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LINKING CLIMATE CHANGE TO HEALTH AND WELLNESS OF EARLY CHILDHOOD LEARNERS

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Abstract:
The study investigated the role of early childhood learners in the broader climate change, health and wellness ecosystem and assessed the impact of climate change on the health and wellbeing of early childhood learners. It is premised on the backdrop that children are particularly susceptible to environmental influences, which have a profound impact on their health and overall well-being. It was guided by the critical theory, constructivism and pragmatism. The study utilised preferred reporting items for systematic reviews and meta-analyses (PRISMA). Inclusivity and exclusivity criteria were followed, covering publications between 2014 and 2023. A total of 15 papers were sampled, comprising 10 empirical, 1 systematic review and 4 conceptual. Results show that many studies highlight the adverse effects climate change has on early childhood learners, bringing significant threats to their health and wellness. Findings point to the indirect effects of climate change on early childhood education and nutrition. The author agrees with most findings that stress the importance of teaching early childhood learners about climate change, health, and wellness requires age-appropriate strategies. Introducing gardening projects at school or home can teach children about the importance of growing their own food, discussing the importance of conserving resources like water and energy, engaging in activities like creating crafts from recycled material or conducting clean-up drives in the local community. The study proposes that the government, institutions of learning and the community should enhance healthcare systems, adopt community-driven adaptation strategies, integrate climate education into the ECE curriculum and support SDGs promoting early childhood education and development (ECED).

Keywords: climate change, health, wellness, early childhood, learner

1. Introduction

Climate change, characterised by extreme weather events, global warming and rising sea levels, has numerous effects on various aspects. Early childhood learning is one of the

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areas that is affected by climate change. According to Patel *et al.* (2023), climate change is increasingly being recognised as one of the most pressing global challenges of the 21st century. Its effects extend far beyond environmental degradation to vitally affect human health and wellbeing, particularly among vulnerable populations such as early childhood learners. UNICEF (2020) defines early childhood as the period from birth to eight years old. It classifies it as a critical phase of human development characterised by rapid physical, cognitive, emotional, and social growth.

Young children are very susceptible to the adverse effects of climate due to their immune systems and developing bodies. Understanding the impact of climate change on the health and wellness of early childhood learners can help in finding ways of mitigating the impact in order to foster a healthy and resilient younger generation. The aim of this research was to explore the link between climate change and the health and wellness of early childhood learners, as well as establishing how they can be educated and involved in climate change resilience and health promotion.

In recent years, the climate has been continually changing due to the increase in energy consumption, air pollution and greenhouse gas emissions. This has resulted in people worldwide suffering from the effects of extreme weather events. In many regions, people suffer from various diseases that come as a result of environmental pollution, which not only causes significant disturbances in their lives but also create a massive threat to their mental health (Mpolomoka, *et al.*, 2021; Saeed *et al.*, 2024). Amidst the challenges of climate change and environmental concerns, many experience feelings of depression, anxiety and stress. WHO (2022) highlights negative emotions such as depression, anxiety, and stress that frequently occur in the face of climate change and environmental issues. This destabilizes the learning environment of students. In addition, climate change causes psychological distress, which has a profound negative effect on students' daily academic lives. This has resulted in the realisation that climate change has a negative impact on the health and wellness of learners.

According to AAP (2015), children spend at least 180 days in school in a typical year. The conditions on campus determine their protection from climate-related hazards. Heat and air threaten children's health. In times of bad weather, early childhood learners are exposed to ambient hazards, which in turn disrupts their learning, in situations where schools are not equipped to operate safely and provide shelter. According to Patel *et al.* (2023), "*disruption also harms children's mental health and impedes their readiness to learn*". This is especially true for early learners who are considered socioeconomically disadvantaged and reside in communities with intense environmental impact of climate change.

2. Contextual Scenario

Climate change has a widespread impact on numerous aspects of human life, making it a pressing global issue. Recent studies have shown the profound impact that climate change has on health, especially the health of vulnerable populations such as young children. According to AAP (2015), early childhood learners, especially those between

the ages of 3 and 8 are at a critical development stage where environmental factors can significantly influence their health and wellness.

Rising temperatures, poor air quality, increasing frequency of extreme weather events, and the spread of vector-borne diseases pose significant risks to children's health. Young children are less able to cope with environmental stressors due to their developing bodies and immune systems, which make them vulnerable (WHO, 2018). Some of the major health challenges exacerbated by climate change include malnutrition due to food insecurity, heat stress, respiratory problems from air pollution and psychological impacts from climate-related disasters (UNICEF, 2019). Suffice to say, there is little research on the intersection of climate change and child health, necessitating an investigation into how changing climate conditions affect young learners.

2.1 Objectives

1) To determine the impact of climate change on the health and wellbeing of early childhood learners.
2) To establish the role early childhood learners play in the broader climate change, health and wellness ecosystem.
3) To explore ways early childhood learners actively participate in climate change resilience and promotion of health and wellness.
4) To evaluate effective methods for teaching early childhood learners about climate change, health and wellness.

2.2 Research Questions

1) How does climate change affect early childhood learners' health and wellbeing?
2) How are ECE learners taught climate change, health and wellness?
3) How do ECE learners participate in climate change resilience and the promotion of health and wellness?
4) In what ways do ECE learners participate in the climate change, health and wellness ecosystem?

2.3 Philosophical Underpinnings

The critical theory, constructivism and pragmatism were an anchor to this study. Critical theory highlights the socio-economic and environmental injustices exacerbated by climate change, advocating for equitable interventions that protect vulnerable populations, including young learners.

Constructivism guides the exploration of subjective experiences and perceptions of children, parents and educators, stressing the social construction of knowledge through qualitative methods. Meanwhile, pragmatism drives the focus on practical actionable outcomes such as developing educational materials and resilience-building activities, ensuring that the research has tangible benefits for early childhood learners and their communities (Domingues, 2023; Mpolomoka *et al.*, 2024; Mwinsa *et al.*, 2024). The study provides a justice-oriented and practical approach to understanding and

mitigating the impact of climate change on the health and wellness of early childhood learners by integrating these paradigms.

Another area worth considering is that of heat waves, which caused by climate change and eventually disrupt the water balance. The warming up of the climate increases the risk of water loss through the skin surface, particularly for children. Studies propose having adjustments to water drinking habits to maintain health and efficiency among early childhood learners (UNICEF, 2022).

According to Clayton *et al.* (2017), the effects of climate change on the psychological well-being of children are substantial and varied. Exposure to natural disasters or enduring environmental stress increases anxiety, fear and trauma among children. Comparatively, similar effects are evident among youths and the adults and professionals like teachers, who in turn adapt curriculum to suit varying teaching-learning circumstances. This corroborates with the findings of a study by Ngambi, *et al.* (2020) on co-curriculum responsiveness for adaptability and challenges for teachers in hard-to-live areas of Mkushi and Luano Districts in Zambia. In another study, Berry *et al.* (2010) stress that climate displacement, like that caused by rising sea levels or drought, disrupts family stability and community bonds and, in turn, intensifies mental health issues.

3. Literature Review

This section provides a cross section of literature on climate change and its effect on the mental wellbeing and wellness of varying people with a specific focus on early childhood learners. It covers studies from a global, African and Zambian perspectives. In many instances, it mirrors the earlier set of research objectives to maintain the scope of the study. Different policies, local and international, have been referenced also and anchor the discussions of the subject at hand.

3.1 Global Perspective

UNICEF (2020) emphasises that about one billion children, which is nearly half of the global child population, reside in nations deemed extremely high-risk for the effects of climate change. It has been established by various literature that environmental shocks such as extreme weather events and environmental degradation affect early childhood health, development and well-being. Global differences in climate resilience and vulnerability intensify the health and well-being of young children. Those in low-income countries, especially sub-Saharan Africa and southeast Asia, are at a greater risk due to poor healthcare infrastructure, restricted access to clean water, and a higher incidence of vector-borne diseases (Watts *et al.*, 2018). In addition, urban areas with their heat highlands and air pollution, present unique health challenges for early childhood learners not seen in rural areas (Berry *et al.*, 2010).

According to Clayton *et al.* (2017), the escalation of climate change, environmental decay, and calamities can undermine the consistency and foreseeability that is critical for the supportive surroundings a young child needs for their growth. This is particularly

true during the initial 1,000 days of life, when the development of the brain is still rapid. The World Health Organisation stresses that 88% of the current burden of disease occurs in school-going children below 5 years; the disease burden can be attributed to climate change. These diverse effects of climate change are often categorised as primary, secondary, and tertiary.

The formative years of early childhood are crucial for bodily growth, and climate change's impact presents considerable health threats. Shieffield & Landrigan (2011) note that heightened temperatures and worsening air quality can intensify breathing issues such as asthma. Additionally, the spread of diseases transmitted by vectors, like malaria and dengue, is escalating due to shifts in climate patterns, which particularly impact infants and young children in tropical and subtropical areas (Clayton, *et al.*, 2017; Al-Turkait, *et al.*, 2019; Ayasrah, Beirat & Alkhawaldeh, 2023; Mpolomoka, Maputa, Musibwe & Banda, 2024).

In addition, climate change negatively affects learning outcomes in early childhood in many ways. One of them is that caused by food insecurity negatively impacts brain development and hinders academic performance. Another way relates to regular school closures and disruptions in educational routines, which could be as a result of extreme weather events delaying consistent quality early childhood education, which in turn negatively affects intellectual development (Chirwa, *et al.,* 2024).

3.2 African Perspective

In Africa, early childhood is defined as the period from birth to eight years old. It is critical for holistic development. In recent years, the field of early childhood has gained recognition and funding to scale up its activities and promotion. Unfortunately, in Africa, early childhood learners are increasingly being threatened by climate change. It follows that the African region faces unique challenges from environmental vulnerabilities to socio-economic disparities, affecting the health and well-being of young children. These young individuals face heightened risks due to increasing temperatures, erratic rainfall patterns, and other climate-related shocks. The impact includes food insecurity, water scarcity, malnutrition, and susceptibility to diseases like malaria and diarrhoea illnesses. Unfortunately, only a small fraction of global climate funding is currently directed toward children, emphasising the need for more significant support and adaptation strategies (Ngulube, *et al.,* 2024; Chanda, *et al.,* 2024; UNICEF, 2020; Banda & Mpolomoka, 2018). According to IPPC (2021), the African communities that heavily rely on culture suffer from crop failures and livestock losses, which in turn affects the nutritional intake of early childhood learners.

Berry *et al.* (2010) stress that in Africa, the psychological impact of climate change on early childhood learners is profound. The frequent exposure to extreme weather events like floods and droughts often leads to displacement, which eventually affects their sense of identity and belonging. According to the IPPC (2021), the educational disruptions caused by climate-related disasters result in school closures and interruptions to learning, hindering cognitive development and educational attainment. Berry *et al.* (2010) highlight that the diverse geographical and social-economic landscape

contributes to the uneven vulnerability to climate change effects among early childhood learners. He stressed that sub-Saharan Africa faces severe health risks due to weak healthcare systems, inadequate sanitation facilities, and limited access to clean water, increasing the vulnerability of early childhood learners to climate-related diseases. In addition, Watts *et al.* (2018) note that overcrowding and inadequate infrastructure in Africa pose additional health risks, such as heat stress and air pollution, which affect children's respiratory health.

UNICEF (2024) reports that the prolonged droughts due to El Niño have resulted in food insecurity, water scarcity, and increased vulnerability. These challenges have caused severe crises for children. Costella (2018) stresses that the climate crisis poses a significant threat to children and communities in eastern and southern Africa. Climate-related shocks disrupt the essential sources for children's survival such as shelter, clean water, food, education and safety. School closures also retard educational progress, in almost the same way that agriculture communities face crop failures, which lead to child malnutrition, on one hand and child labour, on the other. It seems that child labour comes in handy to supplement family income. According to the WHO (2020), in the Southern and Eastern African region, 45 million children endure multiple, overlapping crises caused by climate change, such as malnutrition, cholera outbreak, drought and floods.

3.3 Zambian Perspective

Zambia is one of the countries that is vulnerable to climate variability and extreme weather. According to Kabwe (2021), climate change significantly affects the physical health of early childhood learners in Zambia. The rising temperatures and unpredictable rainfall patterns in Zambia, which are a result of climate change, lead to food insecurity and malnutrition among children, particularly in rural areas where subsistence farming is prevalent and children rely heavily on foods that are locally grown. Kabwe (2021) maintains that periods of drought increase the prevalence of waterborne diseases, posing higher health risks to early childhood learners. The vulnerability to climate change in Zambia varies across regions, with rural areas having a significant portion of the population susceptible to climate change effects due to a lack of mitigation strategies and proper infrastructure (Kabwe, 2021; Banda & Mpolomoka, 2023; Chitondo *et al.*, 2024). According to Mpaza and Muluka (2023), the effects of climate change, such as flooding and destruction of homes and crops, compromise the health of early childhood learners. The study found that heavy rains and drought give rise to diseases and varying strains, which stresses early childhood learners. UNICEF (2024) reports that the government in Zambia has recently declared a national emergency due to a drought which is affecting a large part of the country, affecting 3 million children. This follows the devastating floods that worsened the cholera outbreak, resulting in over 1000 cases in children.

4. Methodology

This section describes the methodology and the procedures that the researcher followed in conducting this study. Additionally, it discusses the research design and the various

data sources, including the tools and techniques used in the data collection process. Finally, it provides data analysis techniques employed in the study.

4.1 Research Design

The study took a secondary research approach, which involved collecting and analysing existing data, literature, and studies significant to the research topic. According to Cresswell (2017), secondary data exists but has not been prepared for the particular problem at hand. The study utilised preferred reporting items for systematic reviews and meta-analyses (PRISMA) to review the secondary data. Using PRISMA made it easy to explore the link between climate change and the health and wellness of early childhood learners. According to Lobiodo-Wood and Harbaer (2010), the integrated literature review methodology embodies a non-experimental approach. The review process was guided by the following research questions:

1) How does climate change affect early childhood learners' health and wellbeing?
2) How are ECE learners taught climate change, health and wellness?
3) How do ECE learners participate in climate change resilience and health and wellness promotion?
4) In what ways do ECE learners participate in the climate change, health and wellness ecosystem?

4.2 Data Collection and Management

Relevant articles were searched through databases such as Google Scholar, Scopus, and Web of Science. The articles from these sources were downloaded and stored in a password-protected folder. Notes were taken from each study based on the research questions. The search terms include “climate change” and “health of early childhood learners”. Some articles were partially accessed through Google Scholar and academia. Others were not downloaded due to lack of funds, as they had access restrictions which demanded payment. Notwithstanding the aforementioned, necessary chapters of the ones enlisted were downloaded and stored.

4.3 Secondary Data Selection Criteria

In sourcing secondary data, selecting suitable data sources is key to ascertaining its credibility, reliability, relevance and validity. The researcher used a distinct rigid criterion to evaluate the appropriateness of secondary data. To align with the study focus, the researcher ensured that the secondary data directly addressed the research objectives and questions. The reliability and credibility of the data were assessed by choosing sources from reputable entities, such as peer-reviewed academic articles, respected international organisations, and government reports. In addition, the researcher prioritised recent data to ensure timelessness, accessibility, and alignment with a research time frame and available resources (Cressel & Cressel, 2021).

4.4 Inclusion and Exclusion Criteria

Studies that were published between 2013 and 2024 were considered for this study, as well as studies that had original data on climate change and the health and wellness of early childhood learners.

Partially accessed studies were excluded from the study because it was impossible to assess the quality of each article in the absence of full texts. In addition, editorials, reviews, commentaries and conference presentations were excluded from this study.

4.5 Search Query

Search queries revolved around the following: "Impact of climate change on children's health", "climate change and early childhood development", "effect of climate change on early childhood wellness", "early childhood exposure to climate change effects", and "climate resilience" and "early childhood wellness".

4.6 Search Results

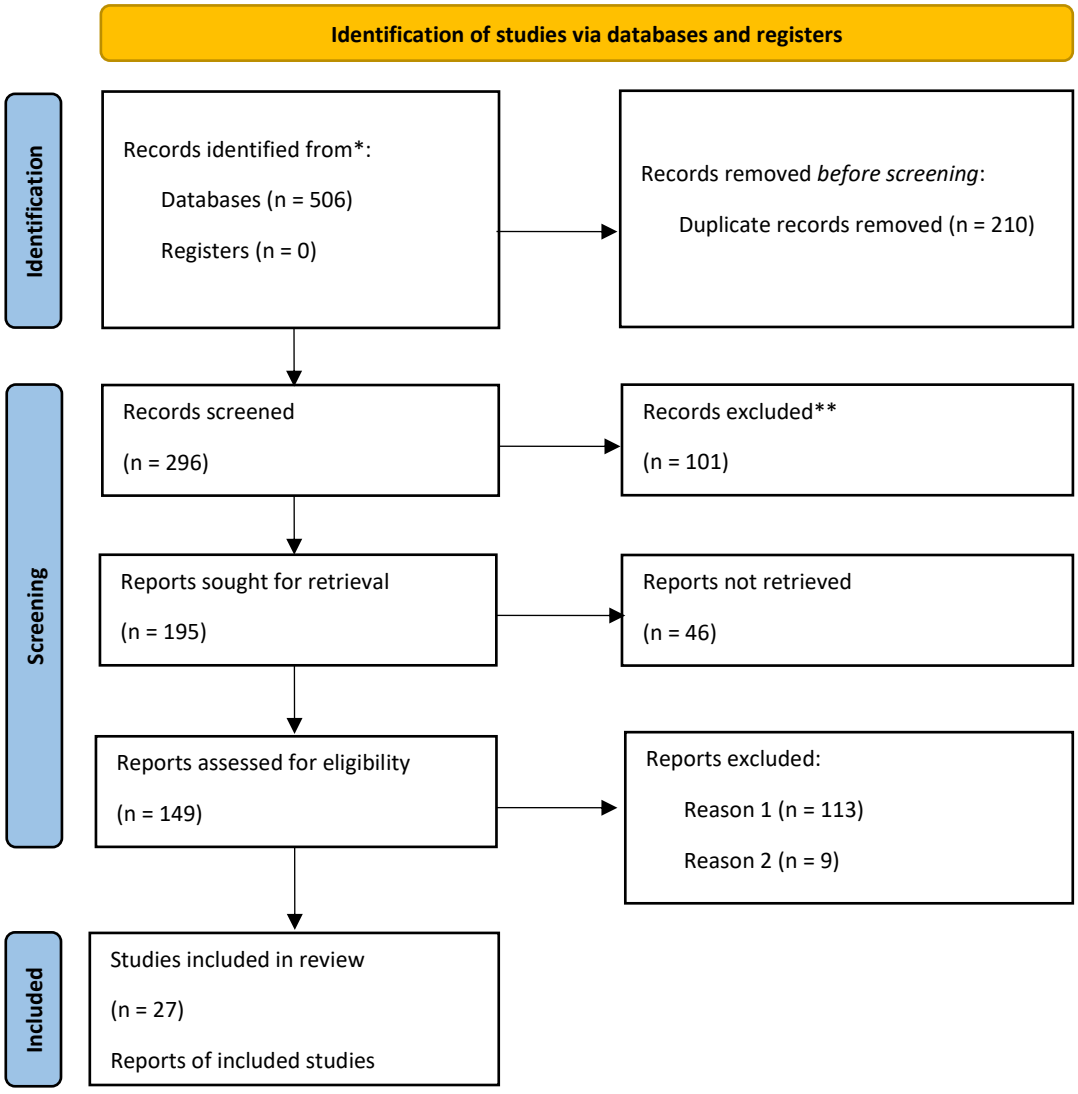

Figure 1: Screening process and article selection according to the PRISMA guidelines

4.7 Limitations

The study presented many limitations. To begin with, some data lacked relevance and specificity, thereby failing to address the unique aspects of early childhood learners in the context of climate change. Additionally, the different methodologies in various studies resulted in interpretation challenges. Another limitation relates to power outages that have rocked the country, which made consistency a nightmare as search tasks were often interrupted and inconclusive. This was overcome by constantly repeating search patterns and procedures, thus yielding success.

4.8 Ethical Issues

Conducting secondary research on linking climate change to the health and wellness of early childhood learners involves several ethical issues, including ensuring data privacy and confidentiality, particularly for sensitive information about children and confirming that informed consent was obtained correctly in the original studies.

5. Results and Discussion

This section presents the results or evidence of the undertaken secondary data research. The results are based on the analysis of the 15 papers, comprising 10 empirical, 1 systematic review and 4 conceptual. The time period of the study was between 2014 and 2023. This section also discusses the four topics based on the research questions; each topic is going to give answers to the research questions.

5.1 How Does Climate Change Affect Early Childhood Learners' Health and Wellbeing?

Climate change brings significant threats to the health and wellness of early childhood learners, with numerous studies highlighting its adverse effects. The World Health Organization (2018) cites that climate change increases health issues such as respiratory illnesses, heat-related conditions, and vector-borne diseases. Young children, in particular, are vulnerable due to their developing immune systems and higher exposure to environmental hazards. Studies have indicated that rising temperatures and increased air pollution contribute to higher incidences of asthma and allergies among children (Rice *et al.*, 2018). These health challenges can hinder their physical development and overall well-being, underscoring the need for urgent interventions to mitigate climate-related health risks.

In addition to the physical health impact, climate change significantly affects the mental and emotional well-being of young children. Research by Sheffield and Landrigan (2015) indicates that extreme weather events, such as hurricanes and floods, can lead to trauma, anxiety, and stress among children. The displacement and disruption caused by these events can have long-term psychological effects, impeding cognitive development and academic performance. For instance, children exposed to natural disasters often exhibit symptoms of post-traumatic stress disorder (PTSD), which can affect their learning and social interactions (Masten & Narayan, 2012). Therefore, addressing the

mental health implications of climate change is critical in safeguarding the holistic development of early childhood learners.

The indirect effects of climate change on early childhood education and nutrition are equally concerning. UNICEF (2019) cites that food security is threatened by changing climate patterns, leading to malnutrition and stunted growth in young children. Malnourished children are more susceptible to infections and illnesses, which can further hinder their educational attainment and cognitive abilities. Additionally, climate-related disruptions to schooling, such as damage to educational infrastructure and increased absenteeism due to health issues, can negatively impact learning outcomes (Kousky, 2016). This highlights the interconnectedness of environmental health and educational success, emphasizing the need for integrated policies that address both climate change and child health.

5.2 How can ECE learners be taught climate change, health and wellness?

Teaching early childhood learners about climate change, health, and wellness requires age-appropriate strategies that can engage and educate children in a meaningful way. Gonzalez-Gaudiano and Meira-Cartea (2010) noted that one effective approach is through interactive and hands-on activities that make abstract concepts more concrete. For instance, simple experiments demonstrating the greenhouse effect or the importance of clean air can help young children grasp the basics of climate science. According to Pruneau *et al.* (2003), storytelling and educational games are also valuable tools, as they can convey complex topics in a relatable and engaging manner. By incorporating play-based learning, educators can foster curiosity and a foundational understanding of environmental issues.

Integrating climate change education with lessons on health and wellness can help children understand the interconnectedness of these topics. In addition, including discussions on how climate change affects food production and availability can promote healthy eating (Hickman & Ashworth, 2014). More so, activities such as growing a school garden can teach children about sustainable practices and the importance of fresh, local produce for their health. In addition, incorporating outdoor activities that highlight the benefits of nature on physical and mental well-being can reinforce the concept that a healthy environment is essential for personal health (Chawla, 2015).

Collaborative learning and community involvement are crucial in teaching early childhood learners about these issues. Schools can partner with local organisations to provide real-world experiences, such as visiting farms, nature reserves, or recycling centres. These field trips can make the learning experience more tangible and impactful (Littledyke, 2018). Involving parents and caregivers in educational activities can also reinforce learning at home, creating a supportive environment for children to explore these topics. Community projects, such as neighbourhood clean-ups or tree planting events, can empower children to take action and see the positive impact of their efforts (Charity & Webby, 2023).

Furthermore, collaborative efforts between governments, health organisations, and educational institutions can foster a healthier and safer environment for early

childhood learners, ensuring their well-being and future potential are not compromised by the escalating threat of climate change. Hence, early childhood education on climate change, health, and wellness is not only beneficial but also essential. Fostering a generation that is more environmentally conscious and health-aware can be done by educating young learners about climate change topics from an early age. Blending environmental science with practical health lessons in the curriculum can help children understand their role in protecting both their health and the planet. By fostering a sense of responsibility and connection to the environment, educators can inspire children to adopt sustainable practices and make informed choices that can benefit their well-being and the world around them.

Schools can organise events such as clean-up drives, recycling programs, and tree planting activities that involve children, parents, and community members. Not only do these activities provide practical experience in environmental stewardship, but they also create a sense of community and shared responsibility. By embedding these values in early education, we can foster a generation that is better equipped to tackle the challenges of climate change and promote a healthier and more sustainable future.

5.3 How can ECE Learners Participate in Climate Change Resilience and Promotion of Health and Wellness?

ECE learners can participate in climate change resilience and promotion of health and wellness through simple, hands-on activities that are both educational and engaging. Introducing gardening projects at school or home can teach children about the importance of growing their own food, understanding seasonal cycles, and the benefits of consuming fresh, healthy produce (Blair, 2009). This can be observed in Wake's study, which highlighted activities that children can do to participate in climate change resilience. Clayton *et al.* (2017) stressed that by participating in gardening, children learn about sustainability and the role of plants in reducing carbon dioxide levels, fostering an early appreciation for nature and the environment.

Another effective way for young learners to contribute to climate resilience is by incorporating recycling and waste reduction practices into their daily routines. Teaching children to sort waste, reuse materials, and reduce consumption helps instil habits that can significantly reduce their ecological footprint (Edwards, 2014). Activities such as creating crafts from recycled material or conducting clean-up drives in the local community can make these lessons practical and enjoyable. In addition, discussing the importance of conserving resources like water and energy can further enhance their understanding of sustainable living (Chawla & Cushing, 2007). This can be backed by promoting active lifestyles through outdoor play and physical activities. This not only improves the health and wellness of children but also helps them connect with nature.

Moreover, encouraging children to spend time outside through organised sports, playing in the park, or simply hiking can enhance their physical and mental well-being (Mc Curdy, *et al.*, 2010). This aligns with the findings of Ernst & Theimer (2017), who stressed that such activities can serve as opportunities to teach children about the local ecosystem, the impact of climate change on their environment, and ways to protect it.

Activities like outdoor education programs integrating environmental stewardship with physical activity can be particularly effective.

5.4 How Can ECE Learners Participate in the Climate Change, Health and Wellness Ecosystem?

Educational and participatory activities that foster environmental stewardship and personal well-being can help early childhood learners to be actively involved in the climate change, health, and wellness ecosystem. Integrating climate education into early learning curricula. Children can learn about the effects of climate change and the importance of sustainable practices by using age-appropriate books, interactive lessons and storytelling (2021).

Littdledyke (2018) points out activities that allow early childhood learners to participate in climate change, health and wellness. These activities include simple activities like planting trees or maintaining a school garden in order to teach children about the carbon cycle and the role of plants in mitigating climate change. Blair (2009) states that promoting healthy eating habits and understanding the connection between food and the environment is another crucial aspect. Children can be encouraged to participate in growing their own plants, either at school or at their home garden by their parents. This hands-on experience not only teaches them about where their food comes from but also instils values of sustainability and healthy eating. Moreover, incorporating lessons on how climate change affects food production can help children appreciate the broader implications of their dietary choices (Hickman & Ashworth, 2014).

In addition, physical activity and outdoor play are very important for both environmental and health awareness. This is evident in Chawala's (2015) findings, who stresses that encouraging children to spend more time outdoors can help them develop a connection with nature and understand its significance in their lives. Outdoor activities such as birdwatching, hiking, or having playgrounds in natural settings can enhance their physical health and provide opportunities to discuss environmental topics. A related finding was made by McCurdy, *et al.* (2017) who posit that integrating physical education with environmental education is instrumental in fostering a holistic approach to health and wellness.

Allowing early childhood learners to participate in climate change resilience and health promotion lays a formidable basis for lifelong environmental and health consciousness. Engaging in practical activities help early childhood learners to learn important concepts and also develop a sense of responsibility and agency. Schools and parents also play a significant role in providing opportunities and resources for these activities, fostering a supportive environment for children to explore and implement sustainable practices. These early experiences cultivate environmentally responsible and health-conscious individuals who are well-equipped to face the challenges of the future. Community collaborative projects and involvement also play a significant role in teaching children about climate change, health and wellness.

6. Conclusion and Recommendations

The main aim of this study was to establish the link between climate change and the health and wellness of early childhood learners. It clearly illustrates the link between climate change and the health and wellness of early childhood learners.

To begin with, the current literature illustrates the urgent need to address the multifaceted impact of climate change on early childhood learners. Although substantial research has been conducted, there is a need for more focused studies on specific regions and vulnerable populations to develop targeted interventions. Prioritising sustainable practices and climate resilience in public health and educational policies is crucial in protecting the youngest and most vulnerable members of society, who are the early childhood learners.

The intersection of climate change and the health and wellness of early childhood learners is an emerging area of concern that demands attention. It is essential to address the concern through education, community involvement, and policy measures in order to protect the health and future of young children globally. Understanding and mitigating the impact of climate change on this vulnerable population can lead to healthier, more resilient communities.

The study makes the following recommendations.

1) **Enhancing healthcare systems:** to manage climate-induced health threats, encourage sustainable agricultural practices to withstand climate variations, and incorporate climate change education in school programs.
2) **Community-driven adaptation strategies,** including early warning systems and disaster readiness training, are crucial for reducing both the immediate and lasting effects of climate change on children's health.
3) **Integrating climate education into early childhood curricula,** includes establishing lessons on environmental science, sustainability practices, and the intersection of climate change with health and wellness.
4) **Promoting hands-on learning experiences:** leveraging on practical, hands-on activities such as gardening, composting, and recycling programs. These activities not only teach children about sustainable practices but also empower them to make positive contributions to their environment.
5) **Support professional development for educators:** supporting ongoing training and resources for educators to effectively teach climate change, health, and wellness subjects. This can enhance the integration of interdisciplinary approaches that connect environmental education with other subjects like science, health, and social studies.
6) **Policy changes:** advocating for policies that support sustainable practices in early childhood education settings, such as green building standards, waste reduction initiatives, and access to outdoor learning environments. This can be achieved by collaborating with policymakers and stakeholders to ensure that climate resilience and health promotion are prioritised in educational policies and practices.

Restrictions
This study is part of a broader ongoing research issue.

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Conflict of Interest Statement
The author declares no conflicts of interest.

About the Author
Daniel L. Mpolomoka is the substantive Dean of the School of Education, Humanities and Social Sciences at Unicaf University Zambia. He has 16 years of professional experience as a lecturer and researcher. Daniel taught at various government secondary schools in Zambia before taking up lectureship at Zambian Open University (ZAOU), where he served in many key administrative positions, including heading the Research and Consultancy Unit, Acting Dean of the School of Education, and Acting Dean of the School of Graduate Studies. He once served as a Masters Coordinator for a Project dubbed the Transformative Engagement Network (TEN), which involved Mynooth University (Ireland), Muzuzu University (Malawi), Mulungushi University (Zambia) and Zambian Open University (Zambia). He has won scholarships and awards too, including the Harmonization, Accreditation and Quality Assurance in African Higher Education (HAQAA2), October 2022 – January 2023, culminating in a Diploma certification. His research interests include: Literacy Studies, Instructional Technology in Education, Open Distance and E-Leaning (ODeL) in Higher Education Institutions (HEIs), Adult Education, Special Education and Early Education Studies. Daniel has made paper presentations at local and international conferences. He has also published various articles in local and international refereed journals. He is an editorial board member/reviewer for many reputable scientific journals.

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