

Developing Inclusive Climate Resilience Strategies for Children with Autism in Gwanda, Matabeleland South: An Exploration of Adaptation to Climate Change

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Abstract

This study takes into account the interaction of autism spectrum disorders (ASD), vulnerable populations, and climate change. Global concern in phenomena such as climate change, where awareness of its impacts is crucial, is mostly for the vulnerable, such as individuals with ASD. People with autism are likely to exhibit distinctive sensory sensitivity and insistence on sameness, whose extent could be undermined by climate change effects. This study examines how climate resilience strategies for children with ASD can be developed in Gwanda. The importance of this study is that it will provide insight into successful home and policy adjustments to support individuals with ASD under climate change. The key findings are that climate change is inevitable and children with ASD need to learn to accommodate change in spite of their resistance to changing. The study concludes that through active engagement the education sector can fulfil its moral and ethical obligation to address climate change effects.

Key words: Autism, climate change, inclusion, climate resilience

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1.0 Introduction

Climate change is now a social fact influencing the daily lives of humans just the same way it is diverting the environment by challenging the very existence of the numerous varied types of life on this planet. Palmer (2021) contends that it has hit the vulnerable, marginalized and poor disproportionately to cause severe social injustices of divisions, inequality and exclusion. On this basis, it has also become an ethical issue. Hitzhusen & Tucker (2018) claim that the United Nations Framework Convention on Climate Change (UNFCCC) (1992) sets real-world principles to guide responsible and fair international action against climate change. The Convention presumes that the driving factors in the climate change challenge are largely anthropogenic in nature. Human beings are the offender, main victims and maybe the remedy of the climate challenge. The United Nations Summit in 2015 set seventeen Sustainable Development Goals (SDGs) and these have some interrelated targets that show education has a pivotal role in a green and sustainable world. Specifically, SDG 13 demands immediate action to counter climate change. Dube (21) states that target 13 Climate Action deals with taking urgent action to mitigate climate change and its impacts, and precisely Target 13.3 to "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning." Such ideals can only be attempted through community and local level institutions. The study sought to investigate the children's everyday practices in coping with climate stressors, establish context-specific, participatory climate resilience strategies and theorize climate change effects on autism support and policy.

2.0 Methodology

Research methodology is a scientific and systematic approach used for collecting, analysing, and interpreting quantitative or qualitative data to answer research questions or to test hypotheses (Beamish & Bryer, 2022). Shukla (2020) also adds that it describes the techniques and procedures by which information to be retrieved and analysed on a particular research problem is determined. In an attempt to pinpoint the data for the research effectively, the researchers utilized qualitative research methods, including interviews and observations.

2.1 Face to face individual interview

Creswell (2009) notes that in research, semi-structured interviews are qualitative in nature. They are basically used as an instrument of inquiry in market research, social science, survey research, and other research fields. They are also commonly used in field research involving multiple interviewers, giving them all one conceptual framework, but giving them the freedom to explore different facets of the research problem. Semi-structured face-to-face interviews are often thought of as "the best of both worlds." Austin (2020) goes on to state that by intertwining elements of structured and unstructured interviews, semi-structured interviews capture the benefits of both: comparable, consistent data, and ease to ask follow-up questions. No interruption is present, and the convenience of being able to have a thematic structure beforehand retains both the interviewer and the interviewee focused, avoiding interruptions while enhancing two-way communication. Moreover, richness and detail are a major advantage. McMillan and Schumacher (2006) contend that while similar approaches-wise to questionnaires, structured interviews, and surveys, semi-structured interviews provide more richness and detail due to their greater openness. Interviewees can be asked to explain, elaborate, or rephrase their answers if required. There is also low validity since the adaptability of semi-structured interviews also decreases their validity. But it will be challenging to contrast participant responses depending on the extent to which the interviewer diverged from the pre-established list of questions. Creswell (2009) adds that there is high risk of bias since the open-endedness in semi-structured interviews poses the risk of asking leading questions, which biases your answers. In the same way, the interviewees will also attempt to offer the answers they think the researcher wants, which causes social popularity bias.

2.2 Non participatory observation

Beamish and Bryer (2022) assert the observation process as a three-stage funnel, beginning with descriptive observation, where scientists make extensive scope observation in an attempt to get a feel for the environment, progressing to focused observation, where they start paying attention to a limited subset of the events of most interest to them, and finally selected observation, where they investigate connections between the phenomena they've defined as most intriguing. Non-participant

observation is generally used in conjunction with other data collection methods, and has the potential to generate a richer “nuanced and dynamic” understanding of less easily captured contexts by other means (Austin, 2020).

2.3 Population

Population is the collection or the group of all the units to which the research results are to be generalized (Silverman, 2019). It consists of all the elements on which research results can be generalized. This research’s population is Gwanda District in Matabeleland South Province, Zimbabwe, with 151,691 people in the 2022 census.

3.0 Results

3.1 Climate change understanding

The participants understood the term climate change differently as some interchanged climate and weather.

MM 3 *“these are changes over a period of time that is, more than 10 years.*

MM 1 *Temperature, rainfall patterns and the environment may be changing as well.*

MM 16 *Trees flowering patterns have changed significantly”.*

Whilst another respondent MM 9 said that it meant “Less drinking water, more rain. Drought, confused weather.”

Thirteen of the participants felt that that climate change is exactly what is happening in Zimbabwe generally and particularly in Gwanda. Participants indicated that it is no longer possible to plant maize and expect to harvest from rainfall. Seasons seem to be changing and the changes are not logical. Very hot summers, late rains which is unlike the previous years. 5 pointed out that some of the causes of climate change are human activities whilst some are beyond anyone’s control as they are supernatural. General consensus 80% of the participants felt that climate change was more supernatural than human influenced.

3.1.1 Discussion

Climate change is a change in climate that is caused directly or indirectly by human activities that alter the physical characteristics of the Earth's atmosphere and occur in addition to natural climate variability on similar timescales (Elverskog, 2020). It is any climatic alteration over time, either from natural reasons or caused by human activities. The requirement of routine is not optional for most people with ASD but a need to cope with the dynamics of social interactions and self-regulation (Aparecida, 2023). The manifestation of sudden extreme weather conditions has the ability to disrupt usual routines, thus increasing stress and anxiety levels. For instance, on a rainy day of non-participant observation, ASD students who were accustomed to some outdoor activities were compelled to stay indoors, disrupting their regular schedule. Evacuation drills for wildfires also demand rapid adaptation in new locations, new habits, and new sensory input changes, which are quite challenging for people with ASD.

3.2 Experience of learners with autism in adapting to climate-related stressors

The interviews raised a number of points

MM10 Learners with ASD enjoy being outdoor and they seem to thrive in the environment.

MM11 Thunderstorms with the loud sound and flashing lights are too much for their sensory processing ability, so anxiety and stress levels rise in students with the ASD.

MM15 The disorder and chaos of evacuation during compulsory fire drills amplify sensory sensitivities, with the noise, confusion and disruption of personal space and routine having expressively negative effects on the health and wellbeing of students with ASD.

MM7 Children with autism struggle with toilet training due to the condition of the bathroom itself. Most often we find that people with ASD will be very diplomatically

cautious so the environment itself needs to be as neutral as possible. There needs to be ample space around the toilet so they are not claustrophobic.

MM18 Learners manifest fewer indications and worked better after activities in green space.

3.2.1 Discussion

One of the most potential yet less researched features of the outdoor environment that has been found to influence health outcomes is nature access (Sumon, 2021). Kaplan (2023) cites that for neurotypical children like ASD, natural outdoors has been discovered to reduce stress, create emotional resilience, provide functional and imagination play, and support cognitive functioning. This was also felt while conducting non-participant observation. Exposure to nature can also reduce symptoms in kids who have other disorders, such as attention deficit hyperactivity disorder (ADHD) or attention deficit disorder (ADD) and can help the cope. Children with ASD who were on a park walk did better on their attentional performance, compared to kids who were on an urban walk (Georgio and Parlalis, 2024). In everyday life, children who play in green space have less severe symptoms compared to children who play mainly in indoor and built outdoor spaces (Pratt, 2017). The sensory routines of change can also be extremely stressful for individuals with ASD.

Cyclone or continuous rain has the potential to halt rudimentary services like electricity temporarily, interfering with routines based on screen time or using phones, fans, or other appliances during hot days, even causing stress, anxiety, and even fear in ASD learners (Gumbo, Tumushime & Chaminuka, 2021). Furthermore, the outcome of such events tends to be a prolonged process of adaptation to a new temporary or permanent residence where customary supports and arrangements cannot be readily accessed (Chitando, 2019). Manjowa & Makoni (2023) report that it is indeed for the best if the setting is warm and at home parents and at school educators can address that modifying the setting can often reduce behavioural occurrences. Teachers need to extend circumstances, association, locations and possibilities that function. They need to try, if available, to change or remove circumstances which serve as triggers

for unsolicited behaviour. In addition, they need to include ways of reducing frustration and nervousness and extending understanding.

3.3 Context-specific, inclusive climate resilience strategies

The respondents seemed agreed that there is great need to have a custom-made strategy for inclusive climate resilience.

MM3 There is need to prevent by changing our activities in the environment. For example, by being environmentally conscious in the society, thereby reducing the impact of climate change.

MM18 People need to practice tolerance especially for children with ASD by sharing losses, changes in actions or of site and restoration in the environment.

MM7 Adaptation of measures that assist people, societies, organizations and ordinary systems in dealing with the impacts of unavoidable climate change

3.3.1 Discussion

Nwagbira, Iijoma & Chima (2018) posit that climate change is one of the biggest global phobias that are challenging world development with developing countries being most susceptible due to their low adaptive capacity and high reliance on climate sensitive industries. Chirongoma (2021) reports that, over the past decades, Zimbabwe has been experiencing high frequency and severity of droughts, prolonged mid-season dry spells, severe storms and activities of tropical cyclones. The climate change is having detrimental effects on water, agriculture, health, forestry and biodiversity, infrastructure, human settlements and tourism sectors. Palmer (2021) contends that there needs to be a modification in natural or human systems after actual or expected climatic stimuli or their influences, reducing damage or exploiting favorable opportunities. The National Development Strategy 1 (NDS1) (2021–2025) leads transformation to low carbon and climate resilient development trajectories and the National Adaptation Plan (NAP) achieves this through climate change concerns

mainstreamed into national and subnational development planning processes. In the process of Climate Change NAP development, there was a consultation process involving multi-stakeholders towards the anticipation that the NAP will make a good platform for mainstreaming climate change in all the major socio-economic sectors in order to attract an integrated response from all the various sectors. The Government is now poised for additional cooperation and assistance in the implementation critical phase of this NAP according to His Excellency, President of the Republic of Zimbabwe, Cde. Dr. E. D. Mnangagwa's vision to leave no individual and no place behind.

3.4 The implications of climate change for autism support and policy

MM13 By playing an active role in climate change action, the good and right roles can be fulfilled while using its wide coverage and popularity to increase awareness, build capacity, and mobilize action.

MM17 Emphasising environmental stewardship and promoting sustainable practices, the education society in Gwanda can contribute to making a stronger and environmentally conscious society.

3.4.1 Discussion

Kaplan (2023) begs that the desire for routine is not merely a preference for most individuals with ASD; rather, it is a necessity for coping with the difficulty that social interactions and self-regulation pose. Fluckiger (2019) reports that severe weather conditions' abrupt arrival has the potential to disrupt established routines, triggering significant stress and anxiety. The evolving climate is powerfully enhancing the frequency and severity of extreme weather events like floods, wildfires, heavy rainfall, thunderstorms, and heat waves (Mupangwa, 2023). These changes present special challenges to individuals with Autism Spectrum Disorder (ASD), who are most likely to rely on consistent and predictable environments as one means of managing their daily tasks effectively.

4.0 Conclusions

The climate system is a complicated, cooperative phenomenon consisting of the atmosphere, the land surface, snow and ice, the oceans and other waters, and living things. The research was carried out with a purpose of creating ways of constructing inclusive climate resilience strategies for children with ASD in Gwanda. Findings of the study show that actors in the education sector possess varied beliefs towards climate change and what is happening in Zimbabwe currently and throughout the world. In their discussions, seasons have been changing. Extremely hot summer, late rains, drought, heat waves and cyclones that is unlike the past years. Climate change in Gwanda has localized and it has serious consequences on livelihood and food security. Recurrent droughts have led to scarcity of water and massive loss of fresh water. The study also concludes that by being deeply engaged in climate change work, the education community can be in a strong position to fulfil its good and moral obligations while leveraging its far-reaching influence and reach to educate, build capacity, and mobilize action. With the focus laid on environmental stewardship and good sustainable practice, Gwanda schools are in a position to contribute towards an even more sustainable and environmentally conscious society. In an effort to combat the complex problem of climate change, natural disasters, and the use of renewable energy-based interventions for Autism Spectrum Disorder (ASD) individuals, Aparecida (2023) posits that a prudent and holistic approach should be used. Individuals with ASD face many challenges from their greater sensory sensitivities and reliance on scripted programs, which are too easily disrupted by environmental variation and crises. Putting renewable energy in place has twice the benefit: it lessens climate change's impact on the environment and improves the living environment of individuals with ASD by making their environment more predictable and stable. The economic impacts of renewable energy, while negative at first due to the involved expenditure, provide an opportunity that can be funded through judiciously designed economic assistance programs so that sustainability becomes affordable for families with ASD needs. In addition, such installations and upkeep need to be done judiciously so that such systems do not cause disturbances in people's regular lives grappling with ASD. Along with healthcare provider endorsement, policy and public support are crucial since streamlining regulatory processes and favouring fair policies will help in erasing the barriers to access to renewable energy solutions. Moreover, sensitizing

the public and involving people with ASD in planning and execution stages will ensure that not only are these drugs effective, but endorsed by the very people for whom they are intended. The aim is to make a resilient, equitable, and sustainable world that is supportive of people with ASD to survive against adversity caused by climate change. By considering the special requirements of people with ASD in our climate change interventions as well as renewable energy programs, we can make our interventions meaningful and beneficial to society at large.

5.0 Recommendations

ASD individuals are particularly vulnerable to disruption by natural disasters and environmental events such as storms, wildfires, and flooding because of their highly developed sensory sensitivities. Such events pose serious threats to the sensory environment, leading to a drastic escalation of stress and anxiety levels. Successful countermeasures involve creating emergency response plans that incorporate sensory-friendly shelters and evacuations. Additionally, reducing the stimulation and making public warnings and announcements more inclusive can also reduce sensory overload in periods of stress. The uncertainty of weather disasters and natural disasters with climate change also presents tremendous challenges with routines that are so important to people with ASD. It is of the highest importance that community-level planning and disaster preparedness incorporate ASD specific needs with an eye to enabling rapid reestablishment of routines following disruption. Simulation of emergency status in controlled environments can also habituate individuals with ASD to become accustomed to possible changes. The financial factor is also of the highest importance with the cost of adopting renewable technologies such as wind turbines and solar panels (Pratt, 2017). While they are cost-reducing in the long run, their initial implementation is costly, which can be financially expensive for ASD financially stressed families. Government economic sponsorship initiatives that focus on such families are thus crucial. The programs would be capable of financing initial purchase of the renewable energy equipment and installation connections, and must be preceded by efficient communication on the incentives and support provided. Renewable energy installation and maintenance also interrupt routines, so important to individuals with ASD. Scheduling installation and maintenance during slower periods and utilizing technicians with ASD sensitivity training can help alleviate anxiety

in these individuals. This thoughtful planning permits more gradual acclimatization to new technology, facilitating acceptance and minimizing the possibility of conflict.

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Author contributions statement

G.B and T.H wrote the main transcript. G.B interviewed 10 participants whilst T.H interviewed 10. Both authors reviewed the manuscript.

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