peer-to-peer exchanges, these children are able to augment their own lived experiences with additional insights and strategies for navigating the climate crisis. This access to relevant, context-specific information further fortifies their overall resilience.

Psychological and emotional well-being

Despite the immense challenges they faced, the participants out-of-school children of Chitungwiza demonstrated an unwavering resilience and sense of hope in the face of the climate crisis. Drawing strength from their community connections, problem-solving skills, and deeply rooted cultural values, these children maintained a steadfast belief in their ability to overcome adversity. This resilient mind set, coupled with a hopeful outlook, served as a critical psychological buffer against the distress and despair that climate change can engender.

CH3: I know things are hard, but I think we can get through it.

CH7: As an adult, I still want to be a doctor and help people who are sick.

CH1: I'm scared sometimes and don't know what to do.

CH10: I've felt very worried because of the lack of water and food. I've had bad dreams, but I've learned to help myself.

The out-of-school children of Chitungwiza were not immune to the significant mental health impacts of the climate crisis. Feelings of anxiety, depression, and grief were common as these young people grappled with the profound disruptions to their lives and livelihoods. However, through the cultivation of emotional regulation skills, social support networks, and a deep-rooted sense of agency, they demonstrated remarkable fortitude in navigating these mental health challenges. This psychological resilience was a crucial component of their overall ability to adapt and thrive in the face of the climate crisis.

Discussion

Grounded in the social-ecological theory (Bronfenbrenner, 1979) and the concept of resilience (Ungar, 2011), the findings reveal the diverse coping mechanisms and adaptive strategies employed by out-of-school children to navigate the challenges posed by climate change. Participants described how the children have drawn upon a range of individual, relational, and community-level resources to build resilience and mitigate the impacts on their well-being.

At the individual level, the data highlights the children's use of cognitive and behavioural strategies such as problem-solving, positive reframing, and engagement in self-care activities. Participants shared accounts of children actively seeking information, developing contingency plans, and mobilising their personal agency to address climate-related threats (Paton & Johnston, 2001). This proactive coping was often coupled with emotion-focused strategies, including mindfulness practices, creative expression, and spiritual/ religious engagement, which helped the children find moments of respite, emotional regulation, and a sense of meaning amid the adversity (Ungar, 2011).

The findings also reveal the critical role of relational and community-level resources in shaping the children's resilience processes. Participants described how the children utilised peer support networks, extended family ties, and community-based organisations to access material, informational, and emotional support. This social embeddedness enabled the children to leverage their social capital, navigate resource constraints, and cultivate a sense of belonging and collective efficacy in the face of climate change (Ungar, 2011). The data highlights the children's engagement in community-level collective action, such as participating in disaster preparedness initiatives, environmental conservation efforts, and advocacy campaigns. These activities have empowered the children to contribute to the resilience of their communities,

while also strengthening their own sense of agency, social connections, and hope for the future (Paton & Johnston, 2001).

The findings also underscore the importance of knowledge and awareness in shaping the resilience of out-of-school children in the face of climate change. Participants described how the children actively sought information, engaged in climate change education, and participated in community-level awareness campaigns to better understand the risks, impacts, and response strategies related to a changing climate.

The data reveals how this knowledge and awareness empowered the children to make informed decisions, develop contingency plans, and advocate for the needs of their communities. Participants shared accounts of children who learned about early warning systems, disaster preparedness protocols, and sustainable agricultural practices, which have enabled them to take proactive measures to mitigate climate-related threats (Paton & Johnston, 2001). The findings highlight the children's engagement in community-based awareness initiatives, where they shared their knowledge and experiences with their peers, families, and local authorities. This did not only strengthen the children's sense of agency and self-efficacy, but also contributed to the broader resilience of their communities by raising awareness and catalysing collective action (Paton & Johnston, 2001).

However, the study also reveals gaps in the children's knowledge, particularly around the complex, long-term implications of climate change and the availability of specialised support services. Participants emphasised the need for targeted, age-appropriate climate change education and information-sharing campaigns to further empower out-of-school children and equip them with the knowledge and skills required to navigate the evolving challenges posed by a changing climate. At the individual level, the data highlights the children's use of cognitive and emotional strategies, such as positive reframing, goal setting, and engagement in self-care activities, which have helped them manage the psychological distress and maintain a sense of purpose amid the adversity (Ungar, 2011). Participants shared accounts of children who have developed a strong sense of self-efficacy, cultivated coping mechanisms, and found meaning through spiritual/religious practices, all of which have been instrumental in sustaining their psychological well-being.

The study highlighted that out-of-school children, while disproportionately affected by climate change, possess innate resilience and adaptability. Their coping mechanisms, encompassing

emotional regulation and problem-solving skills, are crucial for navigating the challenges posed by a changing climate. The study also discovered that community and peer support also play a significant role. Supportive communities offer a sense of belonging and shared experience, while peer interactions provide opportunities for emotional expression, problem-solving, and mutual learning. The research also discovered that access to information and education also plays a crucial role in enhancing children's awareness and understanding. However, out-of-school children, particularly in vulnerable communities, often have limited access to formal education and reliable information sources.

Conclusion

The study highlights that out-of-school children are disproportionately affected by the adverse impacts of climate change, facing heightened psychological, social, and economic vulnerabilities. Despite these challenges, the findings reveal a remarkable level of resilience among these children. They employ diverse coping strategies, including emotional regulation, problem-solving skills, and reliance on social support systems. A key insight from the study is the critical role of social networks particularly peers, family, and community structures in buffering the psychological stress associated with climate change. These support systems not only provide emotional stability but also enhance adaptive capacity. Furthermore, the presence of hope, optimism, and future-oriented thinking significantly contributes to children's resilience, reinforcing their ability to navigate adversity. The study also underscores the importance of climate change awareness and knowledge in strengthening adaptive responses. Children who understand environmental changes are better equipped to adjust their behaviours and expectations, thereby improving their overall wellbeing. In essence, while climate change presents serious and ongoing risks to out-of-school children, their resilience offers a strong foundation upon which interventions can be built. Supporting and strengthening this resilience is essential for promoting sustainable wellbeing and enabling these children to contribute meaningfully to their communities in the future.

Recommendations

The Ministry of Health and Child Care should develop and implement a comprehensive climate-sensitive mental health plan that specifically addresses the psychological impacts of climate change on children and adolescents. Such a strategy should focus on the provision of accessible community-based counselling and psychosocial support services for vulnerable

children, particularly out of school children in climate-affected communities. Training healthcare workers in climate-related mental health issues would also strengthen the ability of local systems to address efficiently to emotional distress associated with environmental crises.

There is also a need to strengthen climate change education and awareness through both formal and informal learning systems. Community-based educational programmes should be developed to ensure that out-of-school children have access to practical knowledge regarding climate adaptation, disaster preparedness, water conservation, and sustainable livelihood strategies. Increasing children's awareness and understanding of climate change may enhance their ability to cope with environmental challenges and make well-considered choices.

The Ministry of Public Service, Labour and Social Welfare should strengthen social protection systems to reduce vulnerability among out-of-school children and their families. This could include scaling up food assistance programmes, increasing access to clean water and healthcare services, and providing financial support to vulnerable households affected by climate-related disasters.

Community structures must also be empowered to take active role in building resilience among children. Community-based support systems, peer support programmes and child participation programmes can help to create safe and supportive environments where children can share experiences, learn coping skills and build emotional resilience.

The Ministry of Education, in collaboration with other stakeholders, should also develop flexible education pathways and vocational training opportunities for out-of-school children. Access to alternative forms of education and skills development may improve children's future opportunities and enhance their adaptive capacity in the context of climate change.

Finally, there is a need for further research to explore the long-term psychological and social effects of climate change on vulnerable children in Zimbabwe. Longitudinal studies might yield further insights into the development of resilience and might help to inform evidence-based interventions and policies.

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