Journal of Socioeconomics and Development

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The role of community dynamics on child wellbeing in the context of climate change in the Mwanza Region, Tanzania

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ARTICLE INFO

►**Research Article**

Article History
Received 18 February 2024
Accepted 24 March 2024
Published 5 April 2024

Keywords
child wellbeing; climatic change challenges; community dynamic; women empowerment

JEL Classification
O13; Q00; Q54

ABSTRACT

The study explored the relationship between community dynamics and child wellbeing in the context of climate change in two districts, Nyamagana and Ilemela, found in the Mwanza Region in Tanzania. This study used a mixed methods research design with 458 participants purposively selected through systematic random sampling. On the other hand, the study applied mixed methods research design (MMRD), which incorporated questionnaires, focus group discussions, and key informant interviews (KII) as data collection methods. The findings established that climate change negatively impacted children's wellbeing through higher temperatures, erratic rainfall, food scarcity, disrupted schooling, and increased diseases. The community dynamics identified that enhanced child wellbeing were strong local resilience and coping strategies, support groups, educational initiatives, and environmental conservation commitment. The study explored a range of community-driven strategies and interventions to enhance child wellbeing, including local adaptation practices, education, improved healthcare, infrastructure development, water conservation, and early warning systems. The research also underlines climate-resilient infrastructure as one of the explicit elements towards tackling climate-related challenges and promoting child wellbeing. The research provides priceless insights and recommendations to communities, stakeholders, and policymakers on tackling climate-related challenges affecting child wellbeing in the Mwanza region and the world at large.

To cite this article: Joseph , L. (2024). The role of community dynamics on child wellbeing in the context of climate change in the Mwanza Region, Tanzania. Journal of Socioeconomics and Development, 7(1), 89-103. https://doi.org/10.31328/jsed.v7i1.5527

ISSN 2615-6075 online; ISSN 2615-6946 print

INTRODUCTION

The 21st century has experienced a significant global challenge in the form of climate change (Yonah et al., 2023). This phenomenon has brought profound changes in various areas, leading to unpleasant conditions and stress on the ecosystem and socioecological system (Joseph, 2022a). The ecosystem patterns and processes are complex and influenced by multiple factors, including primary productivity and chemical balance (Joseph, 2022b). Climate change affects these factors, leading to intricate responses (Doney et al., 2012). For example, a forest's carbon dynamics depend on primary production and ecosystem respiration, which are influenced by different drivers. Physical changes in ecosystems, such as altered thermal stratification in lakes and changes in flood patterns can modify ecosystem structure and function (Clayton, 2023). These changes have economic and human

implications (Doney et al., 2012). Extreme events and shifts in timing often have more significant impacts than changes in average conditions, resulting in higher societal costs (Mahenge & Kaswamila, 2022). Indeed, the impacts of climate change are felt in both developed and developing countries, causing devastation and increasing poverty (Joseph, 2022a).

Societal ecosystems face mounting challenges in their efforts to counter the influence of extreme occurrences like floods and droughts (Mahenge & Kaswamila, 2022). It should be noted that the repercussions of this environmental upheaval stretch well beyond ecological concerns and have broad-reaching effects on global economies and communities, ultimately impacting the overall welfare of societies (IPCC, 2014). Of particular vulnerability are children, women, and the elderly, who bear an unequal share of the reverberating consequences brought about by these environmental metamorphoses (Joseph, 2022b). The impacts of climate change go beyond specific territories and sectors, exerting a widespread influence on various facets of our society. Through the utilization of climate scenarios featuring ample spatial resolution, a more comprehensive comprehension of the varied effects across physical, biological, and cultural environments can be attained (Clayton, 2023). This insight is pivotal for devising efficient strategies to mitigate the adverse effects of climate change and assure the sustainability of ecosystems and food systems. Works by Tabor & Williams (2010) and Brown et al. (2016) underscore the pressing necessity to address climate change and its implications for species distributions, ecological processes, and global food security.

In Africa, changing climate patterns manifest in diverse ways, producing various consequences for natural resources and human communities (Alemaw & Simalenga, 2015). The impacts vary greatly, including warmer temperatures, altered rainfall, and more frequent extreme weather. Moreover, these shifting climate conditions contribute to severe droughts, unpredictable floods, and increased heatwaves, further jeopardizing food and water supplies (Sanna et al., 2007). It is crucial to acknowledge that climate-related risks not only carry significant environmental implications but also act as triggers for the spread of illness, disruption of infrastructure, and displacement of populations, with vulnerable groups being affected most (Marie et al., 2020). Hence, prompt action is needed to develop adaptive strategies and promote international cooperation to effectively address the complex challenges presented by climate change across Africa.

The impact of climate change on East Africa's ecosystems and its people is significant (Marigi, 2017). The shifting climate, marked by rising temperatures and altered rainfall patterns, is causing disturbances in biodiversity and leading to ecosystem shifts (Marie et al., 2020). Consequently, it poses a threat to freshwater habitats due to prolonged droughts and water scarcity, impacting fish populations and increasing vulnerability in agriculture (Lyon & DeWitt, 2012). Moreover, the region is witnessing a rise in extreme weather events, such as floods and storms, resulting in habitat destruction and risks to shore ecosystems (Yonah et al., 2023). Climate-influenced disease spread is also impacting wildlife and human populations (Lyon & DeWitt, 2012). These environmental shifts directly affect livelihoods, especially in agriculture and fishing, and overall economic stability (Emmanuel et al., 2019). The challenges faced by the region due to climate change are interconnected, necessitating comprehensive strategies that consider the interdependence of environmental resilience and human well-being.

The Republic of Tanzania, much like other African nations, is experiencing increasingly severe impacts from climate change (Joseph, 2022b). This includes rising temperatures, prolonged droughts, and unpredictable rainfall patterns, which not only affect public health and livelihoods but also worsen existing challenges (UN, 2009). With its reliance on climate-sensitive agriculture, Tanzania faces disproportionate vulnerability to environmental changes (Carr & Thompson, 2014). Droughts have been increasingly frequent and severe, significantly impacting food production and economic growth and resulting in water scarcity issues (WHO, 2017). This has led to reduced surface-water flows and aquifer recharge, exacerbating the already-existing challenges faced by the country (Hernandez, 2017). The biggest concern remains the presence of harmful cyanobacterial blooms and the potential health risks they pose due to both the decreased quantity and quality of water (Carr & Thompson, 2014).

Nestled in the northwest part of Tanzania, Nyamagana District in the Mwanza Region is an exemplar of the complex interplay between community dynamics and climate change (O'Brien et al., 2021). Characterized by its unique ecology and

socio-economic makeup, this region faces a multitude of challenges generated by climate change (Phoon et al., 2004). With precipitation patterns in flux, rising temperatures, and erratic weather events, Mwanza Region's farming, fishing, and trade-based economies need help to maintain crop productivity, food supplies, and access to water (Pedersen et al., 2022). For many communities, Lake Victoria is of great importance, but its water levels fluctuate and make the vulnerabilities caused by climate change even worse (Carr & Thompson, 2014). This leaves the region with the difficult task of ensuring the wellbeing of its children while navigating community dynamics amidst a changing climate (Pedersen et al., 2022). Since climate change is associated with physical and social impacts, it is essential to understand how communities develop mitigation and adaptation strategies to promote children's wellbeing. From this perspective, it creates a need to explore the outcome and strategies of community dynamics on the wellbeing of children in the changing climate. In this line, the study centered on three specific objectives, which are: (i) to identify climatic change challenges affect child wellbeing in the community; (ii) the role of community dynamics in moderating climate change impacts on the wellbeing of children in the community and (iii) community-driven strategies and interventions in enhancing child wellbeing amidst of climate change in the community.

RESEARCH METHOD

The study was conducted in Nyamagana and Ilemela Districts, found in the Mwanza Region, because the districts have been experiencing persistent natural calamities, such as floods, associated with climate change impacts (Marigi, 2017) on child wellbeing. Secondly, the community dynamics have been strategizing, initiating, and implementing various programs that enhance child wellbeing amidst climate change. In this context, two specific wards in Nyamagana District, namely Mirongo and Mahina wards, and two wards in Ilemela District, namely Buzuruga and Ibungilo, were chosen for the study. The selection of wards based on the severity of climate change impacts on child wellbeing and the community dynamic initiatives towards promoting child wellbeing. The sample size of the study was 458, selected purposively. The study employed a systematic randomization sampling technique. The purposive sampling technique was chosen over other methods because it allows researchers to gain a deep understanding of the study phenomenon instead of generalizing based on their study, as Malterud et al. (2016). Additionally, Tracy (2020) highlights that purposeful sampling involves selecting data that aligns with the study's research questions, objectives, and purposes.

The study adopted a mixed methods research design (MMRD) as suggested by Creswell (2011) and Bryman (2006) to research and understands the dynamics of community and child wellbeing against the backdrop of climate change in the Mwanza region of Tanzania. It involved using qualitative methods like crucial informant interviews (KIIs) and focus group discussions (FGDs), as well as quantitative methods of household surveys (HS), to get a nuanced understanding of the multifaceted research objectives. The reasons for adopting MMRD included triangulation to ensure convergence of results from different methods (Erzberger & Prein, 1997) complementarities to elaborate as featured by (Greene, 2007), enhance and clarify results from one method using the other (Greene, 2007; 2015).

The FGDs were conducted across four wards in Nyamagana and Ilemela districts in Tanzania. Sixteen FGDs were held with 96 discussants divided into two age groups and gender in each ward. The group size was kept at six to allow sensitive issues to be discussed openly, following scholarly recommendations such as Muijeen et al. (2020) and (Barbour, 2010) who assert that the appropriate group size should range from 4 to 12 participants. They argue that the small size is manageable and enables every participant to participate freely without being dominated by others (Muijeen et al., 2020). Each group spent 80 to 90 minutes in discussion, whereby each participant used an average of 12-15 minutes. This aligns with (Barbour, 2010) recommendation to limit discussion time to 45-90 minutes to prevent loss of ideas and exceeding session time. The FGDs were moderated by local moderators (LM) selected by a researcher with WEO's assistance to guide academic and professional discussions. The Key Informant Interviews (KII) was employed to qualitatively understand insights from experts on climate change, community dynamics, and child well-being. Key informants like Ward Executive Officers (WEO) and district environmental officers were selected for the interviews based on their unique perspectives and knowledge.

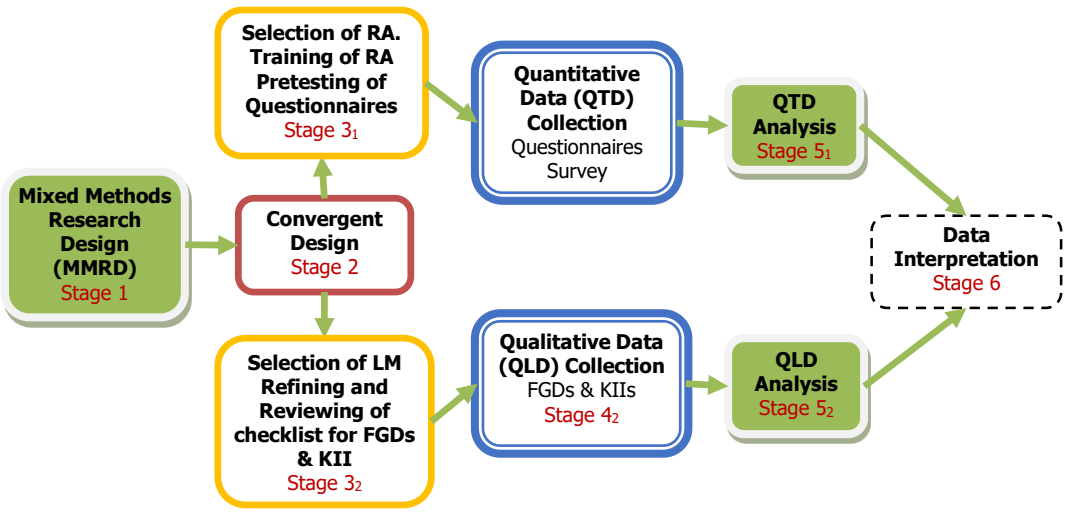

Figure 1: Flow of data collection, analysis and interpretation

Quantitative data were collected through closed-ended questionnaires to efficiently gather information and optimize resources for analysis, as Marshall (2005) and Mills (2011). On the other hand, questionnaires were administered to households in four wards, as stated by Mills (2011). Research assistants (RA) precisely executed the administration guided by the researcher, as recommended by Mills (2011) and Creswell (2012). Face-to-face administration allowed for real-time clarification, as Punch (2010) highlighted. Engaging with community leaders and authorities fostered trust and cooperation, highlighting the commitment to capturing a diverse range of opinions for increased reliability and validity (Figure 1).

The study employed MMRD to collect data from the intended communities. The data collection methods included KIIs and FGDs for qualitative data and HS for quantitative data. The methods were triangulated to allow a thorough understanding of the community understudy and the increase of credibility of the results. Each method of data collection was analyzed separately. For instance, themes and content carefully examined the data from focus group discussions, which covered objectives. Key informant interviews were analyzed in theme and content analyses. In addition, questionnaires were used to gather quantitative data, which were then analyzed through statistical methods, including editing, coding, summarizing, and utilizing the Statistical Package for Social Sciences (SPSS) version 16.

RESULT AND DISCUSSION

Characteristics of Respondents

This section presents the socio-economic characteristics of respondents in the field survey. The results indicate that 51.1% of respondents were female, according to Table 1. The gender proportion could be by chance and varied between wards, with some having more males and some having more females. Both women and men were incorporated to ensure a comprehensive understanding, nuanced analysis, and interpretation of the data, leading to accurate findings. Moreover, by understanding that climate change-related challenges need collective decision-making to eradicate and minimize the vulnerability, gender became a concern in this study.

As per age, 42.7% of respondents were youth (Table 1), and the second largest proportion was people aged 51–64, with 41.6% showing an aging population. In this study, respondents of different age groups with unique perspectives and experiences on the investigated topic were included. The diversity in age also helps to ensure that the study's findings can be applied to a broader population, as age influences attitudes, behaviors, and preferences. In addition, including different age groups enhances the validity and applicability of the research findings. On the economic activities, the % of respondents, 52.53%, rely on substance farming, while only 20.79% depend on small businesses. On the level of education, the overall literacy level in the four wards is good, as

59.8% of respondents had secondary education and above, while the remaining 40.2% had primary education. According to Kaswamila (2006), a higher level of education, specifically secondary education and above, is crucial for enhancing economic development.

Table 1. Socioeconomic Characteristics of Respondents

Item	Frequency	Proportion
	people	%
Gender		
Male	174	48.9
Female	182	51.1
Age of farmer		
34 -50 years	152	42.7
51- 64 years	148	41.6
65 -80 years	56	15.7
Education level		
Primary Education	143	40.2
Secondary Education	185	51.9
Above Secondary Education	28	7.9
Economic Activities		
Substance farming	187	52.5
Small Business	74	20.8
Other Activities	95	26.7

Climatic Change Challenges

The study's findings led to the identification of several crucial complex relationships between climate change's effects and the well-being of children in Nyamagana district, which are fluctuation of temperature, variation of rain seasons, food insecurity, impact on education, psychosocial stress, and eruption diseases and pests, as elaborated below, one after another. On the other hand, a cross-tabulation was conducted at a 95% level of significance to investigate the correlation between variables, namely child well-being, temperature fluctuation, variation of the rain season, food insecurity, impact on education, the eruption of diseases, and pests, as climatic-related challenges that affect the well-being of children in the area. The chi-square tests were also employed to determine the likelihood of the observed relationship between these variables and disturbance of child well-being. The results of each variable in the association with the variable disturbance of the child's well-being varied. Still, almost 90% of the chi-square test results indicated a statistically significant relationship between variables (Table 2).

The field results indicate that 77% (N=356) and 76.4% (N=356) of the respondents spotted fluctuation of temperature and variation of rain season, respectively, as the climatic-related challenges and risks affecting the wellbeing of children in the study area (Table 2). On the other hand, the chi-square test result indicates a significant relationship between disturbance of child wellbeing and temperature fluctuation (X2 (1, N=356) = 8.393a, p=004). Similar chi-square test results on the variation of rainfall and disturbance of child wellbeing indicate that there is a significant relationship between the variables at (χ2 (1, N=356) = 9.076a, p=003). In this context, the result of a p-value of .003 is less than the designated alpha level of 05, which signifies statistical significance between the three variables (temperature fluctuation v/s effect on children's wellbeing and rainfall variation v/s effect on children's wellbeing). That is, the greater the fluctuation in temperature and rainfall in a place, the more vulnerable a child's wellbeing is, resulting in the deterioration of the capacity for a child to grow appropriately. The study explored that children's wellbeing status is more affected by the impacts of climate change as they intersect with other compound factors that threaten children's mental health, including child development, increased rates of depression and suicide, poverty, housing security, and malnutrition.

Furthermore, one of the Key Informant stated that the fluctuation in temperature of a local area disreputably compromises the functioning of the central nervous system of a child and an average person, influences insolation, frustrations, and heat stroke. Indeed, the results show that extreme weather conditions, including drought and floods, affect children's survival in the area. The result of this finding aligns with that of Clayton (2023) assert that extreme weather events make children vulnerable to mental health effects due to their dependence on parents and other caregivers and their lack of coping strategies compared to adults. The longer-term impacts of climate change, such as heat, drought, and poor air quality can increase the risk of anxiety, depression, bipolar disorder, cognitive function impairment, interpersonal aggression, and other mental health impacts." Likewise, UNEP (2020) also found that climate change directly affects the well-being of children in Tanzania.

Table 2. Climatic Challenges Affecting Child Wellbeing

Climatic related challenges affecting child well being	Responses			Chi-Square Test		
	Yes	No	Total	Value	df	p-value
Fluctuation of Temperature	77.0% (274)	23.0% (82)	100% (356)	8.393[a]	1	0.004
Variation of rain season	76.4% (272)	23.6% (84)	100% (356)	9.076[a]	1	0.003
Food insecurity	76.4% (272)	23.6% (84)	100% (356)	10.883[a]	1	0.001
Impact on education	76.7% (273)	23.3% (83)	100% (356)	7.904[a]	1	0.005
Diseases eruption	76.1% (271)	23.9% (85)	100% (356)	10.321[a]	1	0.001

Food Insecurity and Nutrition Challenges

The study results indicate that 76.4% (N=356) mentioned food insecurity as a climatic-related challenge that affects the child's well-being in the area (Table 2). On the other hand, the chi–square test results indicate a statistically significant association between food insecurity and its effect on child well-being at (χ2 (1, N=356) = 10.883a, p=001). The results depict that climate change affects food security through prolonged drought, eruption of diseases and pests, and floods, which destroy food crops. As a result, the child's well-being status is affected and remains uncertain.

The results align with that of Clayton & Hobbs (2017) found that children equally suffer indirectly from climate change, among them food shortage, which leads to intergroup conflicts, economic dislocations, and forced migrations. The dependence of young children is associated closely with health and psychosocial problems emerging due to implications of climate change for the welfare of parents, home life, and economic conditions. Furthermore, Bell (2016) found that children's well-being is disturbed during natural disasters caused by climate variation, such as droughts and floods.

Displacement on Education

The finding of this study revealed that climate change impacts results in poor school attendance of children by 76% (N=356) (Table 2). The chi-square test results of (χ2 (1, N=356) = 7.904a, p=005) indicate a statistically significant relationship between climatic challenges affecting education and their impact on child well-being. These results depict that communities are significantly impacted by climate-induced displacement, creating a complex challenge that intersects with the well-being of children. It was explored that attendance of students in schools fluctuates as per the nature of tragedy caused by the imposed climate variability. Prolonged rain seasons and floods disturb children, and hence, they fail to attend schools for fear of their lives being cut short. This finding was coined by SKM, as one of the discussants in Mirongo ward, in Nyamagana district.

Furthermore, the limited access to support services further compounds the difficulties displaced children face regarding schooling. Also, children's education is put at risk when schools are damaged by heavy rains and floods (Plan International, 2015). According to Doocy et al. (2013) flood fatality is disaggregated by age, reflecting that children are at a high risk. Children affected by climate hazards are at risk of educational disruptions due to forced displacement. Displacement by climate-induced threats boosts inequities in access to education, to the disadvantage of girls and the poorest households. Children who are already at risk of dropout face an even higher risk when exposed to crises worsened by climate change and environmental degradation. Displacement by climate-induced hazards boosts inequities in access to education, to the disadvantage of girls and the poorest households. Children who are already at risk of dropout face an even higher risk when exposed to crises worsened by climate change and environmental degradation

Children Health

Table 2 indicates that 76.1% of the respondents perceived that the eruption of diseases affects a child's wellbeing. Likewise, the chi-square test results (10.321a) with 1 degree of freedom (df) and a p-value of <.001 imply a statistically significant association between the eruption and diseases and their impact on child wellbeing. In this context, the results imply that the rise in temperatures and alterations in precipitation patterns, both climate-related factors, establish favorable conditions for the spread of vector-borne diseases, further compromising the vulnerability of children to illnesses in the area. The turbulent situation influences the eruption of diseases such as Cholera, Malaria, Lyme disease, Cryptosporidiosis, and Respiratory Syncytial Virus (RSV), posing significant

risks. Recognizing the link between climate change and child well-being is crucial, emphasizing the need for comprehensive environmental and health strategies.

Likewise, Costello et al. (2009) found that climate change increases optimum conditions for infection and parasite diseases. Epstein (2001) asserts that health deterioration due to decreased food availability and malnutrition exacerbates other weather effects. According to Epstein (2001) and Costello et al. (2009) stated that due to climate change events, children are injured; hence, sick children miss days of school and have inadequate education. The results are coined by Smith (2014) who assert that the consequences of floods encompass fatalities due to drowning, physical injuries, and the spread of water and vector-borne illnesses. Conversely, the enduring effects involve mental health concerns, malnutrition, and adverse birth outcomes (Alderman et al., 2012; Smith, 2014).

The study through KII revealed that there is psychological stress for children in the study area. This stress poses a significant threat to children's brains' normal development and overall well-being. Climate change impacts, such as floods and prolonged drought, have contributed to stressors that have severe consequences for children's mental health. The uncertainty surrounding irregular rainfall, famine, displacements, and increased health risks has shaken people's sense of security. Children experience stress, anxiety, fear, and vulnerability due to disruptions in their living conditions, such as displacement of homes and removal of community structures. These disruptions lead to emotional distress and a sense of insecurity. Key Informant Mr. JMS, an adult male, emphasized this effect

These findings depict that, the dependence of young children is associated closely with health and psychosocial problems emerging due to the implications of climate change for the welfare of parents, home life, and economic conditions (Clayton & Hobbs, 2017). For instance, higher rates of domestic violence cases have been observed in areas affected by climate change-related events, including hurricanes (Yun et al., 2010).

The Community Dynamics' in Moderating Climate Change's Impact

The impact of climate change on a community and how it is managed dramatically depends on the dynamics within that community. Community dynamics encompass the way individuals interact with each other and collectively deal with climate change. In the Nyamagana District, these dynamics play a crucial role in mitigating the effects of climate change on the wellbeing of children. How communities interact directly affects how children perceive and respond to the impacts of climate change. Strong and resilient communities possess social unity, readily available information, and inclusive governance structures. By comprehending the dynamics within a community, intervention strategies are being developed to foster stronger communities and enhance their ability to adapt to climate change while enhancing child wellbeing. The study identifies nearly five types of community dynamics that have influenced their societies to prioritize improving child wellbeing amidst a changing climate. These dynamics include community resilience and adopting coping strategies, social support networks, community-led educational initiatives, inclusive decision-making processes, and environmental stewardship (Table 3).

This section elucidates the intricate connection between community characteristics and the well-being of children in Mwanza amidst a changing climate. These factors, encompassing community resilience, social support, educational endeavors, inclusive decision-making, vulnerability considerations, and policy backing, collectively offer a comprehensive understanding of the pivotal roles played by communities in mitigating the effects of climate change on children

Community-Driven Strategies and Interventions

The study noted that in both districts, Nyamagana and Ilemela, communities exhibit diverse child response strategies to foster resilience in children amidst shifting climates. The primary methods identified for this objective encompass local adaptation practices, construction of infrastructures, traditional farming techniques, water conservation strategies, and community warning systems. Incorporating these indigenous practices into climate change adaptation strategies significantly improves child well-being, particularly regarding food security and other aspects.

Table 3. Community Dynamics: Nature, Significance, Functions, and Relevant Literature

Nature of Community Dynamic	Meaning in the context of climate change	Functions on promoting child wellbeing amidst climate change	Supporting literatures
Community Resilience and Coping Strategies	This refers to the cognitive and behavioral change that intends to recover and to reduce vulnerability	The resilient communities employ proactive measures like water conservation and agroforestry, as well as establishing early warning systems. These strategies effectively reduce the impact on child well-being.	Chen (2016); Wu et al. (2020); Backmann et al. (2019)
Social Support Networks	Social support refers to the network of resources that an individual perceives, including mutual assistance, guidance, and validation. It offers different types of support, such as information, help, and emotional support.	Strong social bonds provide emotional and material assistance, promoting resource sharing, information exchange, and coping strategies. This support system enhances children's well-being.	Backmann et al. (2019); Satterfield (2015)
Community-Led Educational Initiatives	Community-led learning initiatives are powerful examples of individuals coming together to pursue shared goals like learning, personal growth, and community improvement. These initiatives are characterized by their grassroots nature, showcasing the strength of collective action and knowledge exchange.	These are education programs, led by community leaders and NGOs, focus on climate change, sustainability, and disaster preparedness. The programs enhance children's understanding of climate change and improve their preparedness for future challenges.	Berkman et al. (2000); (Cohen, 2004)
Inclusive Decision-Making Processes	Inclusive decision-making is an approach to considering options and deciding that actively involves all those who would be directly affected by the outcome of the decision.	Inclusive communities have effective strategies for addressing children's needs in climate change. Active community participation leads to responsive outcomes for children's vulnerability. Including children in planning strengthens resilience and prioritizes their welfare in climate change.	Stonew et al (2019); Neely et al. (2021)
Environmental stewardship	The environmental stewardship, which is the responsible use and protection of the natural environment. It involves conservation efforts and sustainable practices by individuals, groups, organizations, and agencies to ensure the environment's long-term health and preservation.	Communities engaged in environmental stewardship teach children the importance of sustainable practices. Promotion a sense of responsibility for the environment helps mitigate the impact of climate change, ensuring a healthie and safer living environment for children	Bennett et al. (2018); (Baynes et al. (2015)

Table 4. Community-Driven Strategies and Interventions Enhancing Child Well-being amidst Climate Change.

Climatic related challenges affecting child well being	Responses			Chi-Square Test		
	Yes	No	Total	Value	df	p-value
Local adaptation practice	77.2% (275)	22.8% (81)	100% (356)	7.672[a]	1	0.006
Community education	77.0% (274)	23.0% (82)	100% (356)	7.208[a]	1	0.007
Health service facilities	74.7% (266)	25.3% (90)	100% (356)	5.370[a]	1	0.020
Water management	76.7% (273)	23.3% (83)	100% (356)	8.345[a]	1	0.004
Construction of infrastructure	74.7% (266)	25.3% (90)	100% (356)	5.354[a]	1	0.021
Creation of disaster Mgt teams	76.4% (272)	23.6% (84)	100% (356)	9.557[a]	1	0.002

1. Local Adaptation Practices

Table 4 indicates the field results, whereby 77.2% (N=356) of the respondents in the study perceive community-level adaptation practices as strategies to promote child well-being against climate change impacts. On the other hand, the chi-square test results of (χ2 (1, N=356) = 7.672a, p=006) indicate a statistically significant relationship between local adaptation strategies and child well-being in a climate change situation. The study noted that the local communities are already involved in proactive adaptation measures, which are crucial for ensuring the safety of children. These adaptation practices are rooted in the community's traditional wisdom and creativity, reflecting a community-based approach to addressing climate change impacts on children.

Furthermore, the study noted that collaborative strategies among farmers enhance the sharing of conventional farming methods that resist climate change, such as developing drought-resistant crops, water-efficient irrigation technologies, and traditional farming methods passed down through generations. These practices promote food security and educate children about environmentally friendly farming, building their capacity for sustainable livelihoods in the future. The communities also engage in rainwater harvesting and the construction of community wells as part of water conservation methods. The sustainable use and management of water are guided by local knowledge, ensuring the availability and reliability of safe drinking water for children. These conservation efforts contribute to a stable water supply, reducing the risk of waterborne diseases and improving living standards.

The finding is supported by Hawkins et al. (2009) and Hopkins (2013) who asserts that, the "transition town" movement where local communities come together to plan their transition away from fossil fuels and build resilience for difficult times ahead. They use collective decision-making and participatory democracy to develop ideas on how to strengthen local economies through low-carbon initiatives

2. Community-Based Education Programs

The field results indicate that 77% (Table 4) of the respondents perceive community-based education as a strategy to reduce the vulnerability of climate change impacts on child wellbeing. Also, the chi-square test results indicate a statistically significant relationship between community-based education and child wellbeing at (χ2 (1, N=356) = 7.208a, p=007). The study noted that community-based education programs play a crucial role in advancing children's welfare in the context of climate change. The programs aim to improve children's climate resilience and instill a culture of environmental conservation in the community. The finding line with that of Sanson et al. (2019) found that young individuals who actively engage in climate action have cultivated various personal and social abilities that enhance their growth and development. Also, Stevenson et al. (2018) and Hawkins et al. (2009) assert the ability to manage their emotions and behaviour, collaborate effectively in teams, uphold social and environmental justice values, and alleviate feelings of isolation and helplessness.

Furthermore, MacDonald et al. (2015) found that in building personal resilience to climate-related threats, Inuit youth in Canada have highlighted the importance of certain factors in safeguarding their mental health and overall wellbeing. Sanson et al. (2022) stated their research findings at Santa Paz National High School in the Philippines, students successfully campaigned for their school to be relocated due to the risk of a landslide. This victory upholds their right to education and showcases their commitment to addressing climate change. These young adolescents are learning about climate change and taking the initiative to educate their families and communities, inspiring broader societal action (Lawson et al., 2018).

3. Community-Driven Water Management Systems

The field results indicate the community water management strategy was perceived positively by 76.7% of the respondents (Table 4). The chi-square test results showed that there is a statistically significant relationship between the community water management strategy and the enhancement of child wellbeing at (χ2 (1, N=356) = 8.345a, p=004). The results imply that when communities understand how to treat and manage water and water sources children use, it promotes their wellbeing. Community-Driven Water Management Systems are a response to climate change challenges and are designed to enhance the wellbeing of children in the local area. In this context, it was noted that local communities have implemented measures such as joint construction of community wells, rainwater harvesting, and promoting sustainable water use practices. The study revealed that this approach addresses immediate water shortage issues and fosters collective responsibility, resilience, and empowerment among residents, leading to long-term benefits for children's welfare in the face of changing climatic conditions.

The finding aligns with Hart (2014) who emphasize that young children should be seen as active participants and central actors of change rather than just victims. By actively engaging in addressing difficulties, children can gain hope and feel psychologically protected. Walden (2009) supports this idea by stating that intergenerational justice principles have been used to involve and represent children in international discussions on climate change mitigation. Including children's perspectives is seen as crucial for enhancing their involvement. Gibbons (2014) argues that current and future generations of

children have a legitimate entitlement to climate justice within their respective nations and globally. Similarly, Walden (2009) state that upholding intergenerational justice requires not only fulfilling the rights of future generations but also incorporating children's perspectives in decision-making processes.

4. Traditional Healing Practices

Traditional healing practices for psychological wellbeing in the Nyamagana and Ilemela Districts in the Mwanza Region are emerging as a community-driven strategy to enhance child wellbeing amidst climate change. The psychological impact of environmental changes on children is recognized by these local communities who actively engage with traditional healing practices that have their roots in culture. Rituals, storytelling, and mentorship programs create spaces for emotional support and strength in the community. This approach does not only deal with immediate mental health issues in children, such as stress, anxiety, and trauma brought about by climatic events, but also strengthens the social structure, leading to a resilient society capable of dealing with emotional challenges resulting from global warming. More importantly, this approach is rooted deeply in the community, drawing on local wisdom and cultural resources, thus empowering them to address mental health under environmental uncertainty. The result of the study aligns with that of (Pere, 1997) who asserts that the human body is not perceived solely as a composition of tissue and muscle but rather as a complex entity intertwined with psychological, spiritual, and social systems that collectively influence the overall wellbeing of an individual. Furthermore, Marques et al. (2021) assert that a child's physical dimension focuses on the body's wellbeing and its interactions with the external environment. Therefore, children must be assisted to recover and be resilient to the impact of climate change. To conclude, the traditional healing strategy in Nyamagana and Ilemela Districts in Mwanza Region acts as a community-driven strategy that enhances the child's wellbeing amidst the impact of climate change. These practices address immediate mental health issues, strengthen the social structure, and empower the communities to navigate the emotional challenges resulting from climate change. Considering the holistic wellbeing of the children, the area includes their psychological and physical dimensions in promoting resilience in the face of environmental uncertainty.

5. Empowerment of Women

The KII also revealed that women's empowerment in climate adaptation strategies is a carefully designed and community-driven strategy to improve conditions for child wellbeing in the face of climate change. Local communities actively involve women in the decision-making process and implementation of adaptive measures because they recognize that children are affected by a wide range of vulnerabilities emanating from climate change. It was noted that women are at the forefront of building resilient societies through sustainable actions that benefit children's wellbeing. This finding was confirmed by a key informant in Mirongo wards. Community dynamics facilitate women's empowerment in climate adaptation. Empowered women contribute to more sustainable practices that secure important resources and ensure child well-being. Moreover, the key informant in the Buzuruga ward stated, "the inclusive decision-making and knowledge-sharing existing in our ward amplify the effectiveness of climate adaptation efforts. Also, the empowering of women by harnessing positive community dynamics creates a foundation for holistic climate adaptation that benefits children".

Likewise, UNEP (2020) comments that involving women in community planning and disaster response efforts can create more robust and resilient communities. Similarly, IPCC (2014) and Settele (2014) found that communities stand a more substantial chance against climate change challenges when women are included. Giving women voice in managing disasters make responses and recovery plans stronger and longer-lasting (UN, 2009).

Research Implication

The study explored the relationship between community dynamics and child wellbeing in the context of climate change in two districts in Tanzania. It revealed an interplay between community dynamics, climate shifts, and the vulnerabilities of low-income children. The findings show how these factors interact and impact each other. The research emphasizes the need for tailored interventions acknowledging these synergistic influences on children's wellbeing and advocates for community strategies to foster children's resilience to climate change impacts. This section will discuss the research

implications and emphasize potential areas for further investigation and practical applications.

The advocating for effective strategies to manage water resources sustainably: The study revealed that advocating for effective strategies to manage water resources sustainably, as climate change increases water scarcity and variability, is very important. It emphasizes the need to encourage water conservation, invest in water infrastructure, and implement policies to ensure fair access to clean water for all, including children. This finding implies a need for stakeholders and policymakers to prioritize initiatives like water conservation, infrastructure investments, and equitable access policies to protect everyone's wellbeing, especially children.

Identification of the vulnerable hotspots in a community: This study describes how to identify susceptible areas or "hotspots" within communities and then address the root causes of their vulnerability. The implication of this study calls upon the stakeholders, NGOs, and community-based members to explore vulnerable areas in their localities. Once identified, appropriate and sustainable interventions should be employed to reduce the vulnerability of children and other community members.

The cultural dynamics in climate adaptation and resilience: The study revealed the importance of considering cultural dynamics when developing adaptation strategies to address the impacts of climate change on child wellbeing. Acknowledging and incorporating cultural nuances into these strategies dramatically enhances the community's effectiveness and leads to more successful outcomes. The implication of this result indicates that the significance of cultural dynamics in shaping responses to climate change cannot be underestimated, as the understanding and incorporation of these cultural aspects can better align strategies with community values and beliefs, resulting in more successful and sustainable outcomes.

The use of community leadership: The study identified the importance of community leadership in shaping child wellbeing outcomes amidst the effects of climate change. It stresses the need to equip local leaders with knowledge and resources to lead climate-resilient initiatives in the communities effectively. The finding signifies the need for stakeholders and policymakers to empower local leaders with the necessary skills, knowledge, and resources to promote resilience to climate-related challenges.

Communication Strategies for Behavioural Change: The study revealed the importance of communication in influencing behavioral change within communities. It states that the findings show that tailored communication strategies are necessary to account for the specific characteristics of individual communities. Therefore, it implies that effective communication is essential in every community as it plays a crucial role in promoting resilience and adaptation in the community as a whole and child wellbeing.

Education and capacity building: The research revealed how climate change education, when incorporated into the local curriculum, helps communities build resilience by empowering individuals with knowledge and skills to address climate-related challenges. It highlights how educating communities on climate change equips them with the knowledge and skills to address and adapt to climate change obstacles effectively and proactively. This enables communities to withstand climate change challenges and thrive despite adversity.

Policy development and implementation: The study revealed that it is essential for stakeholders and policymakers to develop and implement policies related to environmental conservation and farmer welfare. In this perspective, the study emphasizes that communities should effectively implement policy and suggests that policymakers should consider integrating local regulations, infrastructure development, and support for community-driven initiatives. It also recommends that future research assess the impact of existing policies and recommend modifications to better align with community and environmental needs.

Role of partnership: The communities must have potential partnerships between governmental organizations, non-governmental organizations (NGOs), and international organizations to address environmental and social challenges in two districts in the Mwanza region, Tanzania. It suggests that collaborations could amplify the impact of interventions, bring additional resources and expertise, and facilitate knowledge exchange and capacity-building to implement effective and evidence-based interventions.

The study calls for comprehensive and community-centered strategies to address these intricate issues. These strategies should encompass

environmental, social, and cultural dimensions through sustainable water management, recognizing community dynamics, targeted policies, traditional knowledge, empowering women, and climate change education. The overall goal is to build resilient communities that safeguard children's wellbeing amid the changing climate through proactive, inclusive, and sustainable measures to mitigate impacts on the vulnerable.

CONCLUSION AND SUGGESTION

The study highlights the significant relationship between climate change impact and child wellbeing and how community dynamics play a vital role in mediating the consequences of climate change on child wellbeing. The resilience and adaptive capability of the communities have emerged as a significant tool for determining how the children cope with the challenges posed by the changing climate. Furthermore, the study explored the central interventions that could promote the community's resilience amidst climate change. In this context, the study identified fluctuation of temperature, variation of rain seasons, food insecurity, impact on education, psychosocial stress, and eruption diseases and pests as the climatic change challenges affecting the wellbeing in the area. Furthermore, the community dynamics' and their function in moderating climate change's impact on the wellbeing of children include community resilience and the adoption of coping strategies, social support networks, community-led educational initiatives, inclusive decision-making processes, and environmental stewardship. On the other hand, community-driven strategies and interventions enhancing child wellbeing amidst climate change were explored, which include traditional healing and sustainable water management rooted in holism and culture, improved health service facilities, construction of infrastructures, and creation of disaster management teams.

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ACKNOWLEDGEMENT

The researcher acknowledges the invaluable contributions of the communities of the Nyamagana and Ilemela districts, local authorities, NGOs, governmental agencies, the dedicated research team, and academic institutions and funding agencies.

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