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Research Article

Influence of Climate Change-driven Scarcity of Water on the Prevalence of Gender-based Violence (GBV) Among Women in Matapato South, Kajiado County, Kenya

Edna Orguba[1, *], Daniel Muasya Nzengya[1], David Gichuhi[2]

[1]School of Education and Social Sciences, St Paul's University, Limuru, Kenya
[2]Department of Human Resource Development, Karatina University, Karatina, Kenya

Abstract

Gender-based violence (GBV) remains a critical social challenge in climate-vulnerable pastoral communities, where environmental stressors intersect with gender inequalities. The purpose of the study was to examine the Influence of climate change-driven scarcity of water resources on the prevalence of gender-based violence (GBV) among women in Matapato South, Kajiado County, Kenya. This study, grounded in Resource Scarcity and Conflict Theory, examined how climate change outcomes influence GBV against women in Matapato South Ward, Kajiado County, Kenya. Resource Scarcity and Conflict Theory frames how environmental shocks compromise social and household stability. The study targeted women and key stakeholders, including community elders, local administrators, healthcare workers, law enforcement officers, and NGO representatives addressing climate change and GBV, with a total population of 194 women and 62 stakeholders. Using Yamane's formula, a sample of 131 women and 44 stakeholders was selected. Cluster and purposive sampling ensured balanced representation. Data were collected through structured questionnaires and key informant interviews. Quantitative data were analyzed descriptively, and qualitative data were analyzed thematically. Findings reveal strong theoretical and empirical links between climate stressors and GBV. 95.9% of respondents reported that drought-related water scarcity leads to household conflicts, reflecting how resource scarcity exacerbates gendered power tensions. The study concludes that climate-induced water, pasture, and food scarcity, along with migration, intensify GBV risks, including household disputes, emotional abuse, sexual violence, and exploitative relationships. These findings underscore the gendered security implications of climate change and the need for targeted interventions to reduce GBV, enhance community resilience, and protect women in pastoralist settings.

Keywords

Climate Change, Water Scarcity, Gender-based Violence, Women's Vulnerability, Pastoralist Communities, Kenya

1. Background of the Study

Gender-Based Violence (GBV) is defined by the World Health Organization [33] as "any harmful act directed against individuals or groups of individuals based on their gender," encompassing physical, sexual, psychological, or economic harm. Similarly, [30] specifies GBV against women as violence rooted in gender inequality, power imbalance, and discrimination, often

*Correspondence: Edna Orguba (ednadararo@gmail.com)

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manifesting in domestic abuse, sexual exploitation, forced marriages, and trafficking. GBV is both a human rights violation and a public health issue with long-lasting physical and emotional impacts [15].

Climate change, as defined by the Intergovernmental Panel on Climate Change [10], refers to long-term shifts in temperatures and weather patterns primarily caused by human activities, such as the burning of fossil fuels. These shifts are contributing to an increase in the frequency and severity of weather events, such as droughts, floods, storms, and heat waves [24]. Importantly, climate change interacts with existing vulnerabilities such as poverty, marginalization, and weak governance to exacerbate social and economic inequalities, including those related to gender [13].

The intersection between climate-induced vulnerability and GBV is gaining increasing global attention. Climate-induced vulnerability refers to the heightened exposure and sensitivity of individuals, especially women, to the negative impacts of climate change due to social, economic, and political disadvantage [10]. In the United States, climate disasters like Hurricane Katrina led to a 98% spike in intimate partner violence (IPV) in affected areas [3]. Studies show that women, particularly those from low-income or Indigenous communities, face increased risks of GBV due to displacement, loss of income, and weakened social safety nets following environmental disasters [4, 9]. Overcrowded shelters and a lack of privacy during such crises further expose women to sexual exploitation and abuse [9].

In Europe, and specifically in the United Kingdom, similar trends have emerged. Flooding, heatwaves, and other climate shocks have resulted in job losses, homelessness, and displacements that disproportionately affect women. Reports indicate that following the 2013–2014 winter floods in the UK, domestic violence cases spiked due to increased household stress and displacement [27]. Vulnerable women, especially migrants and low-income earners, face additional risks due to reduced access to legal aid, emergency accommodation, and mental health support [12, 27]. These findings affirm that climate-induced stressors magnify pre-existing gender disparities and place women at greater risk of violence [6].

In Asia, the link between climate disasters and GBV is equally documented. After the 2011 Great East Japan Earthquake, there was a surge in IPV and sexual harassment in temporary evacuation shelters, particularly affecting women in rural and coastal areas [26]. Traditional gender norms, limited income opportunities, and weak disaster preparedness contribute to these heightened risks [28]. Research shows that financial hardship forces many women into precarious labor or unsafe migration, exposing them to human trafficking and abuse [5, 34]. These patterns confirm the need for gender-sensitive disaster responses and stronger protections for women in disaster-prone regions [8].

In Africa, climate change is worsening gender inequalities in fragile states such as Nigeria. Prolonged droughts and flooding have destroyed livelihoods, especially in agrarian and pastoralist communities [20]. This environmental degradation intensifies competition for limited resources, often resulting in domestic violence, early and forced marriages, and sexual exploitation [2]. In displacement camps, overcrowding and lack of security leave women and girls at high risk of trafficking and GBV [19]. Additionally, armed groups in the Sahel region have exploited climate insecurity to commit gender-based crimes, including rape and forced marriage [9]. Socio-economic dependence, cultural norms, and weak institutional frameworks further marginalize women and limit their ability to escape abusive environments [1, 18].

In Kenya, the impacts of climate change have become increasingly pronounced, particularly in arid and semi-arid lands (ASALs) such as Matapato South in Kajiado County. Erratic rainfall, prolonged droughts, and extreme weather events have led to widespread water and food scarcity, loss of livelihoods, displacement, and intensified household stress all of which contribute to increased GBV against women [31]. Studies show that in ASAL regions, climate-induced scarcity of water and pasture fuels conflict and economic insecurity, exacerbating domestic abuse, sexual violence, and early marriages [14, 21]. Women and girls are often forced to walk longer distances in search of water, exposing them to risks of sexual harassment or assault. In displacement settings, overcrowded shelters and a lack of privacy increase vulnerability to GBV [23]. Additionally, economic hardship compels some women to engage in transactional sex for survival, further compounding their exposure to exploitation and health risks [11].

Despite growing recognition of these challenges, there remains a significant knowledge gap regarding the specific dynamics between climate change and GBV in local contexts like Matapato South. This study sought to bridge that gap by analyzing the extent to which climate-induced resource scarcity, displacement, and food insecurity contribute to the prevalence of GBV against women. The findings aim to inform gender-sensitive climate adaptation policies and strengthen GBV prevention mechanisms tailored to climate-stressed communities [20].

Climate change poses significant socio-economic risks that disproportionately increase women's vulnerability to gender-based violence (GBV), particularly through stressors such as drought, water scarcity, food insecurity, and displacement, which weaken livelihoods and social protection systems. While global studies confirm that these climate shocks intensify violence against women, limited research has focused on localized pastoralist settings like Matapato South in Kajiado County, where recurrent droughts have disrupted livelihoods, increased economic dependence, and heightened exposure to GBV [24]. Despite rising cases of sexual violence and teenage pregnancy in the area, existing policies largely emphasize environmental and livelihood recovery while neglecting gender-responsive interventions and GBV risk mitigation. Additionally, there is an inadequate understanding of how climate-in-

duced stressors interact with socio-cultural norms and institutional gaps to influence violence against women. Therefore, this study sought to examine the influence of climate change drought related water scarcity on the prevalence of GBV among women in Matapato South, Kajiado, Kenya [31].

2. Empirical Review

2.1. Climate Change-driven Scarcity of Water Resources

Researcher explored the link between chronic water shortages, psychological distress, and gender-based violence (GBV) among women in water-scarce communities using a mixed-methods approach [7]. Their findings indicated that prolonged water insecurity intensifies household stress, contributing to a rise in intimate partner violence (IPV), particularly against women who shoulder the burden of water collection. While the study provides valuable insights into the intersection of environmental stress and GBV, it does not adequately discuss methodological limitations such as the variability in water access metrics, potential reporting biases around IPV, or regional differences that may influence outcomes. The lack of comparative analysis across diverse geographic and cultural settings also limits the generalizability of its conclusions. These gaps underscore the need for localized studies like the present research in Matapato South, which contributes by investigating how water scarcity and socio-cultural dynamics interact to increase GBV risks during emergencies, offering context-specific evidence for targeted intervention.

Onyango, P., & Arup, S. examined the relationship between prolonged droughts, forced migration, and the heightened risk of gender-based violence (GBV) among women in East Africa [22]. Findings indicate that women who migrate in search of water face increased exposure to sexual violence, particularly in overcrowded and insecure displacement settlements. The study highlighted how displacement exacerbates women's vulnerability due to inadequate security, lack of basic services, and economic instability. Using qualitative and quantitative data, the research underscored the urgent need for gender-sensitive climate adaptation policies, improved security measures in migration routes and refugee camps, and sustainable water management strategies. Addressing these challenges is critical to mitigating GBV risks and enhancing the resilience of women affected by climate-induced migration.

Researcher investigated the relationship between water insecurity and increased risk of sexual violence in Kenya, revealing that prolonged droughts force women and girls to traverse unsafe areas in search of water, thereby heightening their exposure to gender-based violence (GBV) [32]. Using both qualitative and quantitative data, the study explored how socio-economic and cultural factors amplify women's vulnerability, showing that inadequate access to water not only intensifies household stress but also entrenches gender inequalities. However, the study does not critically address methodological limitations such as the reliability of self-reported GBV data, regional variability within Kenya, or potential contradictions between qualitative and quantitative findings. Additionally, it lacks a comparative lens across studies and does not explicitly identify research gaps or limitations in generalizability. These omissions highlight the need for more localized, in-depth studies like the current research in Matapato South, which aims to contextualize how environmental stressors, mobility patterns, and traditional gender roles interact to escalate GBV risks, thereby contributing more precise and actionable insights to the field.

A study by [29] investigated the link between prolonged water shortages and the rise in domestic violence, particularly intimate partner violence (IPV), in Kenya and Ethiopia. Using a mixed-methods approach, the research examines how economic hardships and household stress associated with water insecurity contribute to increased aggression among men. Findings indicated that as families struggle with limited access to water, tensions within households escalate, leading to higher incidences of IPV. The study further highlighted that women bear the brunt of these challenges, as they are primarily responsible for water collection and household management.

The researchers explored the intersection of water insecurity, inter-communal conflicts, and gender-based violence (GBV) in pastoralist communities of Kenya and Tanzania [25]. The research found that competition over dwindling water sources frequently leads to violent clashes, forcing the displacement of vulnerable populations, particularly women. As a result, displaced women face increased risks of sexual exploitation, forced marriage, and other forms of GBV. In addition to water-related pressures, the study noted that climate change-driven food insecurity, exacerbated by recurrent crop failures, further intensified competition over natural resources and deepened household vulnerabilities. Food scarcity placed added pressure on women, who are traditionally responsible for feeding their families, pushing some into risky survival strategies and amplifying their exposure to GBV. Using qualitative case studies and field data, the study highlights the structural inequalities that exacerbate women's vulnerability in conflict-prone regions. The findings emphasized the urgent need for conflict-sensitive water and food security management policies and targeted interventions to protect women and girls in pastoralist communities facing both water and food insecurity.

Researchers examined the impact of prolonged droughts on women's safety and vulnerability in Kajiado County, Kenya [16]. Their study found that as water resources became increasingly scarce, women experienced heightened economic distress, leading some to engage in exploitative relationships with men who controlled water access. This resulted in increased incidences of transactional sex and sexual exploitation, highlighting a direct link between environmental stress and gender-based violence (GBV). Additionally, the researchers

reported that drought-induced crop failures and rising food insecurity further intensified women's vulnerability, as they sought alternative means of sustaining their households, often at personal risk. The study's findings are directly relevant to the current research, particularly to the objective of examining how environmental and socio-economic stressors contribute to increased vulnerability to GBV in rural and arid regions. Moreover, although conducted in Kajiado County, the thematic issues identified, such as scarcity of basic resources, economic desperation, and gendered power imbalances, mirror the conditions in Matapato South. By linking structural environmental challenges to GBV, this empirical evidence underscores the importance of contextualizing policy interventions and aligns with the current study's aim to explore locally specific factors influencing GBV vulnerability during emergencies in Matapato South.

Research indicates that water scarcity exacerbates GBV. Researcher link water insecurity to increased IPV but lack a comparative analysis [7]. Researchers find that drought-induced migration heightens sexual violence risks [22], while [32] highlight unsafe water-fetching routes in Kenya. [29] and [25] further connect water conflicts and food insecurity to GBV in pastoralist communities. [16] specifically examine Kajiado County, showing how resource scarcity leads to transactional sex and exploitation, reinforcing the need for localized interventions.

2.2. Research Gaps

Despite extensive literature linking water scarcity to gender-based violence (GBV), several research gaps persist. Many studies emphasize broad regional findings with limited focus on localized contexts, thereby overlooking specific socio-cultural dynamics influencing vulnerability at the community level. Additionally, there is insufficient attention to methodological limitations such as reliance on self-reported data, inconsistencies in measuring water insecurity, and lack of integration between qualitative and quantitative findings. Most studies also lack comparative and longitudinal analyses, limiting the generalizability of results across different settings. Furthermore, the interaction between environmental stressors, mobility patterns, and traditional gender roles remains underexplored. These gaps justify the need for context-specific research, such as the present study in Matapato South, to generate more precise and actionable insights.

3. Results

3.1. Demographic Data

The demographic data section provides essential background information on the composition of the study population. It profiles respondents based on gender, age, and educational attainment, which are standard demographic variables in social research. Age is organized into clearly defined and consistent cohorts to ensure analytical clarity and methodological rigor, while gender distribution captures potential differences in perspectives and experiences. Educational attainment further contextualizes respondents' socio-economic positioning, thereby strengthening the interpretation and validity of the study findings.

Table 1. *Age Bracket.*

Category	Frequency	Percentage
18 to 24 years	20	16
25 to 31 years	47	37
32 to 38 years	41	32
39 years and above	19	15
Total	127	100

Source: Researcher (2025)

Table 1 presents the age distribution of the 127 respondents. The largest proportion of respondents falls within the 25–31 years category, representing 37 percent of the sample. This is followed closely by the 32–38 years group, which accounts for 32 percent. Respondents aged 18–24 years make up 16 percent, while those aged 39 years and above form the smallest group at 15 percent.

The results show that the majority of respondents are between 25 and 38 years, making up 69 percent of the sample. This indicates that the study largely captured views of individuals in their early to mid-adulthood, an age range often characterized by active participation in professional and social activities. The relatively smaller percentages of respondents in the 18–24 years and 39 years and above categories suggest limited representation of the youngest and oldest groups.

The age distribution demonstrates that the study primarily reflects the perspectives of young and middle-aged adults. This enhances the relevance of the findings to the active working population, though it may provide fewer insights from both the younger and older sections of the community.

Table 2 presents the educational levels of the 127 respondents. The majority attained primary education, accounting for 40 percent of the sample. Those with secondary education follow this at 34 percent, while 16 percent had achieved tertiary education. A smaller proportion, 10 percent, reported having no formal education at all.

Table 2. *Level of Education.*

Category	Frequency	Percentage
No formal education	13	10

Category	Frequency	Percentage
Primary education	51	40
Secondary education	43	34
Tertiary education	20	16
Total	127	100

Source: Researcher (2025)

The findings indicate that most respondents had at least some form of basic education, with 90 percent having gone through primary, secondary, or tertiary levels. However, the fact that primary education forms the largest category suggests that a considerable portion of the population has limited formal academic progression beyond the basic level. The relatively smaller proportion with tertiary education implies fewer respondents had access to advanced learning opportunities, which may affect their skills, employability, and capacity to engage in complex socio-economic activities.

The distribution shows that while education is present among the majority of respondents, it is concentrated at the lower levels, particularly primary education. This pattern points to possible educational challenges, such as limited access or progression opportunities, while also highlighting the need for strategies to expand higher learning participation in the population.

Table 3. Gender.

Category	Frequency	Percentage
Male	47	37
Female	80	63
Total	127	100

Source: Researcher (2025)

The gender distribution of respondents indicates that females constituted the majority of the study participants at 63 percent (n = 80), while males accounted for 37 percent (n = 47). This composition is analytically significant given the focus of the study on climate change and gender-based violence (GBV), as women are disproportionately affected by both climate-induced stressors and GBV in pastoral and semi-arid contexts such as Matapato South Ward. The higher female representation enhances the credibility and relevance of the findings, as it allows for richer insights into women's lived experiences, including exposure to climate-related vulnerabilities such as water scarcity, food insecurity, displacement, and increased care burdens, which have been empirically linked to heightened risks of GBV. At the same time, the inclusion of male respondents provides an important comparative and contextual perspective on community norms, power relations, and gender dynamics that influence the manifestation of violence during periods of climatic stress.

In conclusion, the gender composition of the sample aligns well with the objectives of the study and strengthens its analytical depth. The predominance of female respondents ensures that women's voices, central to understanding the intersection between climate change and GBV, are adequately captured, while male participation supports a more holistic interpretation of gender relations within the community. Overall, this distribution supports valid and gender-responsive conclusions on how climate change exacerbates vulnerabilities and shapes the nature and intensity of GBV against women in Matapato South Ward, thereby providing a sound basis for recommending targeted, inclusive, and context-specific interventions.

3.2. Analysis of the Study Variables

Climate Change–Induced Water Scarcity and Gender-Based Violence among Women in Matapato South, Kajiado County

The first objective of the study was to examine the influence of Climate Change-Driven Scarcity of Water Resources on the Prevalence of Gender-Based Violence among Women in Matapato South, Kajiado County. The results were as shown in Table 4.

Table 4. *Scarcity of Water Resources.*

Statement	Yes	No	I Don't Know
Has water scarcity from droughts increased household conflicts?	95.9%	2.0%	2.0%

Statement	Yes	No	I Don't Know
Do women face higher risks of harassment/assault when walking long distances for water?	94.9%	2.0%	3.1%
Has the lack of water led to transactional sex for water access?	95.9%	2.0%	2.0%
Have water disputes increased GBV cases in the community?	89.8%	4.1%	6.1%
Has water scarcity led to more emotional abuse at home?	93.9%	3.1%	3.1%

Source: Researcher (2025)

The analysis of water scarcity and its link to gender-based violence (GBV) shows a strong relationship between limited access to water and increased household and community challenges. A significant 95.9% of respondents indicated that drought-related water scarcity has led to household conflicts, reflecting the strain that resource shortages place on domestic harmony. Similarly, 94.9% acknowledged that women face higher risks of harassment and assault when walking long distances for water, highlighting how water scarcity exposes women to physical insecurity.

The data further reveals that 95.9% of respondents associated water scarcity with transactional sex, suggesting that women and girls are forced into exploitative survival strategies when water is unavailable. Meanwhile, 89.8% agreed that water disputes contribute to GBV cases in the community, showing that competition for scarce resources often escalates into violence. Additionally, 93.9% reported that water scarcity increases emotional abuse at home, indicating that the stress of scarcity translates into psychological violence against women.

4. Discussion

Analysis of the Study Variables

The study requested respondents to provide their opinions on the interplay between climate change outcomes and gender-based violence against women in Matapato South Ward, Kajiado, Kenya. In particular, it sought to examine the relationship between factors such as drought, food insecurity, resource scarcity, and displacement with incidences of gender-based violence. A structured questionnaire consisting of "Yes" and "No" responses was administered to capture the perceptions and experiences of the respondents. Their responses were assessed and analysed, and in this section, the findings regarding the aforementioned variables are presented.

As a local administrator, "*I see myself as the first point of contact between the government and the community. I have served in this role for over seven years, during which I have been deeply engaged in addressing emerging issues, including climate change and gender-based violence. My responsibility includes coordinating community awareness, mobilizing resources, and working with other stakeholders to mitigate the adverse effects of droughts and floods that often escalate vulnerabilities to violence, particularly among women and girls".*

This aligns with stakeholder theory (Freeman, 1984), which emphasizes the centrality of community actors in bridging diverse interests for collective problem-solving. Literature also supports the idea that local administrators are crucial in building resilience to climate shocks and ensuring community protection [17]. My long service has allowed me to gain trust, which is essential for implementing policies effectively.

Local administrators*: "During the dry season, women in Matapato South walk for hours in search of water, sometimes leaving before dawn and returning late. This exposes them to attacks on the way. They also lose time for income-generating activities".*

Healthcare workers*: "I notice that women suffer from dehydration and exhaustion, and maternal health becomes riskier during the dry season. Girls also face more absenteeism from school, and in some cases, they are married off early as families cannot provide for them. The lack of water also impacts maternal health, as pregnant women struggle to access clean water for hygiene.".*

Law enforcement officers: " *When water points become crowded, I see more disputes and fights. Women are often harassed or assaulted at these points. Also, long distances create opportunities for bandits and perpetrators of sexual violence to prey on women".*

NGO representatives *my experience, women face water shortages, malnutrition, and heavy workloads. They are also pressured into harmful coping strategies, such as child marriages or exchanging sex for basic commodities".*

The challenges resonate with Maslow's hierarchy of needs, where scarcity of basic resources undermines security and dignity, pushing women into risky situations. [30] notes that in many pastoralist regions, seasonal droughts increase the burden on women and directly correlate with heightened risks of GBV. The feminist political ecology theory also emphasizes how unequal power relations shape women's vulnerability to environmental stress.

5. Conclusion

In conclusion, water scarcity is not just an environmental and economic issue but also a gendered security challenge. It drives household conflicts, exposes women to harassment, fuels transactional sex, and contributes to both community-

level disputes and emotional abuse within homes. These findings confirm that GBV is a critical consequence of climate-induced water shortages.

6. Recommendations

The governments and development actors should integrate GBV prevention into water resource management and climate adaptation programs. Expanding access to safe and sustainable water sources through boreholes, rainwater harvesting, and piped systems would reduce women's exposure to risks. Second, community awareness campaigns should be implemented to address both GBV and water-use conflicts, promoting dialogue and peaceful coexistence. Third, protective measures such as community policing and safe water collection points should be established to reduce harassment risks. Lastly, alternative livelihood and support programs should be introduced to mitigate dependence on harmful coping mechanisms such as transactional sex. Together, these interventions can reduce both the burden of water scarcity and its associated risks of GBV.

Abbreviations

ASALs	Arid and Semi-Arid Lands
GBV	Gender-Based Violence
IPCC	Intergovernmental Panel on Climate Change
IPV	Intimate Partner Violence
ISERC	Institutional Scientific and Ethics Review Committee
NACOSTI	National Commission for Science, Technology and Innovation
NGO	Non-Governmental Organization
WHO	World Health Organization

Author Contributions

Edna Orguba: Conceptualization, Methodology, Investigation, Data curation, Formal Analysis, Visualization, Writing – original draft, Project Administration

Daniel Muasya Nzengya: Methodology, Supervision, Validation, Writing – review & editing, Resources

David Gichuhi: Formal Analysis, Validation, Supervision, Writing – review & editing

Conflicts of Interest

The authors declare that there are no financial, commercial, or other affiliations or relationships that could be perceived as potential conflicts of interest by the academic community. Accordingly, the authors affirm that there are no conflicts of interest associated with the conduct, analysis, interpretation, or publication of this study.

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