

Examining Impacts of Climate Change on Women Health and Food Security

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Abstract –Recent decades have seen higher levels of climate change compared to other times. The impacts of climate change such as global warming, floods, health issues, and migrations have been more severe than in previous periods. Indeed, climate change affects women more than men due to biological differences between the sexes. Additionally, gender inequality has also played a role in exacerbating this situation. Therefore, this study sought to examine how climate change affects women's livelihoods, particularly in terms of health and food security. The study found that climate change significantly impacts women's livelihoods, leading to problems such as depression, heart attacks, PTSD, typhoid, dysentery, Zika virus, and malaria. Moreover, climate change causes women to lose food sources due to issues like floods, droughts, plant diseases, and other factors that contribute to crop deterioration in the fields. In conclusion, the study recommends improving gender equality, addressing the effects of climate change, and giving greater attention to women since they are disproportionately affected compared to men.

Keywords: climate change, gender, women, food security, women health

Introduction

The new millennium has been characterized by significant climate change and severe consequences to the human being. Climate change effects such as global warming, floods, and droughts have negatively affected human well-being in all aspects of life. Furthermore, these effects are experienced across society, with women and vulnerable groups being disproportionately affected compared to other societal groups. Despite various governmental policies aimed at mitigating the severe impacts of climate change, women have not been able to cope with these effects as effectively as men. Women are particularly vulnerable to climate change effects such as illness, starvation, flooding, and food insecurity. Despite these challenges, women continue to play a vital role in addressing the impacts of climate change and are instrumental in developing initiatives to minimize the consequences for society. While designing climate change policies, it is crucial to incorporate gender considerations, as highlighted by Baumol, et al (2016).

The Convention on the Elimination of All Forms of Discrimination against Women of 1979 stresses the importance of gender equality and the need to protect women's rights in the face of climate change and other natural disasters. While the Beijing Platform of 1995 doesn't specifically address legal instruments for gender protection during climate change, it emphasizes the importance of consulting women in decision-making processes and the need to protect the environment. The Sustainable Development Goals (SDGs) prioritize gender equality across all goals, recognizing the significant role women play in development and the necessity of their participation in achieving sustainable development. United Nations Security Council Resolution 1325 highlights the importance of protecting women during climate change and promoting gender equality. According to the International Bar Association, gender equality is a crucial element of climate change justice, as climate change exacerbates migration, food insecurity, and the vulnerability of women to violence and rights violations (Wilson and Tisdell, 2001).

Mondal (2014) and UNFCCC (2005) assert that while everyone in the world is affected by climate change, women bear a disproportionate burden compared to men. This is due to women's limited access to information and resources necessary to mitigate the impacts of climate change, which can be attributed to patriarchal societal structures and cultural barriers. During climate-related events such as global warming, floods, and wildfires, women are more likely to suffer than men due to lack of early warning, limited resources for relocation, family responsibilities restricting movement, and the multiple societal roles women fulfil. Climate change is a long-term process characterized by changes in weather patterns resulting from various natural and human activities, such as solar radiation, tectonic movements, volcanic eruptions, and disruptions caused by human actions like industrialization and deforestation. Indeed, Human activities have significantly contributed to climate change, leading to increased temperatures over the past century, as highlighted by Dimitrov (2019).

Women face several barriers in coping with the effects of climate change, including social, political, and economic factors. Women often have limited access to paid employment, both in formal and informal sectors, and are typically marginalized in decision-making processes related to climate change. Many women depend on informal activities like agriculture, fishing, and livestock for food,

which are susceptible to the impacts of climate change. The mental health of women is also negatively affected by climate change, resulting in higher levels of anxiety, disabilities, fear, frustration, and irritability, as noted by Dimitrov (2019). Scholars like Duncan (2009) highlight that climate change has become a pressing issue over the past century, impacting waterborne diseases, food security, drought, desertification, high temperatures, and global warming. While the effects of climate change differ between men and women, decision-makers should give priority to women in the development and implementation of climate change-related policies, as suggested by scholars like Jerneck (2018) and Langer et al. (2015).

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This study will examine the impacts of climate change to the women livelihood. In doing so, it will contribute to the body of knowledge in gender and development

Problem Statement

The United Nations Convention Framework on Climate Change states that women and children are increasingly becoming victims of climate change, and if no action is taken, the effects will worsen in the future. These effects include impacts on mental health, food security, and economic status. The World Health Organization and the American College of Obstetrics suggest that the disproportionate impact of climate change on women compared to men can be attributed to biological differences between the sexes and social norms that limit women's access to resources (WHO, 2002). To address this issue, policymakers need to develop and implement gender-specific policies to address climate-related challenges faced by women. Additionally, women should be involved in the decision-making process regarding climate policies due to their heightened vulnerability compared to men.

The IPCC (2007) highlights that women are more vulnerable to the effects of climate change than men for a variety of reasons, such as high levels of poverty, limited resources, gender inequality, and a higher reliance on climate-sensitive activities like agriculture, fishing, hunting, and forestry. There is also a lack of institutional support for gender equality in some societies, leading to further vulnerability for women. Climate change affects everyone regardless of race, caste, gender, income, ethnicity, or social status, emphasizing the importance of inclusivity in the development and implementation of climate-related policies. However, climate change has exacerbated existing inequalities in the world, leading to higher risks of loss of life for women and children compared to other groups in society.

This study will examine the effects of climate change on the women health and food security. In addition to that, this study will provide the recommendations on how states should eradicate the effects of climate change on women.

Research Objectives

1. To examine the effect of climate change on women health
2. To examine the effects of climate change to the women food security

Climate Change

As per the 2015 United Nations Framework Convention on Climate Change, climate change is the alteration of weather patterns observed over a specific period due to human activities that have damaged the ozone layer. Consequences of climate change include acid rain, drought, floods, temperature rise, natural disasters, snow and glacier melting, severe soil erosion, sea level fluctuations, desertification, hunger, and plant destruction. Mark et al (2021) further explains that climate change is defined as a sudden increase in temperature caused by human activities, resulting in catastrophic outcomes such as global warming that significantly impact women. The significant temperature rise can lead to sea level changes, triggering floods, droughts, desertification, heavy rainfall, soil erosion, and other detrimental effects.

Gender

According to the World Health Organization (2022), gender is described as socially constructed norms and behaviours assigned to individuals based on their biological sex. This also includes the roles and social relationships assigned to them. David et al. (2004) further explains that gender encompasses social, political, psychological, and economic aspects of behaviour that are assigned to individuals based on their gender in society. These assignments may vary depending on the specific society and context.

Empirical Review

Rao, et al (2019) carried out a study on the connection between climate change and agriculture in semi-arid regions of Africa and Asia. The study revealed that the issues related to gender should vary since gender roles vary depending on the context. For example, the study compared gender issues in rural and urban areas. Through this comparison, it was found that women in rural areas face challenges such as access to dirty water due to climate change, collecting firewood from forests, and higher dependence on agriculture. On the other hand, women in urban areas may experience climate change impacts like using contaminated water, increased floods in slum areas, and the spread of diseases such as cholera and typhoid, which are associated with contaminated water and acid rain. Specific considerations should be given to women on both sides when setting policies.

Huyer, et al (2021) analysed different ways to minimize the effects of climate change. The research discovered that one of the major problems that disproportionately affects women compared to men regarding climate change is the disparity in human capital and social environment in various societies. Women's lack of education may result in poor access to information about climate change and inadequate responses to related problems. Additionally, the lack of resources among women can lead to challenges like insufficient resources to address issues triggered by climate change, such as migrations, repairs, food shortages, diseases, and more. The study also highlighted the crucial role of women in participating in decision-making policies related to climate change.

The World Bank (2022) argues that giving women access to resources in society is a crucial solution to addressing climate change issues. According to the research, women in developing countries, especially those in rural and suburban areas, struggle to access funds during severe climate-related problems. Many societies are patriarchal, excluding women from decision-making processes, discriminating against them in job opportunities, maintaining discriminatory institutions, and still considering women as caregivers with limited financial resources. This restricts women's ability to respond effectively to climate change challenges in society.

Furthermore, UNEP (2020) examined the connection between climate change and women's development in developing countries. The study highlighted the severe impact of climate change on women living in poverty in these regions. The research revealed that 70% of people living below the poverty line or in extreme poverty are women. If no action is taken, this number is projected to increase by 132 million by 2030. The poverty and poor living standards of these women hinder their ability to cope with the negative outcomes of climate change, leading to issues like death, diseases, family violence, food shortages, increased migration, and their associated effects.

Duru, et al (2022) conducted a study on the effects of climate change on women in Kwara State, Nigeria, using questionnaires to collect data. The research showed that women in the region face climate change challenges, such as anthropogenic hazards. The study revealed that agricultural failures in the region could be attributed to poor production methods, low capital, and inadequate infrastructure development, leading to low productivity, weak response to climate change, diseases, and hunger.

Talmage and Gobler (2011) assessed the factors influencing agriculture and why climate change tends to devastate agriculture in the North Atlantic region. Their study emphasized the importance of fresh air like CO₂ and a rise in temperature for crop growth in the region. However, climate change has disrupted the distribution of CO₂ and moderate temperatures necessary for crop production. This disruption hampers plant growth, leading to reduced production, plant diseases, acidic produce, food scarcity, drought, and food insecurity in the society. Additionally, women predominantly engage in agriculture, especially in semi-urban areas, which can hinder their development and health.

According to Flato et al (2013), women, young children, individuals with vulnerabilities, and elderly people are more likely to suffer the impacts of climate change compared to other groups in society. For example, women are less physically strong than men and may struggle during floods, unable to swim or jump like men. During natural disasters such as volcanic eruptions, earthquakes, and heavy rainfall, men tend to escape more easily than women. This disparity can be attributed to biological differences, responsibilities at home such as caring for children, lack of information during disasters, pregnancy, and scarcity of resources to respond to needs. Elderly and sick people are also vulnerable during climate change as they may struggle to flee during disasters, leading to greater losses.

Alhamad et al. (2020) and Sivadasan and Xu (2021) found that increased rainfall due to climate change can lead to a higher mortality rate among women. The impact is influenced by factors such as the type of shelter, access to information, and government interventions to protect vulnerable groups in society. Additionally, their research revealed that in higher temperatures, men are more susceptible to greater losses compared to women. This is attributed to the fact that men often work in high-risk jobs associated with hot temperatures, such as mining, construction, and fishing, while women tend to stay at home and take care of family responsibilities. The study suggests the need for specific policies to educate both men and women on how to address these issues and ensure that they are protected from high-risk jobs like mining, quarrying, waste collection, and construction that can pose a greater risk of death during climate change-related events.

Sawadogo (2023) conducted a study to evaluate the impact of climate change on Burkina Faso using economic framework methods. The study revealed a significant connection between climate change and challenges faced by women in the areas studied. For

example, women in Burkina Faso are more likely to experience hardships compared to men during climate change, especially in arid regions where they may lose employment opportunities and face issues related to poor agricultural production. Droughts and heavy rains can damage crops, leading to poverty, food insecurity, hunger, and migration in affected areas where women heavily rely on agriculture as a primary source of income."

Reasons why women are more vulnerable to the climate changes effects than men according to the gender related theorists

Kaijser and Kronsell (2014) argue that structural inequality is the primary reason for climate injustice in society. They believe that climate justice and structural inequality disproportionately favor men over women when it comes to access to resources, jobs, education, and decision-making processes, which hinders women's full participation in climate change decision-making. Crenshaw (1989) and Sultan (2021) highlight intersectionality inequality as a significant issue for women, defining it as the different identities of various groups in society, such as ethnicity, sexuality, and disability, which can create barriers to participation in climate-related policies.

Feminist scholars insist that gender perspectives must be integrated into decision-making processes and policy implementation, according to Kaijser and Kronsell (2014). They assert that by incorporating gender-specific issues, women's needs in responding to climate change impacts can be addressed, as environmental changes affect men and women differently.

Jerneck (2018) and Walby (1989) emphasize the influence of a patriarchal society on the allocation of resources, power, decisions, and education in society. They suggest that patriarchal influence determines the distribution of duties based on gender, influences the types of jobs available to men and women, and affects payment methods and salary levels, leading to disparities in pay between men and women. This unequal treatment limits women's ability to address climate change and hinders progress in education, gender equality, and societal development. Gender inequality remains prevalent in societies with low education levels and strong adherence to social Norms.

Methodology

The aim of this research was to explore how climate change affects women's health and food security in developing nations. To establish the connection, secondary sources were collected. Two main goals were identified: analysing the impact of climate change on women's health and determining how it affects women's food security. Published articles, research books, and international reports from reputable institutions were utilized to gather secondary data. Additionally, previous studies on climate change, gender, and development were consulted. Climate change was identified as the independent variable, while women's livelihood was considered the dependent variable.

Findings and Results

Relationship between Climate Change and Women Food Insecurity

Climate change, including heavy rainfall, drought, strong winds, acid rain, and other factors, plays a significant role in causing food insecurity. Excessive rainfall can damage crops, while droughts can destroy crops in the absence of proper irrigation systems, leading to hunger in regions heavily reliant on agriculture. Women make up 43% of global agricultural workers, as reported by the FAO. The impacts of climate change on farms and crops include plant diseases, reduced yields, soil erosion, landslides, and floods. Women's food security is particularly affected by factors like heavy winds, as they depend on agriculture for both income and food, especially in rural areas of developing countries. (Agidew & Singh, 2018; Asare, & uamah, 2021).

Plant Diseases

According to Velasquez (2018), crops are susceptible to various diseases during climate change, ultimately resulting in the destruction of the crops. Vasquez's research revealed that climate change can introduce diseases such as bacteria, fungi, oomycetes, viruses, and nematodes. These infections impact plant tissues, leading to the ultimate destruction of the plants. For instance, they may target plant components like Xylem, Phloem, roots, and leaves for survival. The more deteriorated the plants, the higher the risk of reduced yields. Additionally, Chaloner et al (2021) suggest that climate change contributes to food insecurity by disrupting the evolution and interactions of pathogens with different parts of the plants, thus inhibiting plant growth and resulting in lower agricultural production and increased hunger.

Drought

Drought is a leading cause of decreased agricultural production in rural areas, as noted by Huyer et al. (2020). Research conducted by Bras et al. (2021) demonstrates a significant decline in agricultural output due to drought, ranging from 9% to 7.3% between 1961

and 2018. This study also highlights the impact of drought and higher temperatures on crop production in East Asian countries such as Thailand, Malaysia, Myanmar, and China. For example, in China, drought has resulted in significant losses in wheat yield (7.8% to 11.6%), rice production (4.5% to 6.3%), and other crops, according to Shi et al. (2021). Leng et al. (2019) suggests that there will be more severe droughts in the future, which could have catastrophic consequences for women and other vulnerable groups in society.

Floods

"Floods are a significant consequence of climate change globally, leading to a substantial loss of life. Moreover, a large part of the world is at risk of experiencing floods in the future. Perera et al (2015) research indicates that approximately one-third of the world's land will likely be affected by climate change-induced floods in the future. Additionally, 82% of the world's total land area is susceptible to climate change impacts in the future. Desai et al (2015) research revealed that the annual cost of floods is 104 billion USD, affecting 2.2 billion people in Africa and Asia. Kaul et al (2019) state that around 17 million square kilometers of land are impacted by floods, with 10-12% of global agricultural land affected by climate change-induced floods and poor drainage, leading to decreased production and food insecurity. Research also suggests that by 2050, the impact of floods on agricultural production could double if no action is taken to address the causes of climate change."

Relationship between Climate Change and Women Health

Stresses Affect Women Mental Health

The impact of climate change on women includes post-traumatic stress disorder. Although both genders are affected by this trauma, women tend to experience it more severely than men. Research conducted in the US, Australia, Myanmar, China, and the UK revealed that women face greater risks than men following natural disasters. Additionally, women are more likely to experience heightened stress, depression, and emotional instability after such events. These stressors can lead to increased depression, elevated blood pressure, and ultimately result in premature birth and low birth weight in infants (Sorensen et al, 2018).

Natural disasters can lead to higher rates of sexual assault and violence.

Gender-based violence can be exacerbated by natural disasters resulting from climate change. Displacement, poverty, inadequate housing, and other hardships can increase the risk of gender-based violence in challenging circumstances (Jalees, 2005). According to a report from the national sexual violence resource centre, a significant portion of the violence against women during Hurricanes Katrina and Rita was attributed to a lack of shelter for women. Furthermore, individuals with disabilities, mental illnesses, and those experiencing homelessness are often disproportionately affected during climate change-induced disasters. For instance, in the aftermath of the 2016 hurricanes, incidents of sexual violence in Haiti surged (Desai et al (2015).

Water Borne Diseases

The inadequate supply of clean water forces individuals to consume contaminated water that may be harmful due to biological and toxic substances present in it. Birch et al., (2012) and Duncan (2006) have highlighted the traditional practice of women and children fetching water for their families, exposing them to waterborne diseases like Cholera, Typhoid, Dysentery, Hepatitis A, Salmonella, and Giardia, especially in areas with no access to clean water. Jalees (2005) also points out that the use of unclean water by women affects their personal health, hygiene during pregnancy and menstruation, highlighting the importance of proper sanitation and hygiene practices. The lack of clean water in urban areas has been associated with increased mortality rates. Climate change further exacerbates the situation by causing heavy rainfall, floods, and storms, leading to the spread of diseases such as Zika virus, malaria, and Dengue, which can result in birth defects, miscarriages, premature births, low birth weight, and even maternal or infant mortality. Poverty worsens the health impacts of water scarcity, particularly on women, as they often have to pay higher prices for water due to a lack of ownership of water sources in urban areas. The lack of access to clean water has been linked to higher mortality rates among women in these areas.

Conclusions and Recommendations

This study examined the impact of climate change on women's livelihood. Specifically, it investigated how climate change affects women's health and food availability. The results of the study showed a strong connection between climate change and these two factors. For example, the study found that climate change can lead to illnesses such as malaria, typhoid, dysentery, diarrhoea, depression, heart attacks, Zika virus, and post-traumatic stress disorder in women due to toxic water and heavy rainfall. Furthermore, the study revealed that climate change can result in food insecurity for women through flooding, drought, desertification, heavy rainfall, and erosion, which can damage crops. As a result of these impacts of climate change on women's livelihoods, it is recommended that governments address gender inequality and empower women to better cope with the effects of climate change. It is also suggested that governments allocate sufficient resources to address the impact of climate change on women, enact laws to

address climate change, establish legal mechanisms to hold accountable those who contribute to the depletion of ozone layers, and develop policies that incorporate women in climate-related decisions.

Recommendations for Further Research

This study investigated the impacts of climate to the women livelihood. Specifically, this study analysed the impacts of climate change on women health and to the women food security. As results, this study revealed the strong linkage between climate change and these two variables. Yet, there is still a gap on research on climate changes and various aspects of women in society. As results, I would like to propose the following topics for further studies: to assess the impact of climate change on women education and analysing the impacts climate change on women employment

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