

An Assessment of the Role of Academicians in Rural Community Development in Western Kenya

Paul Wanjala Mutevi^{1,2, *}

¹Senior Lecturer, Maasai Mara University, School of Pure and Applied Sciences, Department of Biological Sciences, P.O. 861-20500, Narok, Kenya.

²Adjunct Research Scientist (ARS) at African Institute of Capacity Development (AICAD, P.O. Box 46179 - 00100, Nairobi, Kenya.

*Corresponding Author

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ABSTRACT

Rural community development remains a key priority in Kenya's socio-economic transformation agenda. In areas characterized by poverty, unemployment, low agricultural productivity, and limited access to innovation, Universities and academicians are increasingly recognized as important contributors to development through research, knowledge transfer, innovation, and community engagement. However, the extent of their contribution remains inadequately documented. This study assessed the role of academicians in community development in rural Western Kenya, focusing on Kakamega, Bungoma, Busia, and Vihiga Counties. The study was guided by theories and models emphasizing the role of education, collaboration, and innovation in socio-economic development. Specifically, it examined the forms of academic engagement, their impact, factors influencing participation, community perceptions of academicians, and the effectiveness of university-community linkages. Quantitative data collected from 386 respondents comprising academicians, community members, local leaders, extension officers, and NGO representatives using structured questionnaires were analyzed using descriptive and inferential statistics, including Pearson correlation, Chi-square, and multiple regression analyses while Qualitative data obtained through 24 Key Informant Interviews and 8 Focus Group Discussions were analyzed thematically. The findings revealed that academicians contribute to rural development through educational support, agricultural extension, health awareness, entrepreneurship training, environmental conservation, research dissemination, and policy advisory services. Education support (72.3%) and agricultural extension (64.1%) were the most common forms of engagement. Academic involvement had a significant positive effect on rural development outcomes ($\beta = 0.61$, $p < 0.05$), particularly in education, agriculture, and health. However, inadequate funding, heavy workloads, institutional bureaucracy, and weak outreach structures constrained effective engagement. Community perceptions were generally positive. A significant relationship was observed between perception and engagement effectiveness ($\chi^2 = 18.74$, $p = 0.001$). The study concluded that academicians played a significant but underutilized role in rural development and recommended strengthening university-community partnerships, increasing outreach funding, and institutionalizing community engagement within university systems.

Keywords: Academicians, Community Development, Rural Development, University-Community Engagement, Knowledge Transfer

INTRODUCTION

Background of the Study

Community development is a multidimensional process aimed at improving the social, economic, cultural, environmental, and political well-being of people through collective action, capacity building, and sustainable utilization of available resources. In developing countries, particularly in sub-Saharan Africa, rural development

remains a central policy objective due to the concentration of poverty, unemployment, inadequate infrastructure, food insecurity, and limited access to education and healthcare services in rural areas [1,2]. Achieving sustainable rural development requires the active participation of multiple stakeholders, including governments, communities, civil society organizations, the private sector, and institutions of higher learning.

Universities and academicians have historically been recognized as key drivers of societal transformation through their traditional mandates of teaching and research. However, over the last three decades, the role of higher education institutions has expanded considerably beyond these traditional functions to include direct engagement with society through community service, outreach, innovation, technology transfer, advisory policy services, and partnerships for development [3,4]. This expanded role is often referred to as the “third mission” of universities, which emphasizes the application of academic knowledge and expertise to address societal challenges and improve community well-being [5,6].

Globally, universities have increasingly become important actors in socio-economic development. In North America, Europe, and parts of Asia, higher education institutions have played a significant role in promoting innovation, entrepreneurship, agricultural modernization, public health improvement, and local economic development through collaborative partnerships with governments, industries, and communities [7,6]. The emergence of the Triple Helix Model highlights the importance of interaction among universities, government, and industry in generating knowledge-based development and innovation [5]. Through research and extension services, universities have contributed significantly to solving local development challenges, promoting evidence-based policymaking, and enhancing community resilience.

The contribution of academicians to development can be understood through the lens of Human Capital Theory, which posits that investments in education, skills, and knowledge enhance individual productivity and contribute to economic growth and societal development [8,9]. According to this theory, academicians play a critical role in developing human resources through teaching, training, mentorship, and knowledge dissemination. By generating and transferring knowledge to communities, academicians contribute to the development of human capabilities necessary for social and economic transformation.

Similarly, Social Capital Theory emphasizes the importance of social networks, trust, reciprocity, and collective action in promoting community development [10,11]. Academicians can facilitate the development of social capital by creating partnerships between universities and communities, fostering knowledge-sharing networks, and promoting participatory approaches to development. Effective collaboration between academicians and local communities can strengthen trust, improve access to information, and enhance community capacity to address development challenges.

In Africa, universities are increasingly expected to contribute directly to national and community development agendas. The expansion of higher education across the continent has been accompanied by growing expectations that universities should address pressing development issues such as poverty reduction, food insecurity, unemployment, environmental degradation, and public health challenges [12,13]. Nevertheless, many African universities continue to face challenges related to inadequate funding, weak research infrastructure, limited outreach capacity, and insufficient linkages with local communities [14]. Consequently, the translation of academic knowledge into tangible development outcomes remains uneven across many African countries.

In Kenya, higher education has expanded significantly since the 1990s, leading to the establishment of numerous public and private universities across the country. Universities such as Masinde Muliro University of Science and Technology, Kibabii University, Alupe University and Kaimosi Friends University have increased opportunities for research, innovation, and community engagement. The Commission for University Education has emphasized community service as one of the core functions of universities alongside teaching and research [15].

Despite the growth of higher education institutions, rural communities in Western Kenya continue to face persistent development challenges. According to the Kenya National Bureau of Statistics, poverty levels in several counties within Western Kenya remain above the national average [16]. Rural households continue to experience low agricultural productivity, youth unemployment, inadequate access to modern technologies,

environmental degradation, and limited entrepreneurial opportunities [1]. These challenges persist despite the presence of universities and highly qualified academicians within the region.

The counties of Kakamega, Bungoma, Busia and Vihiga are predominantly rural and heavily dependent on agriculture as the main source of livelihood. However, agricultural productivity in these counties is constrained by factors such as declining soil fertility, climate variability, limited adoption of modern farming technologies, pest and disease outbreaks, and inadequate extension services [17]. Furthermore, youth unemployment remains high despite increasing levels of educational attainment. Such challenges underscore the need for stronger collaboration between universities and communities to facilitate knowledge transfer, innovation adoption, and capacity building.

Academicians possess expertise that can contribute significantly to addressing these challenges through agricultural extension, entrepreneurship development, environmental conservation, public health education, policy advisory services, and community-based research. However, there is limited empirical evidence regarding the extent, effectiveness, and impact of academic engagement in rural community development within Western Kenya. Existing studies have largely focused on university education, research productivity, and institutional governance, with relatively little attention given to the developmental role of academicians at the community level [18,19].

This study therefore sought to assess the role of academicians in rural community development in Western Kenya, focusing on Kakamega, Bungoma, Busia, and Vihiga Counties. The study aimed to generate empirical evidence on the nature of academic engagement, its contribution to community development outcomes, factors influencing participation, community perceptions, and the effectiveness of university-community partnerships.

Justification of the Study

The role of universities and academicians in community development has received increasing attention globally due to the growing recognition that institutions of higher learning should contribute directly to solving societal challenges beyond their traditional mandates of teaching and research [3, 4]. In developing countries, particularly in sub-Saharan Africa, rural communities continue to face persistent challenges such as poverty, food insecurity, environmental degradation, poor healthcare services, youth unemployment, and inadequate access to innovation and technology. Addressing these challenges requires collaborative approaches that harness the knowledge, expertise, and research outputs generated by universities and academicians.

In Kenya, considerable investments have been made in expanding higher education, resulting in increased numbers of universities and highly trained academic personnel. Despite these investments, many rural communities continue to experience low socio-economic development indicators. There is limited empirical evidence demonstrating how academic expertise is translated into practical community benefits and sustainable development outcomes. Existing studies have largely focused on university governance, teaching quality, and research productivity, with limited attention given to the developmental role of academicians in rural settings [18, 19].

Western Kenya presents a particularly relevant context for this investigation because it hosts several universities and academic institutions while simultaneously facing numerous development challenges. Understanding how academicians engage with rural communities, the effectiveness of such engagements, and the factors influencing participation is therefore essential for strengthening university-community partnerships and maximizing the contribution of higher education to development. The findings of this study are expected to provide evidence-based recommendations for universities, policymakers, county governments, and development partners on enhancing academic engagement for sustainable rural development.

Statement of the Problem

Universities and academicians are increasingly expected to contribute to community development through outreach programs, extension services, research dissemination, innovation, and policy support. In Kenya, higher education institutions have expanded considerably over the last three decades, accompanied by increased

investments in research and human resource development. Despite these developments, many rural communities continue to face persistent socio-economic challenges including poverty, unemployment, low agricultural productivity, inadequate healthcare access, environmental degradation, and limited entrepreneurial opportunities [1, 16].

The counties of Kakamega, Bungoma, Busia, and Vihiga host several universities and have a substantial number of highly trained academicians. However, evidence of sustained and measurable contributions of these academicians to rural community development remains limited. Although universities frequently undertake outreach activities and community service initiatives, questions remain regarding the extent, effectiveness, sustainability, and impact of such engagements on local development outcomes.

Previous studies have highlighted weak university-community linkages, inadequate institutional support for outreach activities, and limited integration of community engagement into academic reward systems [13, 18, 19]. Furthermore, there is insufficient empirical evidence documenting how communities perceive academic engagement, the factors that facilitate or constrain participation, and the actual developmental outcomes associated with academic involvement.

Consequently, a knowledge gap exists regarding the role played by academicians in promoting rural development within Western Kenya. This study sought to bridge this gap by systematically assessing the forms, impacts, determinants, and effectiveness of academic engagement in rural community development.

Significance of the Study

This study makes a significant contribution by examining the often-overlooked role of academicians in rural community development in Western Kenya. A major strength is its use of a mixed-methods approach, combining quantitative and qualitative data to provide a comprehensive understanding of academic engagement and its impact. The inclusion of diverse stakeholders, including academicians, community members, local leaders, extension officers, and NGO representatives, enriches the findings and enhances their credibility.

The findings of this study are expected to contribute significantly to knowledge, policy, and practice. For universities, the study provides evidence on how community engagement can be strengthened and integrated into institutional missions. For academicians, the findings offer insights into effective approaches for translating research and expertise into community development outcomes.

For county governments in Kakamega, Bungoma, Busia, and Vihiga, the study provides information that can support the development of collaborative frameworks with universities to address local development challenges. Policy makers at national and county levels may use the findings to formulate policies that strengthen university-community partnerships and promote knowledge-based development.

The study also contributes to academic literature by generating empirical evidence on the developmental role of academicians in rural settings, an area that has received relatively limited scholarly attention in Kenya. Finally, community organizations, development practitioners, and non-governmental organizations may utilize the findings to foster stronger collaborations with institutions of higher learning in addressing rural development challenges.

Objectives of the Study

General Objective

To assess the role of academicians in rural community development in Western Kenya.

Specific Objectives

- a) To determine the forms of academic engagement in rural community development in Western Kenya.
- b) To assess the impact of academic involvement on rural community development outcomes.

- c) To identify factors influencing academicians' participation in rural development activities.
- d) To determine community perceptions regarding the role of academicians in development.
- e) To assess the effectiveness of university-community linkages in promoting rural development.

Research Hypotheses

The study tested the following three Null Hypotheses:

- a) H_01 : There is no statistically significant relationship between academic involvement and rural community development outcomes in Western Kenya.
- b) H_02 : Institutional factors do not significantly influence academicians' participation in rural community development activities.
- c) H_03 : Community perceptions of academicians do not significantly influence the effectiveness of academic engagement in rural community development.

Scope of the Study

Geographical Scope

The study was conducted in selected rural sub-counties within the four counties of Western Kenya, namely Kakamega, Bungoma, Busia, and Vihiga. These counties were selected because they host several universities and institutions of higher learning while also exhibiting significant rural development challenges, making them suitable for examining the role of academicians in community development.

Content Scope

The study focused on assessing the role of academicians in rural community development. Specifically, it examined:

- a) The forms of academic engagement in rural communities.
- b) The contribution of academic engagement to rural development outcomes.
- c) Factors influencing academic participation in community development.
- d) Community perceptions regarding academicians.
- e) The effectiveness of university-community partnerships and linkages.

The study concentrated on development sectors where academicians are most likely to contribute, including agriculture, education, health, entrepreneurship, environmental conservation, and policy development.

Time Scope

The study assessed academic engagement activities and community development initiatives undertaken within the last five years preceding the study. This period was considered adequate for evaluating the nature, frequency, and outcomes of academic involvement in community development.

Limitations of the Study

The study encountered several potential limitations:

Limited Availability of Respondents

Some academicians and key informants had demanding schedules, making it difficult to secure interview appointments. This challenge was addressed through advance scheduling and flexible interview arrangements.

Response Bias

Some respondents may have provided socially desirable responses, particularly when discussing the effectiveness of academic engagement. To minimize this limitation, respondents were assured of confidentiality and anonymity.

Financial and Logistical Constraints

The geographical coverage of four counties required substantial financial and logistical resources. The study mitigated this challenge through efficient sampling procedures and careful planning of field activities.

Accessibility Challenges

Certain rural areas were difficult to access due to poor road infrastructure, especially during rainy seasons. Data collection schedules were adjusted accordingly.

Delimitations of the Study

The study was deliberately confined to four counties in Western Kenya: Kakamega, Bungoma, Busia, and Vihiga. While findings may have implications for other regions, generalization should be undertaken cautiously. The study focused exclusively on academicians and their role in rural community development and did not examine the broader institutional performance of universities.

Assumptions of the Study

The study was guided by the following assumptions:

- Respondents would provide honest and accurate information regarding academic engagement and community development activities.
- The selected respondents were knowledgeable about development activities occurring within their communities.
- Academic engagement activities undertaken by universities and academicians influence rural development outcomes in measurable ways.
- The instruments used in the study would adequately capture the information required to address the study objectives.
- Rural development outcomes can be partially attributed to the contributions of academicians and university-community partnerships.

Operational Definition of Terms

- Academician:** A professionally trained individual employed in a university, college, research institution, or higher education institution whose primary responsibilities include teaching, research, community service, consultancy, and knowledge dissemination.
- Community Development:** -A process through which people collectively improve their social, economic, environmental, and political conditions through participatory action, capacity building, and resource mobilization.
- Rural Community:** -A population residing in non-urban areas characterized by agricultural livelihoods, lower population density, and relatively limited access to infrastructure and services.
- Community Engagement:** -The process through which academicians and universities collaborate with communities to address societal needs through research, training, outreach, consultancy, and service-learning activities.

- e) **University-Community Linkage:** -A formal or informal partnership between institutions of higher learning and local communities aimed at facilitating knowledge exchange, innovation transfer, capacity building, and development interventions.
- f) **Rural Development:** -The process of improving the quality of life and economic well-being of people living in rural areas through interventions that enhance productivity, income, education, health, environmental sustainability, and social welfare.
- g) **Outreach Program:** -An organized activity undertaken by academicians or universities to provide services, training, technical assistance, or knowledge transfer to communities outside the academic institution.

Conceptual Framework

The conceptual framework illustrates the relationship between academic engagement (independent variable), influencing factors (intervening variables), and rural community development outcomes (dependent variable).

- a) **Independent Variable:** -Academic Engagement, Agricultural extension services, Community training and education, Research dissemination, Health awareness campaigns, Entrepreneurship development, Environmental conservation initiatives, Policy advisory services)
- b) **Intervening Variable:** -Institutional and Environmental Factors (Funding availability, Institutional support, Government policies, Academic workload, Community participation, Communication channels, Infrastructure, Cultural factors)
- c) **Dependent Variable:** -Rural Community Development Outcomes (improved agricultural productivity, Increased educational access, Improved health outcomes, Employment creation, Poverty reduction, Environmental sustainability, Enhanced community capacity)
- d) **Narrative Explanation of the Conceptual Framework:** - The framework assumes that academicians contribute to rural community development through various forms of engagement such as training, research dissemination, agricultural extension, and community outreach. The effectiveness of these engagements is influenced by institutional and contextual factors including funding, policies, workload, and community participation. When academic engagement is effectively implemented and supported, positive development outcomes such as improved livelihoods, enhanced productivity, increased access to knowledge, and poverty reduction are expected to occur.
- e) **Conceptual Flow:** - Academic Engagement Activities → Institutional/Environmental Factors → Rural Community Development Outcomes

RESEARCH METHODOLOGY

Research Philosophy

The study was guided by pragmatism research philosophy, which advocates the use of multiple approaches to understand complex social phenomena [20, 21]. Pragmatism recognizes that no single method is sufficient for understanding social realities and therefore encourages the integration of quantitative and qualitative approaches. The choice of pragmatism was informed by the multidimensional nature of community development and academic engagement, which requires both numerical measurements and in-depth explanations of experiences and perceptions.

Research Design

The study adopted convergent mixed-methods research design, integrating both quantitative and qualitative approaches. According to [22, 23], mixed-methods research combines the strengths of quantitative and qualitative methodologies to provide a more complete understanding of a research problem. The quantitative component involved the administration of structured questionnaires to respondents across the four counties. The

qualitative component involved Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) to generate detailed insights regarding the experiences, perceptions, challenges, and opportunities associated with academic engagement in rural development. The mixed-methods design was selected because it enhances triangulation of findings, improves validity and reliability, provides both statistical evidence and contextual explanations and facilitates comprehensive understanding of community development processes.

Study Area

The study was conducted in four counties of Western Kenya: - Kakamega County, Bungoma County, Busia County and Vihiga County. These counties were purposively selected because they host several universities and tertiary institutions, have predominantly rural populations, experience persistent development challenges and have active community-based development initiatives.

Kakamega County covers approximately 3,050 km² and has a population exceeding 1.8 million people [16]. The county is predominantly agricultural, producing sugarcane, maize, beans, and dairy products. It hosts institutions such as Masinde Muliro University of Science and Technology. Bungoma County covers approximately 3,206 km² and has a population of about 1.7 million people [16]. Agriculture is the main economic activity, with maize farming, sugarcane cultivation, and dairy farming being predominant. It hosts Kibabii University. Busia County is located along the Kenya-Uganda border and covers approximately 1,695 km². The county is characterized by mixed farming, fishing, and cross-border trade and hosts Alupe University. Vihiga County is the smallest county in the region, covering approximately 531 km². It has a high population density and faces challenges related to land fragmentation, unemployment, and environmental degradation. It is home to Kaimosi Friends University.

Target Population

According to [23], a target population refers to the entire group of individuals possessing characteristics relevant to a study. The target population comprised as shown in Table 1 below:

Table 1. Categories of the target population

Category	Estimated Population
Academicians	1,500
Community Members	50,000
Local Leaders	600
NGO Officers	250
Agricultural Extension Officers	180
Health Extension Officers	150
Total	52,680

Sampling Procedures

The study employed a multistage sampling approach. The four counties were purposively selected because of their rural characteristics and presence of universities. Two predominantly rural sub-counties were selected from each county as follows: - Kakamega County (Lugari and Navakholo), Bungoma County (Sirisia and Tongaren), Busia County (Teso North and Funyula) and Vihiga County (Hamisi and Emuhaya). Different sampling techniques were used. Simple Random Sampling was used for Community members and Extension officers. Purposive Sampling was used for Academicians, NGO officials, Local leaders and Key informants. Stratified Sampling was used to ensure representation across counties and respondent categories.

Sample Size Determination

The sample size was determined using Cochran's Formula [24]: $n_0 = \frac{Z^2 pq}{e^2}$

Where:

- n = sample size
- $Z = 1.96$
- $p = 0.5$
- $q = 0.5$
- $e = 0.05$

The calculated sample size was 384 respondents. To account for non-response, 386 respondents were targeted. Distribution was as shown in Table 2 below: -

Table 2. Distribution of respondents by category of the population

Category	Sample Size
Community Members	280
Academicians	50
Local Leaders	24
NGO Officers	16
Extension Officers	16
Total	386

Inclusion and Exclusion Criteria

Participants were included if they were aged 18 years and above, had lived or worked in the study area for at least one year, were willing to provide informed consent and had knowledge of community development activities. They were excluded if they were below 18 years, had resided in the area for less than one year, declined consent and were unable to participate effectively due to illness or other limitations.

Data Collection Methods

Structured questionnaires were administered to 386 respondents for quantitative data. The questionnaire contained Demographic information, Academic engagement, Community perceptions, Impact indicators, and University-community linkages. Likert scales were used to measure attitudes and perceptions. Twenty-four key informants were interviewed for expert perspectives. These included University administrators, Senior academicians, County officials, NGO managers and Community leaders. Eight Focus Group Discussions (FGDs) were conducted for community level insights. Each group consisted of 8–12 participants. FGDs explored Community experiences, Perceptions of academicians, Development outcomes and Recommendations. Observation checklist was used to document Community projects, Training activities, Demonstration farms and Outreach programmes.

A pilot study was conducted in a neighboring county outside the study area. Thirty respondents participated. The pilot study assessed Clarity of questions, Reliability, Timing, and Respondent understanding. Necessary modifications were made before actual data collection.

Validity of Research Instruments

Validity refers to the extent to which an instrument measures what it intends to measure [25]. Three experts reviewed the instruments for content validity.

Content Validity Index (CVI):
$$CVI = \frac{\text{Number of relevant items}}{\text{Total number of items}}$$

A CVI of 0.87 was obtained. This exceeded the acceptable threshold of 0.80.

Reliability of Research Instruments

Reliability was assessed using Cronbach's Alpha: $\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right)$

Pilot results yielded values indicated in Table 3 below:

Table 3. Alpha Results of the Pilot Study

Variable	Alpha
Academic Engagement	0.84
Community Perception	0.81
Development Outcomes	0.88
Institutional Factors	0.86
Overall reliability coefficient	0.85

The overall reliability coefficient of 0.85 indicated high reliability.

Data Analysis

Quantitative Data was analyzed using SPSS Version 29. Descriptive Statistics used included Frequencies, Percentages, Means and Standard deviations. Inferential Statistics employed Pearson Correlation to determine relationships between variables. Chi-square Tests were used to examine associations. Multiple Regression Model was: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where:

- Y = Rural Development Outcome
- X₁ = Academic Engagement
- X₂ = Institutional Factors
- X₃ = Community Perception

Qualitative data were analyzed using thematic analysis following [25]. Steps included Familiarization, Coding, Theme generation, Theme review, Interpretation and Reporting. Direct quotations were used to support findings.

Ethical Considerations

Ethical approval was sought from the relevant Institutional Research Ethics Committee. Key ethical principles included Informed consent, Voluntary participation, Confidentiality, Anonymity, Beneficence and Non-maleficence. Participants signed informed consent forms before participation.

RESULTS

Gender Distribution of Respondents

The study sought to establish the gender composition of respondents participating in the survey. Results presented in Table 4 indicate that out of 372 respondents, 214 (57.5%) were male while 158 (42.5%) were female. The findings suggest that males constituted a larger proportion of the respondents compared to females. Chi-square goodness-of-fit test results showed a statistically significant difference in gender distribution ($\chi^2 = 8.43$, df = 1, p = 0.004). This implies that male respondents were significantly more represented in the study than female respondents.

The higher proportion of male respondents may be attributed to the predominance of men in leadership positions, agricultural decision-making, extension services, and community development activities within many rural areas

of Western Kenya. However, the substantial representation of female respondents (42.5%) ensured that women's perspectives on academic engagement and rural development were adequately captured. Consequently, the findings can be considered reasonably representative of both genders in the study area.

Table 4. Gender distribution of respondents

Variable	Category	Frequency	Percentage (%)	χ^2	p-value
Gender	Male	214	57.5	8.43	0.004*
	Female	158	42.5		
	Total	372	100.0		

Age Distribution

The results in Table 5 indicate that the largest proportion of respondents belonged to the 36–45 years age category (31.2%), followed by those aged 26–35 years (27.4%). Respondents aged 46–55 years constituted 19.9%, while those aged 18–25 years and above 55 years represented 12.9% and 8.6% respectively.

A Chi-square goodness-of-fit test was conducted to determine whether the observed age distribution differed significantly from an equal distribution across age categories. The analysis revealed a statistically significant difference in age distribution among respondents ($\chi^2 = 67.01$, $df = 4$, $p < 0.001$). The findings suggest that participation in the study was dominated by middle-aged adults, particularly those between 26 and 45 years.

This demographic composition is advantageous because individuals within these age groups are typically economically active, engaged in community development activities, and likely to possess substantial knowledge and experience regarding the role of academicians in rural development. The relatively lower representation of younger respondents (18–25 years) and older respondents (above 55 years) may reflect lower involvement in leadership, community projects, and institutional engagement activities within the study area.

Table 5. Age of Respondents

Variable	Category	Frequency	Percentage (%)	χ^2	p-value
Age	18–25 Years	48	12.9	67.01	<0.001*
	26–35 Years	102	27.4		
	36–45 Years	116	31.2		
	46–55 Years	74	19.9		
	Above 55 Years	32	8.6		
	Total	372	100.0		

County Distribution

The results of distribution of study participants by County of consideration are shown in Table 6. Although Kakamega County contributed the highest proportion of respondents (29.6%), followed by Bungoma (26.3%), Busia (22.6%), and Vihiga (21.5%), these differences were not sufficiently large to constitute a statistically significant imbalance ($\chi^2 = 6.07$, $df = 3$, $p = 0.108$). The findings therefore suggest that respondents from all four counties were adequately represented in the study, allowing for a comprehensive assessment of the role of academicians in rural community development across Western Kenya.

Table 6. County of Residence

Variable	Category	Frequency	Percentage (%)	χ^2	p-value
	Kakamega	110	29.6		0.108
	Bungoma	98	26.3		

County of Residence	Busia	84	22.6	6.07	
	Vihiga	80	21.5		
	Total	372	100.0		

Awareness of Academician Involvement

To establish the level of awareness among respondents regarding the involvement of academicians in community development activities within rural communities of Western Kenya, respondents were asked whether they were aware of academicians participating in community development initiatives in their respective areas. The results are presented in Table 7.

Table 7. Awareness of Academic Engagement

Variable	Category	Frequency	Percentage (%)	χ^2	p-value
Awareness of Academic Engagement	Yes	312	83.9	170.70	<0.001*
	No	60	16.1		
	Total	372	100.0		

Most respondents (83.9%) were aware of academicians participating in community development activities. The Chi-square goodness-of-fit test showed that this level of awareness was statistically significant ($\chi^2 = 170.70$, $df = 1$, $p < 0.001$), indicating widespread recognition of academic engagement within rural communities of Western Kenya.

Forms of Academic Engagement

Respondents were asked to identify the types of development activities in which academicians participate. The results are presented in Table 8.

Table 8. Forms of Academic Engagement

Activity	Frequency	Percentage (%)	χ^2	p-value
Education Support	269	72.3	78.56	<0.001*
Agricultural Extension	238	64.1		
Health Education	214	57.5		
Entrepreneurship Training	186	50.0		
Environmental Conservation	162	43.5		
Policy Advisory Services	118	31.7		

Education support emerged as the most common form of academic engagement (72.3%), followed by agricultural extension services (64.1%). This finding suggests that academicians focus primarily on capacity building and knowledge transfer. The prominence of agricultural extension activities reflects the predominantly agricultural nature of Western Kenya.

The Chi-square goodness-of-fit test revealed a statistically significant difference in the distribution of academic engagement activities ($\chi^2 = 78.56$, $df = 5$, $p < 0.001$). This indicates that academicians engage significantly more in some activities than others, with education support and agricultural extension being the dominant forms of engagement. FGD participants confirmed this observation: "Most university people come to train farmers on improved farming methods and disease control." A county agricultural officer observed: "Universities have helped farmers adopt improved seeds and better agronomic practices."

Extent of Academic Involvement

The results of the extent of academic involvement by sector are depicted in Table 9. Education support recorded the highest mean score ($M = 4.21$), indicating high academic involvement. Agricultural development also scored highly ($M = 4.05$), demonstrating strong engagement in farming-related activities. Environmental conservation recorded the lowest mean score ($M = 3.48$), suggesting moderate involvement. The p-values for all sectors were less than 0.05, indicating that the observed levels of academic involvement were significantly higher than the neutral level. Education support showed the highest level of involvement ($M = 4.21$, $p < 0.001$), suggesting that educational initiatives are the most prominent form of academic engagement. These findings indicate that academic engagement is concentrated in sectors where universities possess established expertise and outreach programmes.

Table 9. Extent of Academic Involvement by Sector

Sector	Mean	Std. Dev.	p-value
Education Support	4.21	0.81	0.000*
Agricultural Development	4.05	0.93	0.001*
Health Awareness	3.87	0.98	0.003*
Entrepreneurship	3.61	1.02	0.018*
Environmental Protection	3.48	1.10	0.041*

Test: One-Sample t-test against neutral mean = 3.00

Scale: 1 = None 2 = Low 3 = Moderate 4 = High 5 = Very High

Impact of Academic Engagement on Rural Development

Respondents reported substantial contributions of academic engagement to educational access ($M = 4.18$) and agricultural productivity ($M = 4.11$) as shown in Table 10. The relatively lower score for poverty reduction ($M = 3.47$) suggests that while academic interventions contribute to development, their direct impact on household incomes remains moderate. All indicators recorded statistically significant positive ratings ($p < 0.05$). Education access and agricultural productivity demonstrated the strongest perceived impacts of academic engagement.

This finding reflects the reality that poverty reduction often depends on broader economic factors beyond academic interventions alone. The Pearson correlation coefficient ($r = 0.610$) indicates a strong positive relationship between academic engagement and rural development outcomes. Since $p < 0.05$, the relationship is statistically significant (Table 11).

Table 10. Perceived Contribution of Academic Engagement to Rural Development Outcomes

Indicator	Mean	Std. Dev.	p-value
Education Access	4.18	0.84	0.000*
Agricultural Productivity	4.11	0.90	0.000*
Health Improvement	3.96	0.95	0.002*
Employment Creation	3.55	1.03	0.021*
Poverty Reduction	3.47	1.08	0.037*

Test: One-Sample t-test against neutral mean = 3.00

Table 11. Pearson Correlation Between Academic Engagement and Rural Development Outcomes

Variable	r	p-value	Decision
Academic Engagement vs Development Outcomes	0.610	0.000*	Reject H_0

*Significant at $\alpha = 0.05$

Factors Influencing Academic Engagement

Table 12 presents respondents' views on the factors that encourage academicians to participate in rural community development activities in Western Kenya. Institutional support emerged as the most influential factor (76.3%), followed by funding availability (73.1%). A Chi-square goodness-of-fit test was conducted to determine whether the observed frequencies for each factor differed significantly from what would be expected by chance. The results indicate that all the identified factors significantly influenced academic engagement ($p < 0.05$). These findings suggest that academicians require both organizational and financial support to participate effectively in community development activities.

Table 12. Factors Encouraging Academic Engagement

Factor	Frequency	Percentage (%)	p-value
Institutional Support	284	76.3	0.000*
Funding Availability	272	73.1	0.000*
Personal Interest	251	67.5	0.001*
Government Policies	218	58.6	0.012*
Community Demand	196	52.7	0.031*

Barriers to Academic Engagement

Lack of funding was identified as the greatest barrier (80.9%) (Table 13). Heavy workload ranked second (77.4%). KII findings indicated that many academicians struggle to balance teaching, research, and community engagement responsibilities. One administrator stated: "Most outreach programmes depend on external funding, making sustainability difficult." Funding constraints and workload pressures were identified as the most statistically significant barriers affecting academic engagement. The results indicate that all the identified challenges significantly hinder academic engagement (Chi square goodness of fit; $p < 0.05$).

Table 13. Barriers to Academic Engagement

Challenge	Frequency	Percentage (%)	p-value
Lack of Funding	301	80.9	0.000*
Heavy Workload	288	77.4	0.000*
Institutional Bureaucracy	244	65.6	0.001*
Poor Communication	221	59.4	0.009*
Lack of Incentives	209	56.2	0.017*

A multiple regression analysis was conducted to determine the extent to which institutional support, funding availability, and academic workload predict academic engagement in rural community development activities in Western Kenya. The results are presented in Table 14.

Table 14. Multiple Regression Analysis of Institutional Factors Influencing Academic Engagement

Predictor Variable	β Coefficient	Std. Error	t-value	p-value
Institutional Support	0.520	0.063	8.31	0.000*
Funding Availability	0.440	0.061	7.19	0.000*
Academic Workload	-0.370	0.064	-5.84	0.000*
Constant	1.240	0.212	5.85	0.000*

The regression model produced a multiple correlation coefficient (R) of 0.762, indicating a strong positive relationship between the combined institutional factors and academic engagement (Table 15). This suggests that institutional support, funding availability, and academic workload collectively have a substantial influence on the extent to which academicians participate in community development activities.

The coefficient of determination ($R^2 = 0.580$) indicates that 58.0% of the variation in academic engagement can be explained by the three predictor variables included in the model. This means that institutional support, funding availability, and academic workload account for more than half of the observed differences in academic engagement among respondents. The remaining 42.0% of the variation may be attributed to other factors not included in the model, such as personal motivation, leadership support, community characteristics, organizational culture, or government interventions.

The Adjusted R^2 value of 0.571 shows that after adjusting for the number of predictors in the model, approximately 57.1% of the variation in academic engagement remains explained by the independent variables. The small difference between R^2 and Adjusted R^2 suggests that the model is stable and not overfitted.

The overall regression model was statistically significant ($F = 74.28$, $p < 0.001$), indicating that the predictor variables jointly provide a significant explanation of academic engagement. Since the model p-value is less than 0.05, the null hypothesis that institutional factors do not significantly influence academic engagement is rejected.

Table 15. Model Summary

Statistic	Value
R	0.762
R^2	0.580
Adjusted R^2	0.571
F-value	74.28
Model p-value	0.000*

Community Perceptions of Academicians

The study sought to determine how rural communities in Western Kenya perceive academicians and whether such perceptions influence the effectiveness of academic engagement in community development. Respondents were asked to rate their perceptions of academicians as either very helpful, helpful, neutral, not helpful, or harmful. The results are presented in Table 16.

Table 16. Community Perception of Academicians

Perception Category	Frequency	Percentage (%)	p-value
Very Helpful	122	32.8	0.000*
Helpful	176	47.3	0.000*
Neutral	42	11.3	0.087
Not Helpful	24	6.5	0.114
Harmful	8	2.1	0.216

The findings reveal that respondents generally held highly positive perceptions of academicians. Nearly half of the respondents, 176 (47.3%), described academicians as helpful, while 122 respondents (32.8%) considered them very helpful. Collectively, 298 respondents representing 80.1% of the sample expressed positive perceptions of academicians. The positive perception categories ("Very Helpful" and "Helpful") recorded highly significant p-values ($p < 0.001$), indicating that the observed frequencies were significantly higher than would be expected by chance.

The results further showed that only 42 respondents (11.3%) maintained a neutral position regarding

academicians. The non-significant p-value ($p = 0.087$) suggests that neutral perceptions were not sufficiently prevalent to indicate a strong pattern within the study population. Similarly, relatively few respondents perceived academicians negatively. Only 24 respondents (6.5%) indicated that academicians were not helpful, while a mere 8 respondents (2.1%) considered them harmful. The associated p-values ($p = 0.114$ and $p = 0.216$ respectively) were not statistically significant, indicating that negative perceptions were relatively uncommon among respondents.

Relationship Between Community Perception and Effectiveness of Academic Engagement

To determine whether community perceptions influence the effectiveness of academic engagement, a Chi-square test of independence was conducted. The results are presented in Table 17.

Table 17. Chi-Square Test of Relationship Between Community Perception and Effectiveness of Academic Engagement

Test Statistic	Value
χ^2	18.74
Df	4
p-value	0.001*

The Chi-square test revealed a statistically significant relationship between community perception and the effectiveness of academic engagement ($\chi^2 = 18.74$, $df = 4$, $p = 0.001$). This finding indicates that community perceptions significantly influence the success and effectiveness of academic engagement initiatives. Communities that perceive academicians positively are more likely to cooperate with them, participate in development programs, adopt recommended innovations, and sustain project outcomes. Conversely, where perceptions are less favorable, the effectiveness of academic interventions may be reduced due to lower levels of trust, participation, and collaboration.

University–Community Linkages

The study assessed respondents' perceptions regarding the effectiveness of partnerships between universities and rural communities in Western Kenya. Respondents were asked to rate these partnerships as very effective, effective, moderately effective, or ineffective. The results are presented in Table 18. Respondents generally perceived university–community partnerships as beneficial and effective in supporting rural development initiatives. A total of 124 respondents (33.3%) rated the partnerships as effective, making this the most frequently reported category. This category was highly statistically significant ($p < 0.001$), suggesting strong support among respondents for the effectiveness of existing university-community collaborations.

Additionally, 68 respondents (18.3%) considered the partnerships very effective, with a statistically significant p-value ($p = 0.002$). This finding suggests that a considerable proportion of community members have experienced tangible benefits from interactions with universities through outreach programs, agricultural extension services, health awareness campaigns, training workshops, and research dissemination activities.

The results further showed that 118 respondents (31.7%) rated the partnerships as moderately effective. Although this category was also statistically significant ($p = 0.011$), the relatively high proportion of respondents in this category suggests that many community members perceive existing collaborations as producing positive outcomes but not yet achieving their full potential.

Collectively, respondents who rated partnerships as either very effective, effective, or moderately effective constituted 83.3% of the sample. This demonstrates a generally favorable assessment of university-community collaborations in the study area. However, 62 respondents (16.7%) perceived the partnerships as ineffective. The associated p-value ($p = 0.083$) was not statistically significant at the 5% level, indicating that negative perceptions were comparatively less prevalent. Nevertheless, the proportion of respondents expressing dissatisfaction is noteworthy and points to existing weaknesses in partnership implementation.

Table 18. Effectiveness of University–Community Partnerships

Rating	Frequency	Percentage (%)	p-value
Very Effective	68	18.3	0.002*
Effective	124	33.3	0.000*
Moderately Effective	118	31.7	0.011*
Ineffective	62	16.7	0.083

DISCUSSION

Forms of Academic Engagement in Rural Community Development

Based on this study academicians are actively involved in various development activities including educational support, agricultural extension services, health education campaigns, entrepreneurship training, environmental conservation initiatives, research dissemination, and policy advisory services.

Education support emerged as the most common form of engagement (72.3%), followed by agricultural extension services (64.1%) and health awareness programs (57.5%), findings that suggest that academicians contribute significantly to knowledge transfer and capacity building among rural populations. The prominence of educational support activities may be attributed to the traditional mandate of universities and academicians as centers of learning and knowledge dissemination. Through mentorship programs, career guidance, teacher training, educational outreach, and scholarship initiatives, academicians contribute to improving educational outcomes within rural communities.

The findings support Human Capital Theory, which posits that investments in education and skills development increase productivity and contribute to socio-economic development [8, 9]. By providing educational opportunities and technical knowledge, academicians enhance the human capital of rural populations, thereby improving their capacity to participate in development processes.

The strong involvement in agricultural extension activities reflects the economic realities of Western Kenya, where agriculture remains the primary livelihood for most households. Through farmer training, demonstration plots, dissemination of improved technologies, soil fertility management, climate-smart agriculture, and agribusiness development, academicians facilitate increased agricultural productivity and food security. This is consistent with those of [26] and [27], who reported that university-led agricultural extension programs significantly improve adoption of improved farming technologies and increase agricultural productivity.

The findings from FGDs further indicated that communities highly value practical training and technical support provided by academicians. Participants noted that academicians often introduce innovative farming techniques, disease management practices, and environmental conservation approaches that are not readily available through conventional government extension systems.

The study therefore demonstrates that academicians are increasingly assuming a developmental role beyond traditional teaching and research functions, supporting [3] concept of the scholarship of engagement.

Impact of Academic Involvement on Rural Community Development

An assessment of the impact of academic involvement on rural community development outcomes indicated that academic engagement had a significant positive effect on educational access, agricultural productivity, health improvement, employment creation, and poverty reduction. Educational access recorded the highest mean score ($M = 4.18$), followed by agricultural productivity ($M = 4.11$). This therefore suggests that academic interventions have contributed substantially to strengthening educational opportunities and agricultural development in the study area.

The Pearson correlation analysis revealed a strong positive relationship between academic engagement and rural development outcomes ($r = 0.61$, $p < 0.001$), an indicator that increased academic involvement is associated with

improved development outcomes, supporting the assumptions of Human Capital Theory, which emphasizes that knowledge acquisition and skills development are fundamental drivers of economic growth and social progress [9]. The results are also consistent with studies conducted by [4], which demonstrated that community engagement by universities contributes significantly to educational advancement and social transformation. Similarly, [1] studies have shown that knowledge transfer initiatives enhance agricultural productivity, improve health outcomes, and promote local economic development.

The qualitative findings further revealed that academic engagement contributes to Increased adoption of modern farming technologies, Improved awareness of health and nutrition practices., Enhanced entrepreneurial skills among youth and women, Greater environmental consciousness and Improved access to information and innovation. However, the study found that the contribution of academic engagement to poverty reduction and employment creation was relatively lower than its contribution to education and agriculture. This suggests that while academic interventions improve capacities and opportunities, broader structural and economic factors may influence income generation and employment outcomes.

Therefore, the study demonstrates that academicians play an important role in promoting rural development, although their impact is influenced by broader socio-economic conditions.

Factors Influencing Academic Engagement

Identification of the factors influencing academicians' participation in community development activities established that institutional support (76.3%), funding availability (73.1%), personal interest (67.5%), and government policies (58.6%) were the major factors facilitating engagement. Regression analysis further revealed that institutional support ($\beta = 0.52, p < 0.001$) and funding availability ($\beta = 0.44, p < 0.001$) significantly predicted academic engagement. These findings indicate that academicians are more likely to participate in community development when universities provide supportive policies, financial resources, logistical assistance, and recognition mechanisms.

The results corroborate findings by [13], who observed that institutional commitment is a critical determinant of successful university-community engagement programs in Africa. The study also identified several barriers to engagement, including Lack of funding (80.9%), Heavy academic workload (77.4%), Institutional bureaucracy (65.6%), Poor communication with communities (59.4%) and Lack of incentives (56.2%). Previous studies by [12] and [14] found that many African universities struggle to balance teaching, research, and community service responsibilities due to resource constraints. The significant negative effect of workload on engagement ($\beta = -0.37, p < 0.001$) suggests that excessive teaching and administrative responsibilities limit the time available for community outreach activities.

These findings highlight the need for institutional reforms that recognize and support community engagement as a core academic responsibility.

Community Perceptions of Academicians

The findings demonstrate that academicians enjoy considerable goodwill and trust among rural communities in Western Kenya. More than four-fifths of respondents perceived them as helpful or very helpful, reflecting widespread appreciation of their contributions to education, agriculture, health promotion, entrepreneurship, and environmental conservation.

Communities that trust academicians are more likely to participate actively in development programs, adopt recommended practices, and sustain project outcomes. However, some respondents expressed concerns regarding Infrequent follow-up visits, Short-term project implementation, and Limited community involvement in planning stages. These concerns suggest the need for more participatory and sustained engagement approaches.

The positive perception may be attributed to the educational qualifications, professional expertise, and advisory roles played by academicians within communities. Furthermore, the significant relationship between perception and engagement effectiveness underscores the importance of maintaining positive university-community

relationships. This finding supports Social Capital Theory [11], which emphasizes that trust, social networks, and collaboration facilitate successful development initiatives.

The results suggest that strengthening trust, improving communication, enhancing community participation, and ensuring sustained engagement can further increase the effectiveness of academic contributions to rural community development. Universities should therefore prioritize community-centered approaches that foster long-term partnerships and mutual trust between academicians and local communities.

University–Community Linkages

The findings of this study suggest that university-community partnerships have made meaningful contributions to rural development in Western Kenya. Through these partnerships, communities have benefited from access to specialized knowledge, technical expertise, research-based innovations, training opportunities, and advisory services. The positive ratings may be attributed to successful collaborations in areas such as: Agricultural extension and technology transfer, educational support and capacity building, Health promotion and disease prevention campaigns, Environmental conservation initiatives, Entrepreneurship and livelihood development programs and Community-based research and innovation projects.

Despite these achievements, the substantial proportion of respondents rating the partnerships as only moderately effective indicates that there are significant opportunities for improvement that remain. Qualitative findings from Key Informant Interviews and Focus Group Discussions revealed several concerns that may explain these perceptions, including: Irregular engagement between universities and communities, Limited follow-up after project implementation, Inadequate funding for outreach activities, Weak institutional frameworks for collaboration, Insufficient community participation in project planning and decision-making and Dependence on individual academicians rather than formal university structures. These challenges may reduce the sustainability and long-term impact of university-community initiatives.

The results demonstrate that while such linkages are generally viewed positively, they remain only partially institutionalized and have not fully realized their developmental potential. The predominance of "effective" and "moderately effective" ratings suggests that universities are making important contributions to community development, but stronger mechanisms are needed to translate academic knowledge into sustained community transformation. The Triple Helix Model [7] emphasizes collaboration among universities, governments, and communities as a driver of innovation and socio-economic development. Effective partnerships facilitate knowledge exchange, resource mobilization, and the co-creation of solutions to local development challenges.

The results are also consistent with studies by [3] and [6], who argue that universities can maximize their societal impact when they move beyond traditional teaching and research functions to actively engage with communities. The generally positive perceptions observed in this study indicate that universities in Western Kenya are increasingly embracing this developmental role. However, the significant proportion of respondents reporting only moderate effectiveness suggests that community engagement efforts remain constrained by institutional and structural limitations.

This finding aligns with previous studies in Africa which have reported that many university-community partnerships are project-based, inadequately funded, and insufficiently integrated into institutional missions.

CONCLUSIONS

Based on the findings of this study, it can be concluded that academicians in Western Kenya are actively engaged in various community development activities, particularly in the areas of education, agriculture, health awareness, entrepreneurship, and environmental conservation. However, this engagement remains at a moderate level and is largely project-based rather than being fully institutionalized within university structures and mandates.

The study further established a statistically significant positive relationship between academic engagement and rural development outcomes. Academic involvement was found to contribute substantially to improvements in

educational access, agricultural productivity, health awareness, and community capacity building, demonstrating the important role that higher education institutions can play in advancing rural development.

Institutional factors were also identified as critical determinants of academic participation in community development initiatives. Adequate institutional support, availability of funding, and enabling policies were found to encourage greater involvement by academicians. Conversely, heavy teaching and administrative workloads, coupled with bureaucratic procedures, were identified as major constraints that limit participation in community engagement activities.

The findings also revealed that community perceptions and levels of trust significantly influence the effectiveness of academic interventions. Communities that view academicians positively and trust their expertise are more likely to participate actively in development initiatives, thereby enhancing the success and sustainability of such interventions.

Finally, the study concludes that although university-community partnerships exist in Western Kenya, they remain relatively weak, fragmented, and insufficiently institutionalized. Strengthening these partnerships through more structured collaboration, long-term engagement strategies, and supportive institutional frameworks is essential for achieving sustainable rural development outcomes and maximizing the societal impact of academic institutions.

RECOMMENDATIONS

For future scholarship, this study highlights several areas that warrant further investigation to deepen understanding of the role of academic engagement in rural development. First, comparative studies should be conducted across different regions of Kenya and neighboring countries to enhance external validity and comparative value of the findings and determine whether the patterns, challenges, and impacts of academic involvement observed in Western Kenya are consistent in other socio-economic, cultural, and ecological contexts. Such studies would provide a broader national perspective and facilitate the development of region-specific strategies for enhancing university-community engagement.

Second, there is a need for longitudinal studies that track university-community partnerships over extended periods which would help to determine long term effects of academic engagement on rural development and provide stronger evidence of causality. While the present study provides valuable insights into current outcomes, long-term investigations would further enable researchers to assess the sustainability, effectiveness, and lasting impacts of academic interventions on rural livelihoods, institutional development, and community resilience.

Third, future research should focus on evaluating the effectiveness of specific outreach and engagement models employed by universities in rural development initiatives. Comparative assessments of approaches such as participatory action research, community-based learning, extension services, and service-learning programs would help identify best practices and inform policy formulation aimed at maximizing the developmental impact of higher education institutions.

In addition, further studies should examine the contribution of private universities to community development. Much of the existing literature focuses on public universities, yet private institutions are increasingly playing significant roles in teaching, research, innovation, and community outreach. Understanding their unique contributions, challenges, and opportunities would provide a more comprehensive picture of the higher education sector's role in national development.

Declaration of Conflict of Interest

The researcher declares that there were no financial, professional, institutional, personal, or other relationships that could be construed as influencing the design, conduct, analysis, interpretation, or reporting of this study. The research was conducted independently and objectively, and all findings are presented honestly and without bias. No funding agency, institution, organization, or individual exerted undue influence on the outcomes or

conclusions of this research. The researcher further confirms that there are no known conflicts of interest associated with the publication or dissemination of the findings presented.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding researcher upon reasonable request. Due to ethical considerations, confidentiality agreements with study participants, and the need to protect respondents' privacy, the raw datasets are not publicly available. Access to anonymized data may be granted for academic and research purposes subject to approval by the researcher and relevant institutional ethical guidelines.

All data generated and analyzed during the study were securely stored and used exclusively for the purposes of this research. Any shared datasets will have personally identifiable information removed to ensure participant confidentiality and compliance with applicable research ethics requirements.

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