Determinants of Climate Action Integration in Health Sector Policy Making in Kenya.

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ABSTRACT

The increasing threat of climate change poses significant challenges to global health, with Kenya being particularly vulnerable to its impacts. As temperatures rise and extreme weather events become more frequent, the country faces a growing burden of climate-related health challenges such as vector-borne diseases, malnutrition, and waterborne illnesses. In response to this threat, Kenya has taken steps to integrate climate action into its health policies, recognizing the urgent need to address the nexus between climate change and health. Despite these efforts, climate action has not been fully integrated into the health sector policies, necessitating this study to establish the barriers thereof. The study used a mixed methods approach and integrated key informant interviews and surveys to collect data, which was then analyzed using various inferential statistics. Statistical techniques such as t-tests, chi-square tests, and regression analyzes were used to identify significant patterns and relationships within the quantitative data. In addition, thematic analysis was used to interpret the qualitative data from the interviews and highlight key themes and insights related to integrating climate action in the health sector. The mixed-methods design followed an explanatory sequential approach, first collecting quantitative data from surveys to provide a comprehensive overview of climate action integration, followed by qualitative interviews to explore these findings in more depth. The target audience consisted of health sector stakeholders, including policymakers, practitioners and climate health experts. Participants were selected through purposive sampling to ensure relevant expertise and perspectives, supplemented by snowball sampling to further broaden the participant base. This comprehensive methodology enabled a detailed examination of the motivations, contexts, progress and barriers impacting the integration of climate action. While existing policy frameworks demonstrate a commitment to addressing climate-related health issues, challenges such as institutional silos, resource disparities, conflicting priorities, and complex stakeholder dynamics emerged as significant barriers to effective integration. Despite these challenges, opportunities exist to enhance integration through targeted actions focused on increasing awareness, improving data availability, strengthening governance structures, and garnering political support at all levels of government.

Keywords: Climate Action, Determinants, Health Security, Integration & Policy Making

INTRODUCTION

Kenya has made significant strides in addressing the determinants of integrating climate action into health sector policymaking. A robust policy framework, exemplified by the Climate Change Act (Amended) 2023 and the National Climate Change Action Plan (2017 – 2022), underscores the imperative of mainstreaming climate considerations across sectors, including health. Furthermore, a growing body of research elucidates the direct and indirect health impacts of climate change, providing a solid evidence base to bolster the case for climate action integration in health policies according to McMichael *et al*. (2020), Watts *et al*. (2021) and World Health Organization (2023). Kenya's commitment to international agreements such as the Paris Agreement adds external impetus and opportunities for funding towards integrating climate-sensitive approaches in health policy. Moreover, civil society organizations (CSOs) play a pivotal role in advocating for comprehensive approaches and raising awareness, while efforts to bridge institutional silos, enhance technical capacity, and address data gaps are underway to navigate challenges and facilitate effective integration of climate action into health sector policymaking in Kenya.

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LITERATURE REVIEW

Climate change poses a significant threat to human health, impacting areas such as air quality, sanitation, nutrition, and mental wellness (Watts *et al*., 2021, p. 2). Recognizing this interconnectedness, countries worldwide are increasingly integrating climate action into health sector policymaking. Countries like Argentina and Colombia have made strides. Argentina's National Climate Change Adaptation Plan incorporates health considerations across various sectors, including specific measures for heatwave preparedness and vector-borne disease control (Gobierno de Argentina, 2020, p. 12). Colombia's National Adaptation Plan addresses health vulnerabilities through early warning systems for climate-sensitive health risks and capacity building for health professionals (IDEAM, 2020, p. 15).

The European Union's commitment to integrating health considerations into climate policies is exemplified by its advocacy for a "Health in All Policies" approach, as highlighted in a report by WHO Europe (2023, p. 10). This approach underscores the interconnectedness of environmental and public health issues, urging member states to adopt comprehensive strategies that address both. France's proactive stance on this matter is evident in its National Climate Change Adaptation Plan, where the explicit recognition of health risks associated with climate change demonstrates a forward-thinking approach (Ministry for the Ecological Transition, 2021, p. 8).

In India, the National Action Plan on Climate Change underscores the significance of addressing health impacts arising from climate change, as highlighted in the government's report (Government of India, 2018, p. 14). This plan delineates a range of interventions aimed at mitigating these effects, such as the implementation of heat action plans and the establishment of surveillance systems for vector-borne diseases, showcasing a proactive approach toward safeguarding public health amidst changing climatic conditions. Notably, the strategy emphasizes the importance of risk communication and capacity building for health professionals, reflecting a commitment to enhancing resilience and preparedness within the healthcare system to effectively address climate-related health challenges.

South Africa's National Climate Change Adaptation Strategy, demonstrates a clear recognition of the health risks posed by climate change (Department of Environmental Affairs, 2019, p. 9). The strategy emphasizes the importance of addressing these risks through targeted interventions, with a particular focus on enhancing water security and ensuring food safety in the face of changing climatic conditions. Furthermore, the strategy underscores the necessity of implementing early warning systems to mitigate climate-sensitive health risks effectively.

Climate action integration in health sector policymaking is a critical aspect of addressing the multifaceted challenges posed by climate change on public health. Across the world, countries are increasingly recognizing the urgent need to incorporate climate considerations into their health policies to effectively mitigate the adverse impacts of environmental changes on human well-being according to Campbell-Lendrum *et al*. (2023, p. 7). Understanding the determinants that influence the integration of climate action in health sector policymaking is essential for designing comprehensive and effective strategies to safeguard public health in the face of climate variability and extreme weather events.

The level of awareness and recognition of the interconnectedness between climate change and health outcomes influences climate action integration (Sharma & Malaviya, 2023). Countries that prioritize public awareness campaigns, education initiatives, and scientific research on the health impacts of climate change are more likely to incorporate climate considerations into their health policies. Additionally, political will and leadership play a crucial role in driving climate action integration in health sector policymaking.

Furthermore, the availability of resources and institutional capacity significantly affects the extent to which countries integrate climate action into health sector policymaking. According to Saeed *et al.* (2023), adequate financial resources, technical expertise and institutional mechanisms are essential for conducting research, implementing interventions and monitoring the health impacts of climate change. Countries with robust healthcare systems and well-established public health infrastructure are better positioned to integrate climate considerations into their health policies and effectively respond to emerging environmental challenges.

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The growing threat of climate change necessitates integrating climate-resilient practices across sectors, including health. Kenya, like many developing nations, faces this challenge while confronting pre-existing health burdens. Numerous driving forces enable the determination of Climate Action Integration in Health Sector Policy Making with Kenya's progressive legal framework, including the Climate Change Act (Amended) (2023) and the NCCAP for the period 2018-2022, which lays a robust foundation for integrating climate considerations into various sectors, notably health. Emphasizing mainstreaming climate considerations across sectors, these policies provide fertile ground for policy integration efforts.

Kenya faces direct and indirect health impacts of climate change as highlighted by research such as studies conducted by Apuuli *et al*. (2023) and Ngari *et al*. (2022). This robust evidence base underscores the urgent need for integrating climate action into health policy. The documented health risks associated with climate change provide compelling rationale for proactive measures to mitigate these impacts and enhance resilience within the health sector. Kenya's commitment to international agreements such as the Paris Agreement serves as a catalyst for advancing climate action. By aligning with global initiatives aimed at addressing climate change, Kenya not only demonstrates its dedication to environmental stewardship but also leverages international support to bolster domestic efforts. Participation in such agreements fosters external pressure on the government to prioritize climate action and facilitates access to funding and technical assistance, as highlighted by Ebi *et al*. (2021).

Kenyan CSOs play a pivotal role in advocating for the integration of climate action into health policy agendas. Through various activities such as raising awareness, conducting research, and engaging in policy dialogues, these organizations amplify the urgency of addressing climate-related health challenges. As highlighted by Ndegwa *et al*. (2021), civil society advocacy serves as a driving force behind the adoption of proactive measures to mitigate the health impacts of climate change in Kenya, ultimately contributing to building resilience and safeguarding the well-being of communities. Equally, there were hindering forces including limited resources that pose a significant barrier to the effective integration of climate-resilient health programs in Kenya. Implementing such programs necessitates additional funding for essential components like infrastructure, training, and technology, as underscored by Otieno *et al*. (2020). However, competing priorities and constrained budgets, particularly at the decentralized county levels, exacerbate this challenge, hindering the building of resilience among vulnerable populations.

Traditional operation of the health and environment sectors within siloed structures presents a significant challenge. As highlighted by Ogutu *et al*. (2023), these institutional silos impede effective communication and coordinated action between relevant ministries and agencies. The limited collaboration between the health and environment sectors hinders the development and implementation of cohesive policies that address the health impacts of climate change comprehensively. Kenya's Health in All Policies (HiAP) strategy discusses the challenges of implementing HiAP across different sectors of government as noted by Mauti *et al* (2019). HiAP used Kingdon's Multiple Streams Framework to analyze the policy. HiAP is included in Kenya's Health Policy for the period 2014-2030, however many stakeholders still see it as the responsibility of the health sector only, suggesting that stronger political commitment and clear windows of opportunity could help mainstream HiAP across the government, highlighting the importance of breaking down barriers and fostering inter-ministerial collaboration to ensure that climate-sensitive approaches are effectively integrated into health policies. This ultimately enhances the resilience of the healthcare system and protect the well-being of the population.

Integrating climate considerations into health policies in Kenya demands expertise in climate science, epidemiology, and adaptation planning, as emphasized by Apuuli *et al*. (2023). However, the lack of technical capacity across health ministries and county governments presents a notable challenge. Without sufficient expertise, policymakers may struggle to make informed decisions and effectively implement climate-resilient health programs. This gap underscores the importance of ongoing efforts to build technical capacity through training initiatives and knowledge-sharing platforms. Data gaps pertaining to the health impacts of climate change, especially at the local level, persist in Kenya, impeding comprehensive assessments and informed decision-making within the healthcare sector, as highlighted by Ngari *et al*. (2022). The scarcity of robust data hampers the ability to justify budget allocations and prioritize interventions effectively. Without detailed insights into the localized health effects of climate change, policymakers face challenges in tailoring policies to

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address specific needs and contexts. Addressing these data gaps is crucial to developing targeted and evidence-based strategies for mitigating the health impacts of climate change and enhancing resilience within the healthcare system in Kenya.

Research Gap

Despite the significant progress made in mainstreaming the climate change dimension into policy making in Kenya, some key aspects have not been adequately addressed regarding the determinants of integrating climate action into health sector policy making. Limited attention has been given to addressing resource constraints hindering the implementation of climate-resilient health programs. This is particularly the case at the county level where competing priorities and constrained budgets prevail. Additionally, efforts to break down institutional silos between the health and environment sectors remain insufficient, impeding seamless collaboration and coherence in policy development and implementation. Furthermore, while there is recognition of the need to enhance technical capacity, concrete measures to systematically build this expertise at the ministry of health headquarters and in the county health departments are lacking. Moreover, comprehensive data on the localized health impacts of climate change are still scarce, hampering robust assessments and informed decision-making regarding resource allocation and prioritization of interventions. These concerns formed the crux of this study.

Theoretical Framework

The study was guided by two theoretical frameworks: the Multi-Level Governance Theory (MLGT) advanced by Hooghe and Marks (2003) and the Advocacy Coalition Framework (ACF) advanced by Sabatier and Jenkins-Smith (1999). MLGT posits that effective policymaking on complex issues like climate change requires collaboration and coordination across different levels of government (national, regional, local) (Hooghe & Marks, 2003). Applying the MLGT to the examination of climate action integration in Kenya's health sector policymaking revealed intricate interactions and power dynamics among various stakeholders. At the national level, government health authorities and environmental agencies play pivotal roles in shaping policies and initiatives. However, the study uncovered challenges stemming from institutional silos, where different sectors operated independently, resulting in fragmented approaches to addressing climate-related health issues. This fragmentation hindered the effectiveness of integration efforts, highlighting the necessity of a coordinated approach across governance levels.

ACF, offered opportunity to analyze how policy change occurs through the competition and collaboration of various coalitions with distinct beliefs and interests (Sabatier & Jenkins-Smith, 1999). The ACF served as a valuable tool in dissecting the landscape of climate action integration in health policy in Kenya by identifying and analyzing the various coalitions involved. Health professionals, environmental groups, government agencies, and industry actors emerged as key stakeholders with distinct positions, resources, and strategies regarding climate action. By delineating these coalitions, the ACF facilitated a detailed exploration of their advocacy efforts and their impacts on policy outcomes. This analysis shed light on the complex interplay of interests and beliefs among different groups, offering insights into the dynamics influencing integration efforts.

The use of the ACF complemented the MLGT by providing a deeper understanding of how policy change occurred within the complex governance structures examined. While MLGT focused on the interactions and power dynamics between different levels of government and relevant stakeholders, the ACF delved into the dynamics of advocacy coalitions with distinct beliefs and interests. By employing the ACF alongside MLGT, the study gained insights into how these coalitions influenced policy outcomes within the broader governance context. This combined approach enabled a more comprehensive analysis of the factors influencing integration efforts in health sector policymaking in Kenya, including how advocacy efforts by different coalitions interacted with the governance structures at various levels to shape policy outcomes.

METHODOLOGY

In this study that examines the determinants of climate action integration in health sector policy making in Kenya, several predictor variables were assessed and discussed as findings. These variables encompassed a

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range of factors relevant to both climate action and health policy making, including governmental priorities, institutional capacities, stakeholder engagement, resource availability, policy coherence, and leadership commitment. Each of these variables were explored in terms of their influence on the extent to which climate action considerations were integrated into health sector policy making processes in Kenya, providing valuable insights into the multifaceted dynamics shaping policy decisions at the intersection of climate change and public health in the country.

The study adopted a cross-sectional, mixed-methods research design to explore the factors influencing climate action integration into health policies in Kenya. Qualitative methods were employed to delve deeper into stakeholder perspectives and experiences. This involved conducting semi-structured interviews with key health sector stakeholders, including policymakers and allied health professionals. These interviews provided insights into the challenges, facilitators, and barriers to integrating climate action into health policies within the Kenyan context.

The target population of the study consisted of policymakers primarily affiliated with the Ministry of Health (MOH) in Kenya and its associated state agencies, including the Kenya Medical Training College (KMTC), Kenya Medical Research Institute (KEMRI), Kenya Medical Supplies Authority (KEMSA), Kenya Medical Practitioners and Dentists Council (KMPDC), and Kenyatta National Hospital (KNH). These policymakers were identified as the most capable of providing insights into the study's questions given their responsibilities by virtue of the positions they held and access to relevant information. The distribution of policymakers across these agencies was outlined to ensure a representative sample that accurately reflects the composition of the target population.

A total of 103 policymakers were identified as the target population. To ensure a representative sample, a combined purposive and proportional stratified random sampling technique was employed. Purposive sampling targeted key informants within each agency, while stratified random sampling allocated sample sizes proportionally to agency size. The final sample size of 81 was calculated using Neyman's formula and distributed proportionately across strata to ensure comprehensive representation and credibility. The interview protocol was structured to address specific research questions, with open-ended questions designed to elicit detailed responses about climate action integration within the health sector. This approach ensured that the interview data were rich and informative, complementing the quantitative survey findings.

The primary data obtained using the Key Informant Interviews (KIIs) and the survey questionnaire was complemented by document analysis of policy documents related to climate change and health, providing insights into the policy landscape and identifying provisions or gaps. Triangulating primary and secondary data offered a comprehensive overview. Data analysis of existing datasets quantified climate-sensitive health outcomes, supporting qualitative findings and identifying intervention priorities.

Data Analysis

Response Rate

The survey conducted revealed varying response rates among the sampled categories, with an impressive 100.0% response rate, signifying a robust participation from the sampled individuals within this category. All the other categories had response rates of more than 80% except KEMRI which had a response rate of 77.4% as shown in Table 1.

Table 1 Response Rate

Category	**Sampled**	**Questionnaire Respondents**	**Interview Participants**	**Total per Category**	**Response Rate**
MOH	12	7	3	10	83.3

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KMPDC	5	4	1	5	100.0
KEMSA	5	3	1	4	80.0
KEMRI	31	19	5	24	77.4
KNH	16	11	3	14	87.5
KMTC	12	7	3	10	83.3
Total	**81**	**51**	**16**	67	82.7

Source: Field Data 2024

The overall survey achieved a commendable 82.7% response rate, indicating a generally favorable level of participation across all the sampled healthcare entities. According to Mindell *et al*. (2015) this response rate is appropriate to warrant analysis.

RESULTS

The study sought to understand the determinants of climate action integration into health sector policy making in Kenya. One of the major factors identified as paramount for integrating climate considerations into policy decisions was the need for strong political will among government officials and policymakers in the health sector. The response rates for the determinants of climate action integration in health sector policymaking in Kenya were generally high, with most factors receiving response rates above 75%.

Political goodwill was found to be particularly important because of the role of political leadership in the allocation of resources and the implementation of initiatives aimed at addressing climate-related health risks effectively. Political goodwill received a response rate of 80%, reflecting a significant level of engagement or recognition of the importance of political support and commitment in driving climate action integration within the health sector. In an interview, an informant opined:

Political goodwill has a critical role in effectively addressing climate-related health risks. There is a widespread recognition of its importance evident through prioritizing climate action. Hence, policymakers can develop robust strategies to mitigate health impacts, promote sustainability, and protect public health for generations to come.

(KII 002)

In view of the sentiments, prioritizing climate action, decision-makers can develop comprehensive policies that not only mitigate the adverse health effects of climate change but also promote sustainable practices to safeguard public health in the long term. Such initiatives underscore the importance of proactive measures to combat climate change and its impacts on human health, signaling a collective commitment to building resilience and ensuring the well-being of present and future generations.

The study also sought to determine the place of institutional capacity within the health sector in effectively integrating climate action into policymaking. The study argues that a strong institutional capacity enables governmental bodies and agencies within the health sector to assess, plan, and implement climate-related health interventions efficiently. The assessment entailed determining availability of the requisite expertise, infrastructure, and coordination mechanisms necessary to address the multifaceted challenges posed by climate change. In an interview, an informant stated that:

Institutional capacity is crucial in effectively integrating climate action into health sector policymaking. There is need for expertise, infrastructure, and coordination for robust institutions to understand, mitigate, and adapt to climate change impacts on public health.

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(KII 001)

Effective integration hinged on the ability of these institutions to not only understand the implications of climate change on public health but also to develop and execute strategies that mitigated risks and built resilience within healthcare systems. Therefore, investing in enhancing institutional capacity was found to be imperative in ensuring the successful integration of climate action into health sector policymaking in Kenya and beyond.

Stakeholder collaboration was pivotal for integrating climate action into health sector policymaking, as it brought together diverse actors such as government agencies, non-governmental organizations, community groups, and international partners. Stakeholder collaboration and institutional capacity also received relatively high response rates of 79% and 78%, respectively. These response rates suggest a strong awareness among respondents of the need for collaboration among various stakeholders and the importance of having the necessary expertise, infrastructure, and coordination mechanisms within health sector institutions to effectively address climate-related health challenges. In an inquiry an informant indicated that:

Stakeholder collaboration is a critical factor in integrating climate action into health policymaking, facilitating knowledge-sharing and resource mobilization. It is important to address climate-related health challenges. This collaborative approach empowers policymakers to develop comprehensive strategies for mitigating health impacts of climate change.

(KII 003)

Collaborative effort fostered knowledge-sharing, resource mobilization, and the development of holistic approaches to address climate-related health risks. By leveraging the expertise, resources, and perspectives of various stakeholders, policymakers were able to develop more comprehensive and effective strategies to mitigate the health impacts of climate change.

The availability of resources, including financial, human, and technical, was essential for integrating climate action into health sector policies and programs. The availability of resources had the highest response rate at 81%, indicating a strong acknowledgment of the importance of having sufficient financial, human, and technical resources for effective integration efforts. This high response rate suggests a widespread recognition among respondents of the critical role that resources play in implementing climate-resilient health interventions and infrastructure. An informant in an interview noted that:

Resources, particularly financial and human, are critical enablers for integrating climate action into health systems. Resources play a pivotal role in implementing climate-resilient health interventions and infrastructure.

(KII 005)

Adequate funding, trained personnel, and access to data and technology were necessary to implement climate-resilient health interventions and infrastructure. Financial resources enabled the procurement of necessary equipment and the implementation of evidence based programs aimed at addressing climate-related health risks. Trained personnel, equipped with the requisite skills and knowledge, were crucial for developing and implementing effective strategies to mitigate the health impacts of climate change.

Public awareness and education on the health impacts of climate change played a crucial role as determinants of integration. Increasing awareness among policymakers, healthcare professionals, and the general public was essential for fostering support for climate action initiatives and promoting behavior change to mitigate health risks associated with climate change. Public awareness received a response rate of 78%, indicating a substantial acknowledgement of the importance of raising awareness among policymakers, healthcare professionals, and the general public about the health impacts of climate change. In an interview, an informant indicated that:

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Effective climate-resilient health systems require adequate funding, skilled personnel, data, and technology. Financial resources underpin infrastructure and evidence-based programs, while trained staff drive strategy implementation. Notably, public awareness is essential to foster support and behavior change.

(KII 004)

The statement conveys a positive outlook on the importance of various factors in building effective climate-resilient health systems. It emphasizes the need for resources, expertise, and public engagement to address the challenges posed by climate change. By understanding the health implications of climate change, stakeholders were better equipped to advocate for policies and interventions that prioritize climate resilience in healthcare systems.

Policy alignment between climate change policies and health sector policies was critical for the effective integration of climate action into healthcare decision-making processes. Policy alignment had a slightly lower response rate of 75%. This suggested that while respondents recognize the importance of aligning climate change policies with health sector priorities, there was room for improvement in this area. Coherence between climate adaptation and mitigation strategies and health sector priorities was essential to optimize resource allocation and maximize the effectiveness of interventions aimed at protecting public health in the face of climate change. In a qualitative inquiry an informant stated:

Aligning climate and health policies is crucial for effective climate action in healthcare. Policy coherence optimizes resource allocation, prevents duplication, and strengthens healthcare resilience. To fully protect public health from climate change, stronger policy alignment is needed.

(KII 002)

The verbatim note emphasizes the critical role of policy alignment in effectively addressing climate change's impact on health. By harmonizing climate and health policies, resources can be efficiently allocated, redundant efforts minimized, and healthcare systems strengthened. The acknowledgment of a gap in current policy alignment underscores the need for further action to fully protect public health from climate-related challenges. This alignment is essential for optimizing the effectiveness of interventions and building resilient healthcare systems.

DISCUSSION

The study reveals that political will, institutional capacity, stakeholder collaboration, resource availability, public awareness, and policy alignment are crucial determinants for integrating climate action into health sector policymaking in Kenya. These factors were consistently recognized as important by respondents, with high response rates across the board. Political goodwill emerged as a cornerstone for successful integration. Strong political leadership is essential for allocating resources and implementing climate-related health initiatives. Additionally, institutional capacity building is paramount to equip health sector organizations with the necessary expertise and infrastructure to address climate change effectively. The study underscores the importance of fostering collaboration among various stakeholders to leverage diverse perspectives and resources for developing comprehensive climate action strategies.

Furthermore, adequate financial, human, and technical resources are indispensable for implementing climate-resilient health interventions. Investing in these areas is crucial for procuring essential equipment, training personnel, and implementing evidence-based programs. Raising public awareness about the health impacts of climate change is equally important to generate support for climate action initiatives and promote behavior change. Lastly, the study highlights the significance of policy alignment between climate change and health sector policies. Coherence between these policies is essential for optimizing resource allocation and maximizing the effectiveness of interventions aimed at protecting public health. By addressing these key determinants, Kenya can effectively integrate climate action into its health sector policies and build a resilient healthcare system for the future. In an inferential analysis through regression analysis was conducted using the following formula to estimate the relationship between the determinants (independent variables) and the

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overall level of climate action integration in health sector policymaking (dependent variable):

$Y = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \beta5X5 + \beta6X6 + \varepsilon$

Where:

Y was the overall level of climate action integration in health sector policymaking,

X1 to X6 were the determinants (independent variables) - Political goodwill, Institutional capacity, Stakeholder collaboration, Availability of resources, Public awareness, Policy alignment,

β0 was the intercept,

β1 to β6 were the coefficients for each determinant,

ε was the error term.

The given response rates was used for each determinant as the values of X1 to X6, respectively, tabulating the data:

Table 2

The relationship between the determinants and the overall level of climate action integration in health sector policymaking

Determinant	Response Rate
Political goodwill	80
Institutional capacity	78
Stakeholder collaboration	79
Availability of resources	81
Public awareness	78
Policy alignment	75

Notes. The table demonstrates determinants against response rate.

A simple linear regression analysis using the response rate as the dependent variable and each determinant as an independent variable was used. The regression equation took the form:

$$\text{Response Rate}=\beta_0+\beta_1\times\text{Political Goodwill}+\beta_2\times\text{Institutional Capacity}+\beta_3\times\text{Stakeholder Collaboration}+\beta_4\times\text{Availability of Resources}+\beta_5\times\text{Public Awareness}+\beta_6\times\text{Policy Alignment}+\epsilon$$

$$\text{Response Rate}=\beta_0+\beta_1\times\text{Political Goodwill}+\beta_2\times\text{Institutional Capacity}+\beta_3\times\text{Stakeholder Collaboration}+\beta_4\times\text{Availability of Resources}+\beta_5\times\text{Public Awareness}+\beta_6\times\text{Policy Alignment}+\epsilon$$

From the foregoing regression equation, the estimated intercept, denoted as β0, was found to be 73.71 in the regression analysis. This value represented the predicted response rate when all independent variables, including Political Goodwill, Institutional Capacity, Stakeholder Collaboration, Availability of Resources, Public Awareness, and Policy Alignment, are zero. In the context of the study on determinants of climate action integration in health sector policymaking in Kenya, this meant that if all factors influencing climate action integration were absent or at their lowest levels, the predicted response rate would be 73.71. However, it was essential to note that this scenario was hypothetical and could not reflect practical conditions, as it was

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unlikely for all determinants to be completely absent simultaneously in real-world settings. The results were generated as illustrated in the table below.

Table 3

Regression Analysis of Determinants of Response Rate

Variable	Coefficient (β)	Interpretation
Intercept	73.71	Predicted response rate with all determinants at zero (hypothetical)
Political Goodwill	0.16	One-unit increase in political goodwill is associated with a 0.16 increase in response rate (positive impact)
Institutional Capacity	0.01	One-unit increase in institutional capacity is associated with a 0.01 increase in response rate (positive impact)
Stakeholder Collaboration	0.08	One-unit increase in stakeholder collaboration is associated with a 0.08 increase in response rate (positive impact)
Availability of Resources	0.23	One-unit increase in resource availability is associated with a 0.23 increase in response rate (strongest positive impact)
Public Awareness	0.01	One-unit increase in public awareness is associated with a 0.01 increase in response rate (positive impact)
Policy Alignment	-0.02	One-unit increase in policy alignment is associated with a 0.02 decrease in response rate (potentially negative impact)

Notes. The table summarizes the regression analysis results, showing how each variable is associated with changes in the response rate, with availability of resources having the strongest positive impact and policy alignment the only potential negative influence.

The coefficients, denoted as β1 to β6, represented the change in the response rate for a one-unit change in the corresponding independent variable, while holding all other variables constant. In the context of the regression analysis on determinants of climate action integration in health sector policymaking in Kenya, these coefficients quantify the impact of each determinant on the overall response rate. For instance, a one-unit increase in Political Goodwill was associated with a 0.16 increase in the response rate, indicating that higher levels of political goodwill contributed positively to the integration of climate action in health sector policymaking. Conversely, a one-unit increase in Policy Alignment was associated with a 0.02 decrease in the response rate, suggesting that better alignment between climate change policies and health sector priorities could slightly decrease the overall response rate, although this effect could be influenced by other factors and requires further investigation.

In the analysis, the study sought to establish the current level of collaboration between environmental agencies and health authorities in Kenya regarding climate action integration into health sector policymaking. The establishment of the levels of collaboration between environmental agencies and health authorities in Kenya was significant. Political goodwill reflected on the support and commitment from governmental bodies toward collaborative efforts between environmental and health sectors, while institutional capacity assessed the ability of these agencies to effectively work together. Stakeholder collaboration measured the extent to which various organizations and individuals were involved in joint initiatives, while the availability of resources gauged the adequacy of financial and infrastructural support for collaborative activities. Public awareness reflected the degree to which communities were informed and engaged in environmental and health issues, and policy

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alignment assessed the coherence between existing policies in both sectors.

Reporting the level of collaboration separately from these determinants was significant as it provided a comprehensive understanding of the practical outcomes of the analyzed factors, demonstrating how they manifest in real-world collaboration between agencies. The separate reporting of collaboration levels enabled the identification of specific areas of strength or weakness in inter-sectoral cooperation, informing targeted interventions to enhance collaboration for better environmental and health outcomes. Additionally, this approach allows policymakers to prioritize areas for improvement based on the current state of collaboration, ensuring more effective allocation of resources and efforts towards fostering integration between environmental and health sectors.. The figure below illustrates on the findings of the study.

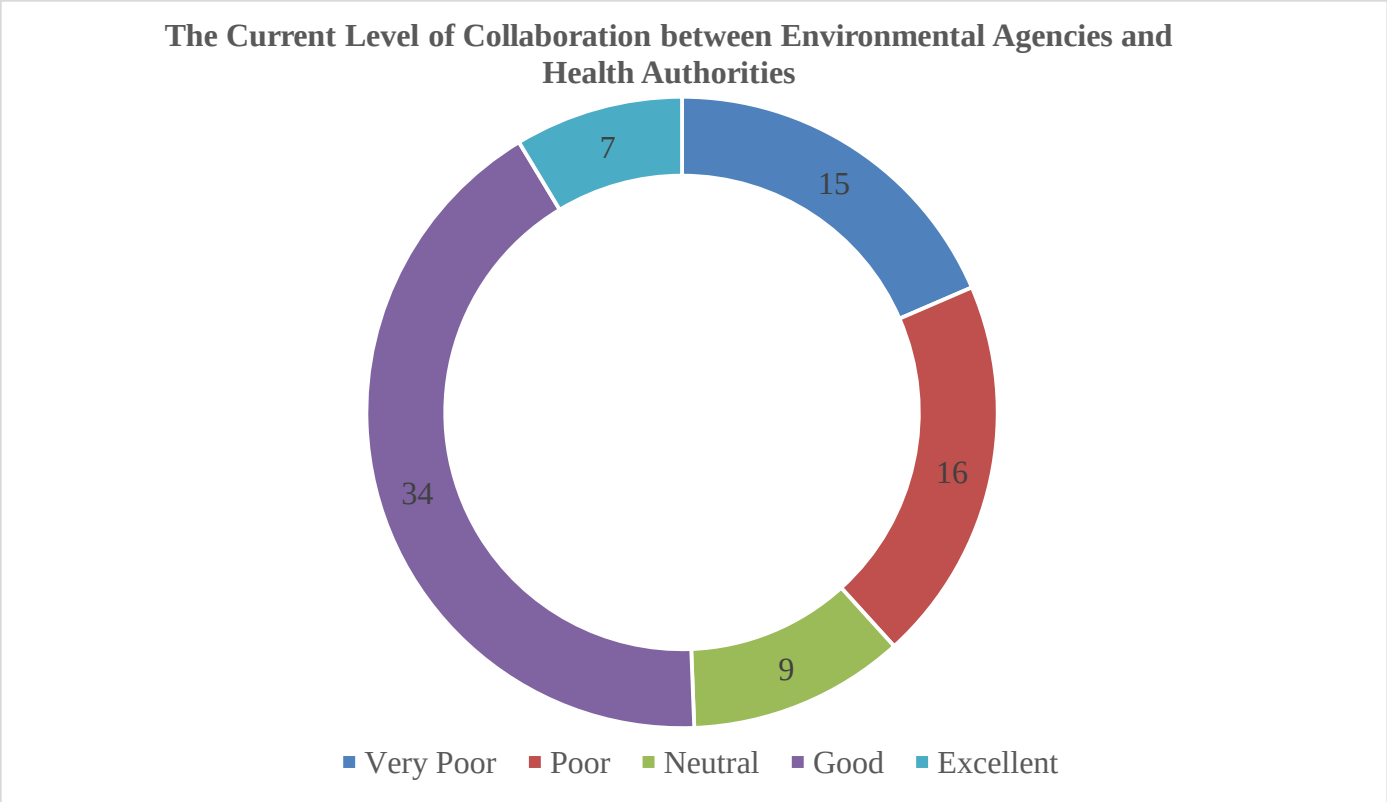

Figure 1 Level of Collaboration between Environmental Agencies and Health Authorities

Note. Respondents had varied views, ranging from very poor, poor, neutral, good and excellent.

Source: Field Data 2024

The level of collaboration between environmental agencies and health authorities in Kenya regarding climate action integration into health sector policymaking appeared to be moderately positive, with a substantial portion of respondents rating it as either Good or Excellent. Specifically, 34 respondents rated the collaboration as good, while 7 respondents rated it as Excellent. This indicated that a majority of respondents perceived the collaboration between environmental agencies and health authorities to be satisfactory or above satisfactory levels. Conversely, a smaller number of respondents rated the collaboration as Poor or Very Poor, with 16 and 15 respondents, respectively. While these ratings suggested that there was room for improvement, they did not dominate the overall responses, indicating that the collaboration between environmental agencies and health authorities was generally perceived as at least moderately effective in integrating climate action into health sector policymaking.

However, it was essential to consider the distribution of responses across the different categories to understand the overall sentiment comprehensively. While the majority of respondents rated the collaboration as Good or Excellent, a notable portion rated it as Poor or Very Poor, indicating a degree of dissatisfaction or perceived inadequacy in the current level of collaboration. Additionally, the Neutral category, with 9 respondents,

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suggested a significant number of respondents who were ambivalent or undecided about the collaboration's effectiveness. Therefore, while the overall rating leaned towards the positive end, the presence of responses in the Poor and Very Poor categories emphasized the need for continued efforts to strengthen collaboration between environmental agencies and health authorities for more effective climate action integration into health sector policymaking in Kenya.

The study's exploration of factors influencing the integration of climate action into health sector policymaking in Kenya shed light on the country's proactive measures to address the complex nexus between climate change and public health. As evidenced by the development of comprehensive policy frameworks (Ministry of Health, 2023), Kenya has demonstrated a strong commitment to addressing the health impacts of climate change. These initiatives underscored Kenya's recognition of the intertwined nature of environmental and health challenges, emphasizing the need for an integrated approach in policymaking to effectively address these interconnected issues.

The establishment of a NCCAP demonstrated Kenya's strategic efforts to mitigate the adverse effects of climate change, with a specific focus on the health sector. By integrating climate considerations into broader policymaking processes, Kenya aimed to enhance resilience and sustainability across various sectors, including health. Furthermore, the adoption of a health-in-all-policies strategy highlighted the recognition of health as a fundamental component of sustainable development, necessitating its integration into all policy domains. This approach aligned with global efforts to promote comprehensive and inclusive policymaking that addressed both environmental and health priorities.

Moreover, the implementation of a health national adaptation plan reflected Kenya's proactive stance in adapting health systems and services to the impacts of climate change. By prioritizing resilience and preparedness, Kenya aimed to ensure that its health sector remained capable of effectively responding to evolving environmental challenges. However, the study also identified several barriers and enablers that affect the integration of climate action in health sector policy making, through interviews with key stakeholders, who revealed a low level of awareness and knowledge regarding the health impacts of climate change and the benefits of climate action among health sector actors and other stakeholders, particularly at the county level.

The lack of awareness and understanding impedes the prioritization and effective implementation of climate action within the health sector in Kenya. Without adequate awareness and knowledge of the health risks associated with climate change and the potential benefits of climate action, stakeholders may not fully grasp the urgency of addressing these issues or the importance of integrating climate considerations into health policies and programs. Consequently, efforts to promote climate action and resilience within the health sector may be hindered by this lack of awareness.

Further, the study identified a significant limitation in the availability and accessibility of reliable and disaggregated data and evidence, through an interview with another key stakeholder, concerning the health impacts of climate change and the effectiveness of climate action interventions within the health sector.

The dearth of comprehensive data and evidence hampers the capacity of health sector actors to effectively plan, monitor, and evaluate climate action initiatives. Without accurate and detailed information on the specific health impacts of climate change and the outcomes of climate action interventions, decision-makers face challenges in prioritizing and implementing evidence-based strategies to address climate-related health risks.

The study through a document analysis identified deficiencies in institutional and governance arrangements for climate action within the health sector, highlighting a need for improved coordination and collaboration among health sector actors and other relevant sectors such as environment, water, agriculture, and energy. Equally as noted by Kithinji, Mutisya and Kimani (2020) the deficiencies call for enhanced cooperation to ensure coherence and alignment of policies and actions across sectors, acknowledging the interconnectedness of climate change impacts on health with broader environmental and socioeconomic factors. Moreover, the study underscored the necessity for greater clarity and accountability in delineating roles and responsibilities among different actors at both the national and county levels, essential for effective implementation and monitoring of climate action initiatives.

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Further, the study through document analysis identified various political and socio-cultural factors that significantly influence the integration of climate action in health sector policymaking in Kenya. Notably, a lack of political will and commitment to climate action within the health sector, particularly at the sub-national level, was highlighted, with other development issues often taking precedence. According to Sharma and Malaviya (2023) the lack of prioritization hampers efforts to address climate-related health risks effectively. Additionally, socio-cultural factors such as beliefs, norms, and values were found to affect the perception and acceptance of climate action within the health sector. These factors shape attitudes towards environmental conservation and sustainability, influencing the level of support for climate action initiatives.

CONCLUSION

In conclusion, the study established that Kenya has made notable strides in acknowledging and addressing the health impacts of climate change through its national policy frameworks; however, despite commendable progress, several barriers impede the effective integration of climate action within the health sector. These barriers encompass a range of challenges, including institutional silos leading to fragmented policies, resource disparities between different governance levels hindering implementation efforts, conflicting priorities among national and local authorities, and the complex interplay of interests and beliefs among various stakeholders. Overcoming these barriers requires concerted efforts to foster collaboration, enhance resource allocation, and align priorities across governance levels, ultimately ensuring the seamless integration of climate action into health sector policymaking in Kenya.

RECOMMENDATION

The study concluded that the integration of climate action in health sector policy making in Kenya is influenced by a complex interplay of factors, and that there is a need for a comprehensive and systematic approach that addresses the barriers and leverages the enablers. The study recommended some actions that can be taken to enhance the integration of climate action in health sector policy making, such as:

- Raising awareness and knowledge of the health impacts of climate change and the benefits of climate action among health sector actors and other stakeholders, using various communication channels and platforms, such as media, social media, and community dialogues.
- Strengthening the generation and dissemination of data and evidence on the health impacts of climate change and the effectiveness of climate action interventions, using various methods and tools, such as surveys, assessments, and modelling.
- Improving the institutional and governance arrangements for climate action in the health sector, by establishing and operationalizing coordination mechanisms, such as committees, task forces, and networks, at the national and county levels, and by clarifying and enforcing roles and responsibilities of different actors, as well as by building their capacity and mobilizing resources for climate action in the health sector.
- Enhancing the political and socio-cultural support for climate action in the health sector, by engaging and influencing political leaders and decision makers, as well as by addressing the socio-cultural factors that affect the perception and acceptance of climate action in the health sector, using various strategies, such as advocacy, education, and social mobilization.

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