

The mediating role of stakeholder engagements on ethical climate and project sustainability of health projects in Uganda

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Abstract

Purpose – This study examines the mediating role of stakeholder engagement in the relationship between ethical climate and project sustainability of health projects, as well as the direct links between ethical climate, stakeholder engagement and project sustainability.

Design/methodology/approach – The design of the study was cross-sectional quantitative survey research. The sample consists of 113 health projects in Kampala, Uganda. Using a drop off and pick up method, questionnaires were delivered to respondents and picked up after completion. Researchers used statistical package for social scientists (SPSS) to analyze data where, a hierarchical regression analysis tested the influence of the independent variables and a Sobel test examined the mediation effect of the mediator variable.

Findings – Stakeholder engagements fully mediates the relationship between ethical climate and project sustainability, with significant positive relationships between ethical climate, stakeholder engagements and project sustainability

Research limitations/implications – The current study had some limitations. For instance, the study employed a cross sectional survey yet it involved variables such as stake holder engagement and ethical climate that need to be observed over a time. The study was also quantitative.

Practical implications – Engaging stakeholders is vital for project sustainability. Managers should foster ownership, counter egoistic climates with teamwork and shared goals and ensure stakeholders see their involvement as essential.

Social implications – Strengthening stakeholder engagement and fostering a positive ethical climate enhance health project sustainability, improve community well-being and build trust, delivering broader societal benefits through collaborative and ethical healthcare initiatives.

Originality/value – This study highlights how ethical climate and stakeholder engagements shape sustainability, emphasizing the need to address stakeholder interests and impacts on health projects.

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Keywords Project sustainability, Ethical climate, Stakeholder engagements, Health projects, Uganda

Paper type Research article



Introduction

Project sustainability is a global priority, particularly in developing economies like Uganda (Tarnovskaya, 2023; Hussain *et al.*, 2024). Health projects are central to this agenda, as their sustainability enhances welfare and socio-economic development, aligning with Sustainable Development Goal (SDG) 3 and Uganda Vision 2040. To ensure continuity beyond completion, sustainable strategies must be integrated into project design and implementation (Stanitsas *et al.*, 2021). Freeman (1984) and Blak Bernat *et al.* (2023) stress that project

managers should engage stakeholders and embed sustainability throughout the project cycle to maintain long-term benefits.

Stakeholder engagement is vital for project sustainability, as emphasized by [Shaukat et al. \(2022\)](#) and [Bahadorestani et al. \(2020\)](#). In Uganda, however, many health projects collapse once external financial, managerial and technical support ends. A clear example is the \$17.3 million Uganda Reproductive Health Voucher Project (2015–2019), funded by the World Bank and Swedish International Development Cooperation Agency (SIDA) to provide safe delivery services. The 2020 Initiative for Social and Economic Rights (ISER) report revealed design flaws, inflated voucher prices and unethical practices. Village Health Teams sold vouchers at up to 25 times the intended Ugandan Shillings (UGX) 4,000, exploiting poor pregnant women. As a result, 68% of beneficiaries were middle or upper class, while only 32% were poor, undermining the project's equity goals ([ISER, 2020](#)).

Although project sustainability is of growing interest to researchers, [Shaukat et al. \(2022\)](#) and [Stanitsas et al. \(2021\)](#) highlight the lack of studies linking ethical climate, stakeholder engagement and health project sustainability in Uganda. This gap is critical, given the unique challenges facing health projects in developing economies. Despite heavy investments from NGOs and the Ugandan government since 2000, nearly 85% of health projects struggle to sustain activities and meet their goals ([Beinebyabo, 2020](#)). A telling example is HIV-focused projects: despite significant interventions, HIV/AIDS remains a global crisis with, 39.3 million people living with HIV, 1.3 million new infections annually, 67% in sub-Saharan Africa and more than 630,000 deaths in 2022 ([UNAIDS, 2023](#); [WHO, 2023](#)). These realities show the urgent need to investigate how ethical climate and stakeholder engagement influence the sustainability of health projects in Uganda.

Uganda's healthcare sector struggles with an unethical climate of corruption, bribery, absenteeism, theft and procurement fraud ([Inspectorate of Government, 2023](#); [Peiffer et al., 2021](#)). Bribery costs nearly UGX 670 billion annually, deepening burdens on vulnerable patients. Absenteeism drains over UGX 495 billion each year, restricting access to care, while theft of medicines, equipment and procurement corruption adds UGX 3.5 billion in losses, forcing patients to seek costly alternatives or go untreated. The Fourth National Integrity Survey Report (2020) similarly highlights bribery, absenteeism and ghost workers as key barriers to essential services, undermining health, wellbeing and life chances. Unless this unethical climate is addressed and stakeholders are effectively engaged, Ugandan health projects will remain unsustainable.

While most research has been conducted in developed economies with contexts differing from developing ones ([Rahat et al., 2024](#)), few aggregative studies assess their impact on health project sustainability in developing economies, which still attract donor funding. This highlights the need for an empirical study on the mediating role of stakeholder engagement in the ethical climate and sustainability relationship, drawing lessons from Uganda. This study helps address challenges in sustaining donor-funded health projects, as failure to sustain them undermines vulnerable beneficiaries' health, well-being and access to essential healthcare services ([ISER, 2020](#)).

This study is organized as follows: Section two reviews literature on stakeholder engagement, ethical climate, project sustainability and the guiding theories. Section three outlines the methodology, including data collection and analysis. Section four presents and discusses the results, while Section five concludes with implications. The study is further guided by specific objectives and a conceptual framework.

Objectives of the study

- (1) To establish the relationship between ethical climate and stakeholder engagements
- (2) To establish the relationship between stakeholder engagements and project sustainability.

- (3) To establish the relationship between ethical climate and project sustainability.
- (4) To test the mediation of stakeholder engagements on the relationship between ethical climate, and project sustainability.

Literature review

The study review focused on foundational theories underpinning the sustainability of health projects, while the empirical review derived study hypotheses based on identified gaps in previous research.

Theoretical review

This study is guided by the ethical climate theory (Victor and Cullen, 1987) and stakeholder theory (Freeman, 1984). Ethical climate refers to shared perceptions of appropriate behavior in organizations. Kuenzi et al. (2020) expanded the concept, introducing a framework with two dimensions: ethical criterion (egoism, benevolence, principle) and locus of analysis (individual, local and cosmopolitan), generating nine aspects such as self-interest, rules, profit, laws, efficiency, friendship, team interest, social responsibility and personal morals. However, factor structures, vary across studies. Critics note ambiguity in defining “correct behavior.” Weber and Opoku-Dakwa (2022) propose “climate regarding ethics,” arguing that aligning organizational morality with societal norms is difficult. Victor and Cullen (1987) also omit organizational policies and procedures, which are crucial in project climates.

Stakeholder theory, developed by Freeman (1984) and expanded by Kujala et al. (2022), defines stakeholders as those influencing or affected by organizational activities. It emphasizes addressing their concerns for sustainability. Emerging at Stanford Research Institute in the 1960s, it identified groups such as governments, unions, financiers, employees and customers (Freeman et al., 2010). However, Friedman (2007) prioritized shareholders, while Goyal (2022) criticized the theory as vague and Mansell (2013) argued it undermines market economies by applying a “social contract” to firms.

Empirical literature review

Ethical climate and stakeholder engagement. Ethical climate as defined by Victor and Cullen’s (1987) as shared perceptions of ethical norms in organizations. Early studies in the 1980 and 1990s were descriptive, validating egoistic, benevolent and principled climates through surveys (Cullen et al., 1993). These studies presented little insight into how climate shaped stakeholder behavior. Research works later linked climate to ethical conduct and decision-making forming a base for engagement-focused research (Treviño et al., 1998).

Climate’s influence on engagement was examined scholars by the 2000s. Benevolent climates, emphasizing fairness and concern for others, foster trust and cooperation, encouraging stakeholder participation. Egoistic climates were tied to disengagement and lapses. Egoistic climates prioritize self-interest, often correlating with lower ethical behavior and stakeholder engagement. Principled climates focus on ethical principles embodied in rules, laws, or codes of conduct (Verma, 2020; Christensen et al., 2022; Alqami et al., 2020). Kuenzi et al. (2020) showed variation across sectors, with health settings differing from corporate contexts.

Structural equation modeling and longitudinal research are employed recently. Podsakoff et al. (2003) cautioned against common method bias in cross-sectional work, prompting stronger designs. Furthermore, alignment between organizational ethics and societal norms differs across cultures, raising questions about measurement validity Weber and Opoku-Dakwa (2022). Despite such advances, research in developing countries is scarce, leaving cross-cultural applicability uncertain.

H1. There is a positive relationship between ethical climate and stakeholder engagements

Stakeholder engagement and project sustainability. Freeman's (1984) stakeholder theory gave a foundation for this field. Early empirical studies in the 1990s suggested that basic participation improved performance, though methods were limited. Rowley (1997) and Mitchell *et al.* (1997) advanced the debate by showing that influence depends not only on networks but also on how much power, legitimacy and urgency stakeholders bring to a project.

Emphasis shifted to engagement quality from the 2000s. Using validated measures, scholars found that vigor, dedication and decision-making influence predicted sustainability (González-Romá *et al.*, 2006; Seppälä *et al.*, 2009). Expanding geographically, Torpey *et al.* (2010) showed community participation sustained HIV programs in Zambia, while recent African studies (Lisanza *et al.*, 2023; Ebekozi *et al.*, 2024) confirmed that structured engagement supports financial and programmatic sustainability. Zhu and Cheung (2023) found that incentivizing cooperation deepened commitment.

Generally, engagement is strongly linked to sustainability, though debate persists on effective strategies. Abugre (2014), studying ethical leadership in Ghana, and Akpan (2016), examining sustainability in Africa, highlighted that socio-political conditions complicate engagement, reinforcing the need for more context-specific research in fragile systems such as Uganda's.

H2. There is a positive relationship between Stakeholder Engagements and Project Sustainability.

Ethical climate and project sustainability. The momentum of empirical testing on the climate and sustainability link has grown in the last two decades. Benevolent and principled climates, centered on collective welfare and ethical standards, encourage responsible decision-making, prudent resource use and long-term viability (Zahari *et al.*, 2024; Gangi *et al.*, 2024).

Nevertheless, findings remain mixed. Egoistic climates have been tied to corruption, mismanagement and collapse (Bieling *et al.*, 2020). These results highlight consensus that climate matters but doubt consistency across settings. Most studies rely on quantitative correlations, although qualitative research indicates how ethics shape trust and accountability.

H3. There is a strong positive relationship between ethical climate and project sustainability.

Stakeholder engagement as a mediator. Early studies mainly examined direct links between ethical climate, stakeholder engagement and sustainability, with minimal attention to interaction effects (Victor and Cullen, 1987; Freeman, 1984). However, mediation models gained ground from mid-2000s, guided by Baron and Kenny's (1986) framework and later refinements by Jose (2018). These approaches allowed researchers to test whether stakeholder engagement acts as a mediator to explain the connection between among different variables Salanova and Schaufeli (2008), moving analysis beyond simple correlations. Empirical evidence progressively supports this pathway. Shaukat *et al.* (2022) and Blak Bernat *et al.* (2023) showed that ethical climates indirectly impact sustainability by building trust and participation, which enhance long-term outcomes.

Despite these developments, most evidence emanates from Western or corporate contexts, raising questions about their applicability in developing economies. Ugandan health projects often struggle with corruption, donor reliance and weak institutions, making the mediating role of stakeholder engagement particularly uncertain. The absence of longitudinal studies in Sub-Saharan Africa further limits understanding of how these relationships unfold over time, highlighting a critical gap for future research.

H4. Stakeholder engagements mediate the relationship between ethical climate and project sustainability.

Summary. Research has progressed from descriptive surveys in the 1980s to sophisticated analyses linking climate, engagement and sustainability. There is broad agreement that benevolent climates and inclusive engagement support sustainability, but disagreements remain over mechanisms, cultural variation and measurement. Most evidence still comes from

Western contexts, leaving Sub-Saharan Africa underrepresented and Ugandan health projects nearly absent. Filling these gaps with context-sensitive research is critical for advancing both theory and practice.

Methodology

Research design

A cross-sectional design and quantitative approach were used. The design was quantitative because there was need for testing the established hypotheses. The survey was cross-sectional because data were to be collected at a specific point in time.

Target population and sample size

The study population was 130 health projects from health organizations that include, ministry of health, Reproductive health Uganda, Malaria Consortium, Save for Health Uganda and Makerere University College of Sciences Health. Using [Krejcie and Morgan \(1970\)](#), an estimated sample size of 97 health projects was to be used. However, an actual sample size of 101 health projects was used. Sample sizes of 100 and above are recommended in most research situations ([Memon et al., 2020](#)). Simple random sampling was employed to ensure that representative views are obtained. The unit of analysis was health projects, with project staff and beneficiaries as the unit of inquiry (two project staff and one beneficiary per project). Data were collected via self-administered questionnaires. Using a 5-point Likert scale, the questionnaires included sections on respondent demographics and study variables.

Measurement of variables

The researchers used validated measures to assess constructs. Ethical climate (egoistic, principled and benevolent) was measured using a modified version of [Victor and Cullen's \(1987\)](#) questionnaire. Stakeholder engagement (vigor, dedication and absorption) followed [Seppala et al. \(2009\)](#) and [Schaufeli et al. \(2002\)](#), while project sustainability used scales by ([Torpey et al., 2010](#); [Scheirer et al., 2008](#)).

Variable description

To enhance clarity and provide an overview of the study variables, a variable description is presented in [Table 1](#). The table summarizes each variable's acronym, representation in the

Table 1. Variable description, measurement scale and priori expectation

Variable acronym	Full name	Variable proxy	Measurement scale	Priori expectation
EC	<i>Ethical climate</i>		Likert scale	+
	<i>Benevolent climate</i>	EB1-4	1- SD to 5-SA	
	<i>Principled climate</i>	EP1-5		
	<i>Egoistic climates</i>	EE1-9		
SE	<i>Stakeholder engagement</i>		Likert scale	+
	<i>Vigor</i>	SV1-6	1- SD to 5-SA	
	<i>Dedication</i>	SD1-5		
	<i>Absorption</i>	SA1-6		
PS	<i>Project sustainability</i>		Likert scale	
	<i>Technical sustainability</i>	PT1-6	1- SD to 5-SA	
	<i>Programmatic sustainability</i>	PP1-4		
	<i>Social sustainability</i>	PS1-4		
	<i>Financial sustainability</i>	PF1-5		
Source(s): Authors’ own work				

questionnaire, measurement scale and *a priori* expectation that highlights the anticipated theoretical relationship of each variable within the context of this study.

Reliability and validity of instruments

The validity of the study instrument was determined using the content validity index (CVI). The questionnaire was assessed by a team of experts to ensure that the scale items were meaningful; the statements are generally understandable and capture the issues under study. To ensure the accuracy, internal consistency and completeness, reliability of the instrument was established using Cronbach's Alpha Coefficient test (Cronbach, 1951). An Alpha coefficient of above 0.70 for individual test variables was accepted meaning the instrument was reliable (Nunnally and Bernstein, 1994). The Validity and CVI of the instrument are shown in the table below:

The results in Table 2 show that project sustainability had a Cronbach alpha of 0.771 (CVI = 0.9736), stakeholder engagement 0.839 (CVI = 0.9411) and ethical climate 0.713 (CVI = 0.9166). All values exceeded the acceptable 0.7 threshold, confirming instrument reliability. Similarly, CVI values above 0.7 indicate the questionnaire effectively measured its intended constructs (Aithal and Aithal, 2020).

Data analysis

Data collected from the field using the questionnaires (see appendix i and ii) was compiled, sorted, edited, classified, coded into a coding sheet, aggregated and merged into a unit of analysis and analyzed using SPSS. Diagnostic tests on normality, multicollinearity and homogeneity were conducted prior to testing for the existence of relationships between the variables (see appendix iii, iv, v). The results showed that the data were fairly normally distributed because the histogram was close to normal and the p-p points were close to the linear line. The F and Sig F in ANOVA as displayed in baseline regression results were all independent and the mediating variable was regressed where a significant result was obtained indicating that the independent variables were linearly related to the dependent variable. Variance Inflation Factor (VIF) values as indicated in regression results were less than 2 an indication that independent variables were not highly correlated and therefore no multicollinearity. Pearson correlation analysis was used to establish relationships between study variables (See Table 4). Hierarchical regression was used to establish the contribution of each individual independent and mediating variable on project sustainability (see Table 5). Mediation tests by Jose (2018) using the MedGraph and Sobel test established the mediating role of stakeholder engagement between ethical climate and project sustainability. This theory-grounded approach allowed step-by-step evaluation of each variable, controlling for confounding factors to ensure a clearer understanding of their effects.

Study findings

The results in Table 3 below present respondent characteristics. More males (55.4%) than females (44.6%) were employed as project managers, suggesting men are more willing to engage in project activities. Beneficiaries were also mostly male (50.5%). Most were married

Table 2. Reliability and validity of instruments

Variables	No. of items	Cronbach alpha	Content validity index
Ethical climate	15	0.713	0.9166
Stakeholder engagement	17	0.839	0.9411
Project sustainability	19	0.771	0.9736

Source(s): Authors' own work

Table 3. Characteristics of the respondents

		Frequency		Percent
<i>Gender of project staff</i>				
Valid	Male	112		55.4
	Female	90		44.6
	Total	202		100.0
<i>Gender of beneficiaries</i>				
Valid	Male	51		50.5
	Female	50		49.5
	Total	101		100.0
<i>Marital Status of project staff</i>				
Valid	Single	75	37.1	
	Married	127	62.9	
	Total	202	100.0	
<i>Marital status for beneficiaries</i>				
Valid	Single	40	39.6	
	Married	61	60.4	
	Total	101	100.0	
<i>Age bracket of Project Staff</i>				
Valid	Under 20	18	8.9	
	20–29	81	40.1	
	30–39	65	32.2	
	40–49	24	11.9	
	50–59	12	5.9	
	60 and above	2	1.0	
	Total	202	100.0	
<i>Age bracket of beneficiaries</i>				
Valid	UNDER 20	10	9.9	
	20–29	31	30.7	
	30–39	37	36.6	
	40–49	18	17.8	
	50–59	5	5.0	
	Total	101	100.0	
<i>Highest Level of education of project staff</i>				
Valid	Certificate	40	19.8	
	Diploma	49	24.3	
	Undergraduate	84	41.6	
	Postgraduate	27	13.4	
	Others	2	1.0	
	Total	202	100.0	
<i>Highest level of education of beneficiaries</i>				
Valid	Certificate	26	25.7	
	Diploma	28	27.7	
	Undergraduate	27	26.7	
	Postgraduate	18	17.8	
	Others	2	2.0	
	Total	101	100.0	

(continued)

(continued)

Table 3. Continued

		Frequency	Percent
<i>Period the project has benefited you (beneficiaries)</i>			
Valid	Less than 1 yr	22	21.8
	1–2 yrs	37	36.6
	3–5 yrs	30	29.7
	6–10 yrs	9	8.9
	Over 10 yrs	3	3.0
	Total	101	100.0
<i>Duration on the project (project staff)</i>			
Valid	Less than 1 year	44	21.8
	1–2 years	87	43.1
	3–5 years	57	28.2
	6–10 years	12	5.9
	Over 10 years	1	0.5
	6.00	1	0.5
	Total	202	100.0
<i>Position on the project (project staff)</i>			
Valid	Project manager	18	8.9
	Project accountant	42	20.8
	Project coordinator	13	6.4
	project officer	129	63.9
	Total	202	100.0
<i>Number of employees on the project (project staff)</i>			
Valid	Less than 20	50	24.8
	20–39	81	40.1
	40–59	37	18.3
	60–79	19	9.4
	80–99	10	5.0
	100 and above	5	2.5
	Total	202	100.0
<i>Duration of the project (project staff)</i>			
Valid	Less than 2 years	40	19.8
	2–5 years	110	54.5
	over 5 years	52	25.7
	Total	202	100.0

Source(s): Authors' own work**Table 4.** The zero order Pearson correlation matrix

	1	2	3
Ethical climate (1)	1		
Stakeholder engagement (2)	0.314**	1	
Project sustainability (3)	0.316**	0.589**	1

Note(s): **. Correlation is significant at the 0.01 level (2-tailed)**Source(s):** Authors' own work

(62.9%), indicating reliability, though responsibilities may affect commitment. Youth dominated both staff (20–29 years, 40.1%; 30–39 years, 32.2%) and beneficiaries (30–39 years, 36.6%; 20–29 years, 30.7%), showing active participation. Education levels were high, with 41.6% holding undergraduate degrees, implying capacity to execute activities. Beneficiaries decline over time, with only 8.9% benefiting after 6–10 years and 3.0% beyond

Table 5. Prediction of project sustainability using the hierarchical regression analysis

Variables	Model 1 B	Model 2 SE	B	Model 3 SE	B	VIF SE	
Constant	3.709**	0.138	1.974**	0.275	1.537**	0.364	
Project employees	0.044	0.034	−0.001	0.028	−0.015	0.029	1.328
Duration of the project	0.120	0.069	0.055	0.057	−0.068	0.057	1.221
Stakeholder engagement			0.494**	0.071	0.443**	0.076	1.225
Ethical climate					0.169	0.093	1.201
R ²		0.035		0.354		0.375	
Adj R ²		0.015		0.334		0.349	
R ² change		0.035		0.319		0.021	
F change		1.752		47.948		3.266	
Sig F change		0.179		0.000		0.074	
F		1.752		17.710		14.409	
Sig		0.179		0.000		0.000	

Note(s): $p < 0.05$, $p < 0.01$

Source(s): Authors' own work

10 years, signaling poor sustainability. Most staff were project officers (63.9%), ensuring reliable data. Projects typically ran for 2–5 years (54.5%), influencing sustainability.

In attempt to examine the relationship between variables and the contribution of each independent variable on the dependent variable, both the Pearson's correlation matrix and hierarchical regression analysis were generated as presented in [Table 4](#) and [Table 5](#) respectively as shown below.

The results in [Table 5](#) show that VIF values were below 2, indicating no multicollinearity among independent variables. Hierarchical regression tested the predictive potential of each variable on project sustainability. Model 1 showed control variables were insignificant. In Model 2, stakeholder engagement explained 31.9% of the variance in sustainability. Model 3 showed ethical climate did not significantly predict sustainability. Overall, stakeholder engagement was a significant predictor, accounting for 37.5% of the variance ($\beta = 0.443$, Sig = 0.000), compared to ethical climate ($\beta = 0.169$, Sig = 0.074).

Ethical climate and stakeholder engagements (H1)

The results in [Table 4](#) show a significant positive relationship between ethical climate and stakeholder engagement ($r = 0.314$, $p \leq 0.01$), thus confirming both a priori expectation and hypothesis [H1](#), which postulated a significant positive relationship between ethical climate and stakeholder engagement. The results imply that in benevolent climates, people prefer to work and succeed as a group and this promotes commitment and engagement in health projects activities. This is in line with a study conducted by [Kaptein \(2023\)](#). For principled climates, people work focusing on following ethical principles that may be embodied in rules and laws promoting stakeholder engagements where all people working on the project adhere to rules and laws and work as a committed project team. On the other hand, in egoistic climates, people tend to focus on personal benefits indicating that people tend to only think about their interest instead of working as a group. This results in a lack of commitment to the project activities leading to a lack of engagement in health projects ([Victor and Cullen, 1987](#)).

Stakeholder engagements and project sustainability (H2)

The regression analysis indicated that stakeholder engagements significantly predict project sustainability ($\beta = 0.443$, Sig 0.000) thus confirming the hypothesis [H2](#), and the a priori expectation that is a positive relationship between stakeholder engagement and project

sustainability (see Table 5). The results show stakeholder engagement is very important if the project has to meet its mandate, this is articulated in Accountability's stakeholder Engagement Standard, which stress that the overall purpose of stakeholder engagement is to drive project strategic direction and project operational sustainability. The finding is line with the argument for Ebekoziem *et al.* (2024) that stresses that stakeholder engagement is a foundation that supports a project's implementation action plans, assesses its performance over time and ultimately supports its sustainability. The findings show that if stakeholders are engaged, project sustainability is enhanced in terms of technical, programmatic, social and financial sustainability. This implies that stakeholder engagements promote commitment, relationship between stakeholder interaction and the quality works of projects. Therefore, managers of health projects need to manage the stakeholders' expectations, have a systematic approach to engage stakeholders in relation to sustainability since failure to manage this, may lead to project failure leading to unsustainable health projects. This is in line with (Lisanza *et al.*, 2023).

Ethical climate and project sustainability (H3)

The results are in support of Victor and Cullen (1987) and Torpey *et al.* (2010), who indicated that ethical climate significantly ($\beta = 0.169$, Sig 0.00) predicts project sustainability hence confirming H3 (see Table 5). This implies that ethical climate in terms of benevolent, and principled significantly positively affect project sustainability. However, the ethical climate in terms of egoistic climate, did not significantly predict project sustainability. In benevolent climates, stakeholders prefer to work in a group and look forward to work towards the interest and goals of the project, which leads to their commitment to quality project work enhancing sustainability of the health projects. In principled climates stakeholders work as a team by following rules and laws in order to achieve a common goal. This promotes respect among the stakeholders, teamwork and commitment to project activities hence leading to sustainability of health projects. On the other-hand in the egoistic climate, unethical behavior is encouraged since stakeholders neglect working as a group and working towards the interest and goals of the project resulting to mismanaging of projects hence negatively affecting project sustainability. In general, egoistic climates encourage unethical behavior that negatively affect project sustainability while benevolent and principled climates lead to a relatively ethical behavior that positively affects project sustainability. Therefore, project managers need to be mindful of the ethical climate in which they are to operate and devise means on how to manage so that they can promotes the sustainability of health projects. The results are in line with (Bieling *et al.*, 2020).

Below is a specified regression model of the effect of stake holder engagements and ethical climate on project sustainability.

$$\text{from this equation } y_{ps} = \beta_0 + \beta_1 SE + \beta_2 EC + \epsilon \quad (1)$$

Were

PS: project sustainability

EC: ethical climate

SE: stakeholder engagements

β_0 : intercept - the expected value of PS when EC and SE are zero (1.537)

β_1 : coefficient measuring the impact of SE on PS (0.443)

β_2 : coefficient measuring the impact of EC on PS (0.169)

ϵ : error term - captures unobserved factors affecting PS

From [equation 1](#), the specified regression model.

$$y_{ps} = 1.537 + 0.443SE + 0.169EC + \epsilon \tag{2}$$

Mediation of the stakeholder engagements on the relationship between ethical climate and project sustainability (H4)

To test hypothesis [H4](#) postulating the mediating role of stakeholder engagement on the relationship between ethical climate and project sustainability. The researchers followed the standards set by [Baron and Kenny \(1986\)](#) for testing mediating variables where the three conditions must be met before stakeholder engagement is considered as a mediating variable, and the three conditions were met.

First, stakeholder engagement must significantly account for project sustainability, which is hypothesis two ([H2](#)) where the standardized regression coefficient of stakeholder engagements and project sustainability ($\beta = 0.443$, Sig 0.000) indicates that there is a significant positive relationship. Secondly, ethical climate must significantly account for stakeholder engagements, which is hypothesis one ([H1](#)) where the standardized beta coefficient result of ethical climate and stakeholder engagement ($\beta = 0.314$, Sig 0.001) indicates that there is a relationship between ethical climate and stakeholder engagement. Finally, the absolute effect of ethical climate on project sustainability has been reduced when stakeholder engagements mediate (standardized beta = 0.146 not significant) as compared to total relationship (standardized beta = 0.316) as illustrated in [Table 6](#), [Figure 1](#) and [Figure 2](#) showing path model 1 below.

From [equation 2](#),

$$y_{ps} = \beta_o + \beta_oSE + \beta_oEC + \beta_o(EC.SE) + \epsilon \tag{3}$$

Where

EC.SE = is the interaction moderation effect

The specified regression model

Table 6. Mediation of stakeholder engagement on the relationship between ethical climate and project sustainability

Type of mediation	Significant		
Sobel z-value	2.918,659	$p =$	0.003515
95% symmetrical confidence interval			
	Lower	0.05918	
	Higher	0.30118	
Unstandardized indirect effect			
	a*b	0.18018	
	Se	0.06173	
Effective size measures			
Standardized coefficients		R ² Measures (Variance)	
Total	0.316	0.100	
Direct	0.146	0.019	
Indirect	0.170	0.081	
Indirect to total ratio	0.539	0.809	

Source(s): Authors' own work

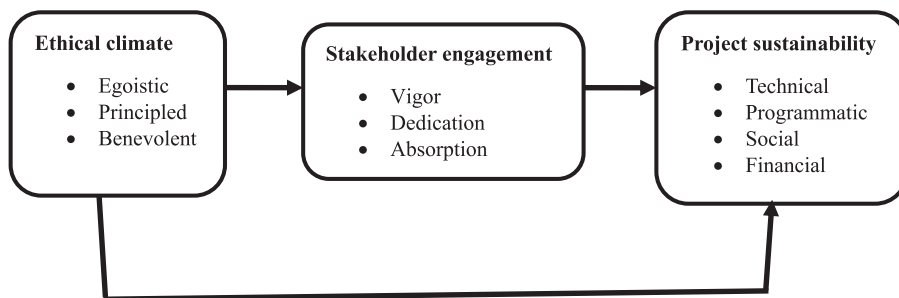


Figure 1. Conceptual framework. Source: Authors' own work

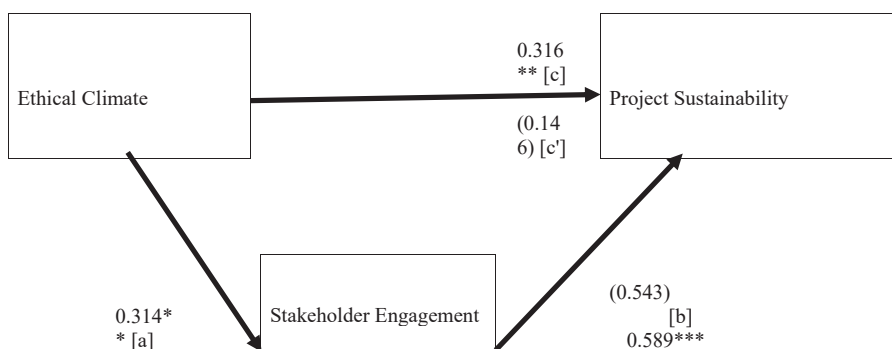


Figure 2. Path Model 1. Source: Authors' own work

$$y_{ps} = 1.537 + 0.443SE + 0.169EC + 0.146(EC.SE) + \epsilon \quad (4)$$

The results above show that there was a significant mediation of stakeholder engagements on the relationship between Ethical Climate and project sustainability (Sobel z-value = 2.918,659, $p = 0.003515$). It indicates that the relationship between the predictor variable (Ethical climate) and the dependent variable (Project sustainability) has been significantly reduced (i.e. from 0.136 to 0.146) by the inclusion of the mediating variable (stakeholder engagements) in the third regression model (Jose, 2018). The results from the Med graph show that there is full mediation because the regression coefficient ($\beta = 0.146$) of the relationship between the independent and the dependent variable is not significant. The indirect standardized coefficient for the indirect effect = 0.170. Therefore, the researcher concluded that stakeholder engagement fully mediates the relationship between ethical climate and project sustainability.

The findings show that stakeholder engagement mediates the relationship between ethical climate and project sustainability, meeting mediation conditions by Baron and Kenny (1986) and MedGraph (Jose, 2018). Ethical climate positively influences sustainability, and the relationship strengthens when engagement acts as a mediator.

Conclusions

This study examined how stakeholder engagement mediates the relationship between ethical climate and sustainability in Ugandan health projects. Findings revealed full mediation, with

positive links among ethical climate, stakeholder engagement and project sustainability, highlighting the need for strong engagement. In Uganda, where projects struggle with sustainability, improving ethical climates through project-specific guidelines and strengthening stakeholder engagement is key. The results support existing literature showing engagement enhances sustainability and ethical climate promotes ethical conduct. Stakeholders are more motivated to participate in ethically grounded projects that prioritize collective interests and responsibility (Shaukat *et al.*, 2022; Blak Bernat *et al.*, 2023).

Practical implications

Engaging stakeholders is vital for project sustainability. Managers should foster ownership, counter egoistic climates with teamwork and shared goals and ensure stakeholders see their involvement as essential.

Societal implications

Strengthening stakeholder engagement and fostering a positive ethical climate enhance health project sustainability, improve community wellbeing and build trust, delivering broader societal benefits through collaborative and ethical healthcare initiatives.

Theoretical implications

The study deepens understanding of project sustainability by linking ethical climate, stakeholder engagement and outcomes. It highlights interpersonal and organizational factors and identifies engagement as a mediator, strengthens project management frameworks in healthcare.

Research limitations and areas of further research

The current study had some limitations. For instance, the study employed a cross sectional survey yet it involved variables such stake holder engagement and ethical climate that need to be observed over a time. The study was also quantitative. Further the study used a quantitative approach yet a qualitative approach would provide an in-depth understanding of the variable that were being examined and a mixed research approach would reinforce the findings from the quantitative study. Future research could use longitudinal or mixed methods to explore the dynamics between ethical climate, stakeholder engagement, and project sustainability. Qualitative case studies and comparative research across diverse healthcare contexts can offer deeper, generalizable insights into these dynamics.

Data availability

In the interest of transparency, data sharing and reproducibility, the author(s) of this article have made the data underlying their research openly available. It can be accessed by following the link here: <https://drive.google.com/file/d/1PbJzPhMJhMPvVafCVW-iqX1L5tIkW5/view?usp=sharing>.

Supplementary material

The supplementary material for this article can be found online.

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Further reading

IGG Report Independent of government report of December (2021),

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