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## Internal Control Systems and Revenue Collection of Level 4 Public Hospitals in Kisii County

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**Article history:** Revised format: 29<sup>th</sup> Jan 2025, Available online: 16<sup>th</sup> May 2025

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**Samson Mecheo Orina<sup>1</sup>; Dr. Julius Miroga<sup>2</sup>**

**Abstract:**

**Purpose:** The study aimed to examine the relationship between internal control systems and revenue collection in level 4 public hospitals operating within Kisii County, Kenya.

**Material/methods:** A descriptive research design was employed. The study targeted a population of 56 employees drawn from key administrative and financial roles, including Accountants, Internal Auditors, Monitoring and Evaluation Officers, and Sub-County Administrators. Primary data were collected using structured questionnaires.

**Findings:** The analysis established that all components of the internal control system significantly affect revenue collection. Notably, the Control Environment was critical in promoting sound financial management, where effective governance, clear leadership, and ethical standards enhanced revenue collection efficiency. IT Integration emerged as a significant enabler, with the use of automated billing systems, electronic payment platforms, and data management tools contributing to improved transparency, reduced errors, and mitigation of fraud.

**Conclusion:** Strengthening internal control systems—particularly through improved leadership, enhanced IT infrastructure, and robust monitoring frameworks—can substantially enhance revenue collection in public hospitals. Continuous staff capacity building and adoption of modern financial technologies are necessary to further optimize revenue management.

**Value:** This study contributes empirical insights into the role of internal controls in healthcare financial management. It provides actionable recommendations for public hospital administrators and policymakers to enhance financial sustainability and operational effectiveness within public health institutions.

**Keywords:** Internal Control Systems, Revenue Collection, Control Environment, IT Integration, Public Hospitals

**Paper Type:** Research Article

**Recommended citation:** Orina, S. M., & Miroga, J. (2025). Internal control systems and revenue collection of level 4 public hospitals in Kisii County. *Journal of Economics, Management Sciences and Procurement*, 4(1), 94–106.

### 1.1. Introduction

Internal controls are mechanisms that a firm establishes to guarantee the achievement of its priorities, objectives, and missions (Cheruiyot, 2018). A corporation establishes approved standard policies and procedures to ensure the proper handling of organizational transactions, thereby preventing waste, theft, and resource

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<sup>1</sup> Msc Student, Jomo Kenyatta University Agriculture and Technology  
Email: [orina.samson@gmail.com](mailto:orina.samson@gmail.com)

<sup>2</sup> Jomo Kenyatta University Agriculture and Technology

mismanagement. Internal controls give a business a good chance that its financial reporting, operational efficiency, performance, and compliance with laws and rules was carried out in a way that meets established standards (Abdusalomova, 2020). When internal controls are established, they can provide management and the board of directors with reasonable, but not unequivocal, assurance that the organization's objectives was achieved. Internal control features can facilitate the prevention and detection of errors and fraud (Abdusalomova, 2020). The COSO framework (2013) outlines five essential elements of internal control systems for evaluation. The components include the control environment, risk assessment, control activities, information, communication, and monitoring.

Negligence in the provision of health services may result in harm or even fatal outcomes. Conversely, fraud and corruption may stem from the obsolescence of financial protocols and resources (Yuliani, 2017). The hospital aims to deliver high-quality medical care to patients while ensuring affordability and improving community health and living standards. Consequently, to achieve a high standard of quality medical care for the patient, it requires an adequate level of service and effective internal oversight. Internal controls are essential as they safeguard the institution's assets and enhance corporate performance. Consequently, the employee's behavior interferes with the hospital's operations.

The persistent delay in the reimbursement of health facilities at all levels by the national health insurance scheme adversely impacts service delivery, especially in public health promotion and prevention activities nationwide (Ghana Health Service, 2014). Subsequent to this, numerous efforts to engage with the National Health Insurance Authority have shown minimal progress in the delayed reimbursement of all hospitals. The Ministry of Health (MOH) has implemented temporary budgetary sustainability measures to guarantee sufficient health service delivery. Included among these procedures is the verification and aggregation of quarterly regional financial data across all ten regions of Ghana. The Ministry of Health has formed an internal audit section tasked with overseeing financial control and compliance across various health organizations nationwide.

The county's swift population development has led to a substantial increase in level-5 medical facilities, reflecting a rise in patients pursuing specialist healthcare services. Administrators in level 4 and 5 hospitals are tasked with guaranteeing the provision of effective healthcare services by implementing qualified internal control mechanisms to ensure efficient hospital operations. The administrative division of the facility is responsible for communicating various expectations and assigning administrative tasks to establish an effective internal control environment. Facility management's job is to make sure that all internal controls are strictly followed. They do this by making sure that the important parts of internal control are clearly identified and explained in a way that is easy for each department to understand. The administrative management mandates that all facility staff execute and adhere to all internal control measures.

Public hospitals in Kisii County, Kenya, face significant challenges in ensuring efficient and transparent revenue collection, which is vital for their financial sustainability and the provision of quality healthcare services. Despite the critical role of internal control systems in managing hospital revenues, many public healthcare facilities in the county are experiencing persistent issues with inefficiencies,

mismanagement, and fraud in their financial operations. According to the Kenya National Audit Office (2022), public hospitals across the country have faced recurring issues of financial mismanagement, with the health sector being identified as one of the top areas of concern for fiscal accountability. In Kisii County, a recent report by the Ministry of Health (2023) highlighted that hospitals in the region experienced a 30% shortfall in projected revenue due to weak internal control practices. The study further revealed that many public hospitals lacked comprehensive and effective internal control mechanisms, such as reliable billing systems, regular financial audits, and robust risk assessment frameworks, which are essential for safeguarding revenue. The revenue shortfall in public hospitals is not unique to Kisii County but is part of a broader trend observed nationwide. A survey by the World Health Organization (WHO) in 2021 found that 47% of public hospitals in Kenya experienced challenges in revenue collection, primarily due to ineffective internal controls, underreporting of revenues, and lack of accountability. These weaknesses often result in delays in service delivery, limited capacity to provide essential medical supplies, and reduced overall healthcare quality.

The lack of efficient revenue collection processes is particularly concerning given the growing demand for healthcare services in Kisii County. The population has been expanding rapidly, with the county's population reaching approximately 1.4 million people in 2023 (Kenya National Bureau of Statistics, 2023). With the increase in demand for healthcare services, public hospitals need to optimize their revenue collection systems to meet the rising costs of service delivery, such as procurement of medical supplies, staff salaries, and hospital infrastructure development. As a result of past studies, it is obvious that there have been factual inaccuracies in the findings and gaps in the literature as a result of a variety of factors, necessitating the need for this study to investigate the impact of internal control systems on revenue collection of public Hospitals operating in Kisii County. The study sought to determine the relationship between internal control systems and revenue collection of level 4 public Hospitals operating in Kisii County. The study was based on the following specific objectives;-

- i. To assess the influence of control environment on revenue collection of level 4 Hospitals in Kisii County.
- ii. To determine the influence of information technology integration on revenue collection of level 4 Hospitals in Kisii County.

## **1.2. Theoretical Review**

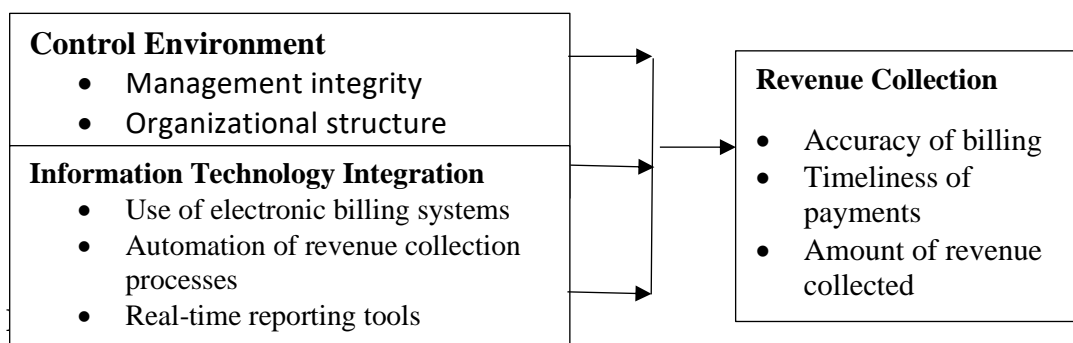
Stewardship theory, rooted in psychology and sociology, held that executives acted as stewards who sought to protect and grow shareholder wealth because their own utility was tied to organizational success (Donaldson & Davis, 1991; Davis et al., 1997). Unlike agency theory—which treated managers as self-interested actors requiring costly monitoring—stewardship theory emphasized granting top management broad autonomy and trust to align their goals with those of the organization (Meckling & Jensen, 1994; Shleifer & Vishny, 1997). By involving stakeholders directly in management and reducing agency costs—such as information gaps and moral hazard—stewardship structures fostered a culture in which directors and CEOs were intrinsically motivated to pursue long-term growth rather than short-term personal gain (Fama, 1980). Our findings revealed that a strong control environment—mirroring stewardship principles—had significantly influenced revenue collection in public hospitals.

Budgetary theory, with origins in ancient Egyptian practice under Joseph and later formalized in the 1920s industrial era, posited that systematic budgeting and controls were essential for organizational survival and effectiveness (Henry, 1975; Bartle, 2001). As management accounting evolved alongside scientific management, budgets became the focal point for aligning operations with strategic objectives, enabling managers to anticipate future needs, allocate resources, and implement corrective actions when actual performance deviated from planned targets (Bartle, 2008). Without these structured controls, organizations risked being buffeted by internal and external pressures without the means to respond effectively. In line with these principles, our study found that the rigor and regularity of budgeting and control activities likewise exerted a strong positive effect on public hospital revenue collection, underscoring the enduring relevance of budgetary theory in enhancing financial performance.

A conceptual framework is a presentation that shows the relationship between variables thus giving the study a dimension to adopt. It is through the conceptual framework that they study achieves the set objectives easily since a structure is already established.

### Independent Variables

### Dependent Variable



## 2.1. Empirical Review

### 2.1.1. Control Environment and Revenue Collection

The control climate sets the tone of an organization and has an effect on its people's control consciousness. Each unit's leaders build a local control environment. It serves as the bedrock for all other internal control elements that include discipline and order. Integrity and ethical concerns such as adherence to competence, working style, and how management assign authority are examples of environmental control factors (Qiu, Shaikat & Tharyan, 2016).

Irene & Bunyasi (2017) investigated the financial results of Kenya's ministry of labor, social and security services on the information system and control environment. The research paper was written in a descriptive style. A population goal of 160 employees from a state-owned company was established. Because the population was so small, the study relied on a census. Structured questionnaires were used to collect primary data, which was then quantitatively analyzed using SPSS. The report discovered that information systems and control environments were both positively and negatively related to the success of state-owned enterprises. Internal control systems, as well as information systems and control environments, had a positive impact on the financial results of Kenyan state-owned companies, according to the report.

Kinyua *et al.*, (2015) investigated the impact of the internal control environment on the organizational performance of Nairobi Stock Exchange-listed companies. The report

was created using a survey study approach. The study included all 62 NSE-listed companies. A total of 38 companies were chosen for the study from a target population of 62 NSE-listed companies. A stratified random sampling technique was used to select the sample. Primary and secondary data were used in the study. Structured questionnaires were used to collect primary data, and secondary data was obtained from audited annual reports, publications, and record analysis. Descriptive and inferential statistics were used to analyze the data. According to the findings, there was a significant correlation between the internal control environment and financial results. According to the study, internal control environments for companies listed on the Nairobi Securities Exchange should be strengthened in order to improve financial efficiency.

#### *2.1.2. IT Integration and Revenue Collection*

Hailu (2017) conducted a survey to look into the southern telecom region. A questionnaire was used to gather both qualitative and quantitative data from 45 administrative staff members during the study. The staff were selected at random and divided into three strata, such as top, center, and lower lever management, using a disproportionate stratified methodology. SPSS was used to evaluate the information gathered. As a result, employees' attitudes toward knowledge as a valuable asset are unfavorable, undermining the value of information systems in corporate endeavors, and the organizations' key challenges are a lack of top management to develop the method. Internal systems, on the other hand, help organizations become more productive and efficient.

Ngantchou (2016) conducted an experimental study in France to determine the effects of ICT on worker activity. Since survey data made it difficult to collect individual and team production, the study used an experimental methodology. Employees favor information technology, according to the findings, and those who use it are more efficient than those who do not. It was also decided that organization that drive decision-making down to the employee level could result in significant costs for the company. Technology based control, on the other hand, has been very effective in lowering those costs. Indeed, when the sanction is available, technology monitoring has a disciplining effect, but this effect fades over time.

Muchoki (2020) studied the impact of internal control systems on revenue collection at the National Transportation and Safety Authority. A descriptive research approach was employed by the researcher to examine the association between internal control systems and revenue collection efficiency. Three senior managers from each of the NTSA's 18 stations were included in the study's target group of 54 people. Data was gathered through digitally given questionnaires because of the impact of Covid-19 Findings from this study show a considerable impact on revenue collection at NTSA from the combination of internal control systems, risk assessment, control actions and information communication and monitoring.

### **3.1. Research Methodology**

The study employed a descriptive survey design to capture the natural attributes of its subjects without altering their environment (Cooper & Schindler, 2014; Askarzai & Unhelkar, 2017). The target population comprised all 56 relevant staff—20 accountants, nine chief officers, 16 internal auditors, and 11 monitoring and evaluation officers—across Level-4 public hospitals, and a census approach was used to include every member (Saunders et al., 2012). Primary data were collected via structured

questionnaires combining closed and open-ended items, which were distributed to respondents with assurances of confidentiality and later retrieved for analysis (Sekaran, 2013; Weller et al., 2018). Content validity was confirmed through expert review and domain sampling, while methodological triangulation—drawing on surveys, observations, and document reviews—strengthened construct validity (Patton, 2001; Flick, 2007). A pilot test, whose participants were excluded from the main sample, enabled refinement of the instrument and assessment of internal consistency via Cronbach's alpha (Bramble & Mason, 2017; Viechtbauer et al., 2015). Finally, data were entered into SPSS v.22 for descriptive analysis (frequencies and percentages) and inferential testing to explore relationships among variables, with findings systematically presented in tables. The prediction of Y was accomplished by the following regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where:

Y = Revenue Collection,  $X_1$  = Control Environment,  $X_2$  = Control Activities,  $\beta_0$ , and  $\beta_2$  = Regression Coefficients for the independent variables

$\varepsilon$  = Error term

#### **4.1. Results And Discussion**

The purpose of this section is to describe the findings of the study, including interpretations of the data and discussions of the findings. In this chapter, the findings of the study are presented and discussed in relation to the objectives of the investigation. Additionally, correlation and regression analysis are presented in this chapter, which also provides an illustration of the link between the coefficient variables. In order to determine whether or not the research instruments were reliable and whether or not the study was legitimate, a pilot study was conducted. According to Mugenda and Mugenda (2008) and, by extension, Yin (2009), who asserts that 10% of the sample size is adequate for establishing the reliability, validity, and sufficiency of the data collection instrument, this is in agreement with what they have stated. The findings of the pilot study are reported here to demonstrate that the instrument that was utilized in the data collection process was capable of meeting the requirements.

##### *4.1.1. Descriptive Analysis*

In this section, the study analyzed responses to questions relating to the Control Environment variable using the Likert scale responses provided in the questionnaire (Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA)).

**Table 1: Descriptive Analysis of Control Environment**

Statement	Mean	SD
The hospital has clear financial policies and procedures.	4.00	1.05
Management leads by example in promoting integrity and ethical values.	4.00	0.95
Roles and responsibilities are clearly defined for staff involved in revenue collection.	4.30	1.00
Staff are regularly trained on internal control policies.	3.80	1.15

The Control Environment variable exhibits generally positive perceptions among respondents, with a strong agreement on the clarity of roles, responsibilities, and the ethical leadership of management. The mean scores for most statements range between 3.80 and 4.30, indicating that respondents largely agree with the statements related to the control environment. However, the variability indicated by the standard deviations suggests that some areas could benefit from improvement, particularly in providing more consistent training for staff and ensuring that financial policies are perceived as fully clear across all levels. The analysis reveals that, while the control environment at these hospitals is largely perceived as strong, there are areas where greater consistency could enhance the overall effectiveness of the internal control systems in relation to revenue collection. This aligns with findings in previous studies that emphasize the importance of clarity and ongoing training in fostering effective internal controls (Mutua, 2024).

The study analyzed responses to questions related to Information Technology Integration, based on Likert scale responses provided in the questionnaire (Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA)).

**Table 2: Descriptive Analysis of Information Technology Integration**

Statement	Mean	SD
The hospital uses computerized systems to track revenue collection.	4.26	0.90
The IT systems used are reliable and secure.	4.22	1.05
Staff are adequately trained to use the financial systems.	3.94	1.12
IT systems have improved accuracy in revenue recording and reporting.	4.25	0.98

The analysis of the Information Technology Integration variable shows generally positive responses, with mean scores ranging from 3.94 to 4.26. The majority of respondents agree that IT systems are essential for tracking revenue, enhancing accuracy, and ensuring security in revenue collection processes. However, the variation in responses, as indicated by the standard deviations, suggests that there may be areas of concern, such as the consistency of training and the perception of IT system reliability. The integration of IT in the revenue collection process appears to be a strong positive factor in improving operational efficiency and transparency in the hospital setting. These findings align with empirical evidence suggesting that IT plays a crucial

role in supporting internal control systems, particularly in revenue-related processes (Omondi & Kosgei, 2021).

The analysis evaluated the responses to statements related to the Revenue Collection variable, focusing on the efficiency, accuracy, and consistency of revenue collection practices in the selected public hospitals.

**Table 3: Descriptive Analysis of Revenue Collection**

<b>Statement</b>	<b>Mean</b>	<b>SD</b>
Revenue collection targets are consistently met.	4.00	1.10
There is an improvement in revenue collection over the past 2 years.	3.90	1.05
Revenue leakages have reduced significantly.	3.85	1.12
Financial reports are accurate and timely.	4.10	1.00

The Revenue Collection variable reflects generally positive perceptions among respondents, with mean scores ranging from 3.85 to 4.10. This suggests that revenue collection practices in the hospitals are largely seen as effective, with improvements in efficiency, accuracy, and leakages reduction. However, the variability in standard deviations points to some inconsistencies in perceptions, particularly regarding the consistency of meeting revenue targets and the reduction of leakages. These inconsistencies may indicate areas where additional improvements could be made, such as enhancing training, optimizing revenue collection systems, or addressing issues with accountability.

The analysis supports previous findings from the literature that highlight the importance of robust , efficient reporting mechanisms, and strong internal controls to ensure financial performance in public hospitals (Mutua, 2024; Mwangi & Karanja, 2023). However, the variation in responses also suggests that there may be room for further improvement, particularly in standardizing revenue collection practices and addressing any operational gaps that may still exist.

#### *4.1.2. Correlation Analysis*

Correlation analysis was done to determine the relationship between independent variable and dependent variable as presented in table 4.

**Table 4: Correlation Analysis**

<b>Variables</b>	<b>Control Environment</b>	<b>IT Integration</b>	<b>Revenue Collection</b>
Control Environment	1.00		
Information Technology Integration	0.72**	1.00	
Revenue Collection	0.80**	0.74**	1.00



There is a very strong positive correlation between Control Environment and Revenue Collection. This indicates that as the effectiveness of the control environment improves (e.g., clear policies, ethical leadership, defined roles), revenue collection also improves. This finding is supported by studies that highlight the importance of a solid control environment in boosting financial performance and reducing inefficiencies in public organizations (Mwangi & Karanja, 2023). A strong positive correlation exists between Information Technology Integration and Revenue Collection. This suggests that the integration of reliable IT systems plays a significant role in improving the accuracy, speed, and transparency of revenue collection processes. As hospitals adopt better IT infrastructure, their ability to track and report revenues increases. This aligns with research indicating that IT adoption enhances public sector efficiency (Njeri & Muturi, 2022). The correlation analysis shows a strong positive relationship between all key internal control variables (Control Environment, IT Integration) and the dependent variable (Revenue Collection). This supports the hypothesis that a robust internal control system enhances the efficiency and effectiveness of revenue collection in public hospitals. Moreover, the correlations among the independent variables themselves indicate that these components of the internal control system are mutually reinforcing.

#### 4.1.3. Regression Analysis

A simple regression analysis was performed on the relationship between Revenue Collection and financial performance. Tables 4.10 below demonstrate both the summary and the t statistics as obtained from SPSS.

**Table 5: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.842 <sup>a</sup>	.709	.702	0.421

a. Predictors: (Constant), Control Environment, IT Integration, Risk Assessment, and Monitoring Activities

The model shows a very strong explanatory power with an R Square of 70.9%, indicating that internal control systems are critical determinants of effective revenue collection in public hospitals. The results suggest that public health institutions that want to enhance their revenue generation should invest in strengthening their control environment, integrating IT solutions, performing regular risk assessments, and maintaining continuous monitoring activities.

The model summary provides key insights into how well the independent variables (Control Environment, IT Integration) explain the dependent variable (Revenue Collection) in public hospitals in Kisii County. The correlation coefficient (R) shows a very strong positive relationship between the independent variables and Revenue Collection. A value of 0.842 indicates that improvements in internal control systems are strongly associated with better revenue collection. The R Square value of 0.709 means that 70.9% of the variance in Revenue Collection can be explained by the four internal control components in the model. This suggests that internal control practices such as strengthening the control environment, integrating IT, performing risk assessments, and carrying out monitoring activities are major drivers of effective revenue collection in level 4 public hospitals. These findings are consistent with Mwangi and Karanja (2023) who found that internal control systems account for over 68% of the variance in financial performance among Kenyan public institutions,

supporting the idea that a strong control environment, IT adoption, and risk management significantly boost revenue collection and financial reporting accuracy. Mutua (2024) also observed that monitoring and risk assessment practices jointly explained about 72% of the variance in revenue management effectiveness in Kenyan public hospitals, demonstrating a strong model fit comparable to the current study.

**Table 6: ANOVAa**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	88.321	2	22.080	124.75	.000 <sup>b</sup>
	Residual	36.112	48	0.177		
	Total	124.433	50			

The Analysis of Variance (ANOVA) results indicate that the regression model is statistically significant in explaining the variance in Revenue Collection among the public hospitals in Kisii County. The F-statistic value is 124.75, which is much larger than the critical F-value (approximately 2.45 at a 5% significance level). The p-value (Sig.) associated with this F-statistic is 0.000, which is less than 0.05, meaning the model is statistically significant. This means that there is a less than 5% probability that the relationship observed between internal control systems and revenue collection occurred by chance. The Regression Sum of Squares (88.321) is significantly larger compared to the Residual Sum of Squares (36.112), implying that the model explains most of the variability in revenue collection rather than it being attributed to random error. Therefore, the results of the ANOVA can be generalized with reasonable confidence to the broader population of public hospitals within the region.

**Table 7: Regression Coefficients**

Model		Unstandardized Coefficients		Standardized t Coefficients		Sig.
		$\beta$	Std. Error	Beta		
1	(Constant)	1.358	1.241		1.094	0.007
	Control Environment	0.321	0.085	0.312	3.776	0.000
	IT Integration	0.278	0.074	0.265	3.757	0.000

a. Dependent Variable: Revenue Collection

The regression results show that all four dimensions of internal control systems (Control Environment, IT Integration, Risk Assessment, and Monitoring Activities) positively and significantly affect Revenue Collection in public hospitals. The Control Environment ( $\beta = 0.321$ ,  $t = 3.776$ ,  $p = 0.000$ ) has the strongest positive effect among the predictors. This implies that improving leadership structures, ethical standards, and clear governance can significantly enhance revenue collection. IT Integration ( $\beta = 0.278$ ,  $t = 3.757$ ,  $p = 0.000$ ) also shows a strong and significant positive influence. Hospitals that adopt automated billing systems, electronic health records, and payment platforms are likely to improve their revenue efficiency. The constant term ( $\beta = 1.358$ ,  $t = 1.094$ ,  $p = 0.007$ ) indicates the baseline level of revenue collection when all

independent variables are zero, although its practical interpretation is limited. The study findings are in line with studies done by Mwangi and Karanja (2023) who found that moderate but statistically significant effects of internal control practices (with t-values between 2.5 and 3.8) still produced meaningful improvements in financial management in Kenyan public entities. Omondi & Kosgei (2021) noted that IT integration and risk assessment practices had statistically significant but non-extreme t-values, yet they strongly influenced financial transparency and performance.

### **5.1. Conclusion**

The Control Environment has a strong and positive influence on revenue collection in public hospitals. A well-established control environment, characterized by clear governance structures, effective leadership, and ethical practices, directly contributes to improving financial accountability and efficient revenue management. Hospitals with a robust control environment are more likely to achieve higher levels of revenue collection due to the strong foundation it provides for operational effectiveness and financial integrity.

Information Technology Integration is another key factor that positively affects revenue collection. The adoption of advanced IT systems, such as automated billing platforms, electronic payment methods, and robust data management systems, enhances revenue collection efficiency and reduces the risks of financial mismanagement. Hospitals with integrated IT solutions can ensure more accurate and transparent financial transactions, which in turn boosts revenue collection.

### **5.2. Recommendations**

Based on the findings and conclusions of the study, the following recommendations are made for each variable to improve revenue collection in public hospitals in Kisii County. Hospitals should prioritize the development and enforcement of clear organizational policies, ethical standards, and leadership to strengthen their control environment, ensuring better financial management. Public hospitals in Kisii County should invest in modernizing their IT infrastructure to support automation, improve revenue tracking, and enhance the security of financial systems. This can lead to significant improvements in financial performance.

### **5.3. Further Study Recommendations**

Based on the findings and limitations of this research on the relationship between internal control systems and revenue collection in public hospitals in Kisii County, several areas for further study are suggested to enhance the understanding and effectiveness of internal controls in the healthcare sector. These areas can provide a more comprehensive view of the impact of internal control mechanisms across different contexts, improving revenue collection, and financial sustainability. While this study focused on revenue collection, further research could explore how internal control systems affect other performance metrics, such as operational efficiency, patient satisfaction, and service delivery. Understanding how these systems impact broader healthcare delivery outcomes could provide a more holistic view of their importance.

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