The Role of Fraud Opportunities in Procurement Irregularities at Public National Referral Hospitals in Nairobi County, Kenya

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ABSTRACT

Procurement fraud is a major challenge in Kenya's health sector, where it continues undermining the delivery of effective services. Although various regulatory and legislative measures have been implemented to address this issue, procurement fraud persists, especially in Nairobi County. Guided by the fraud diamond and routine activities theories, this study examined the role of fraud opportunities—including opportunities for collusion, ineffective control mechanisms, accountability gaps, poor tone at the top, and inadequate monitoring—in facilitating procurement fraud within public National Referral Hospitals (NRHs) in Nairobi County, Kenya. A cross-sectional descriptive survey design was used for the study. Data were collected from randomly selected procurement and staff in three NRHs using structured questionnaires. Correlation and simple linear regression analyses were then performed using SPSS. The findings reveal that fraud opportunities significantly influence procurement fraud as they explain 57.9% ($R^2 = .579$) of its variance. Key vulnerabilities include opportunities for collusion, weak internal controls, poor accountability mechanisms, and leadership deficiencies that create an enabling environment for fraudulent activities. The study concludes that opportunities for fraud arising from weak internal controls and inadequate monitoring are major contributors to procurement irregularities in public NRHs. Based on the results, we argue that there is a need for the implementation of comprehensive procurement policies, institutionalization of periodic audits, enforcement of accountability measures, and adoption of technological tools to deter fraud. Future studies should explore the interplay between fraud opportunities and other drivers, such as rationalization and capability, in different public sector settings.

Keywords: fraud opportunity, healthcare fraud, procurement fraud, procurement irregularities, public procurement

INTRODUCTION

Procurement fraud is among the most pervasive forms of economic crime globally (Darioli et al., 2021; Rustiarini et al., 2019). The intricate and voluminous nature of procurement activities, along with market price ambiguities, political discretion, and bureaucratic interdependencies, renders public procurement systems highly susceptible to corruption (OECD, 2016; Rose-Ackerman & Palifka, 2016). Such fraud results in significant financial losses, inflated costs for essential goods and services, and substandard delivery of vital infrastructure (Jones, 2021). The detrimental impacts of Public Procurement Fraud (PPF) are evident across global economies. The OECD (2014) reported that 57% of all foreign bribery cases stemmed from public procurement corruption. In the UK, annual PPF losses range between £275 million and £2.75 billion (Centre of Expertise for Counter Fraud, 2018). Similarly, procurement fraud is widespread in countries like Hungary, Russia, and Australia (Moiseev, 2019; PwC, 2015). South Africa's Special Investigating Unit found that over R14.8 billion of government COVID-19 expenditures were tied to procurement corruption (Chelin, 2021). In Uganda, 81.1% of service providers acknowledged offering bribes, while 40% admitted paying kickbacks equivalent to 10%–20% of contract values (Komakech, 2020).

Kenya leads East Africa in PPF prevalence, with rates exceeding the regional average of 25% and the international average of 22% (PwC, 2018). During the 2019–2020 financial year, 68% of corruption cases investigated by Ethics and Anti-Corruption Commission (EACC) in Kenya involved procurement irregularities (EACC, 2021). Despite institutional reforms, PPF remains the fastest-growing economic crime in Kenya (PwC, 2017). The health sector is particularly vulnerable to PPF, as evidenced by unethical practices in Kenya's Ministry of Health (MoH). Between 2019 and 2022, four out of ten tenders in the MoH were awarded based on favoritism, and three required bribes (EACC, 2023). Such practices exacerbate resource mismanagement, impede infrastructure investment, and strain public health services. National Referral Hospitals (NRHs), as the apex of Kenya's healthcare system, are significantly impacted. Fraudulent activities hinder their ability to deliver quality care and address critical healthcare needs (EACC, 2023).

Research on PPF has explored its macroeconomic, political, and social drivers (Manyara, 2016). Other studies emphasize institutional weaknesses such as inadequate training, defective tendering processes, and poor record management (Atika, 2018). However, these studies often overlook individual-level factors that contribute to PPF, particularly in the health sector. Previous research predominantly focuses on other sectors, such as finance and corporate taxation, leaving gaps in understanding PPF in public healthcare institutions (Rustiarini et al., 2019).

To address these gaps, this study integrated the Routine Activity Theory (RAT) and the Fraud Diamond Theory (FDT) to examine individual-level drivers of procurement fraud in NRHs. RAT explains fraud as a convergence of motivated offenders, suitable targets, and absent capable guardians, while FDT adds dimensions of pressure, opportunity, rationalization, and capability to understand fraudulent behaviors (Kabiru & Muthinja, 2022; Rustiarini et al., 2016). Previous applications of these theories have primarily focused on occupational fraud, banking, and tax systems. Given Kenya's alarming 34% PPF prevalence rate and the persistent challenges in mitigating it, this study explored how opportunities for collusion, inadequate monitoring, accountability gaps, ineffective control mechanisms, and poor organizational culture ("tone at the top") contribute to procurement fraud in NRHs. By identifying these individual-level drivers, the study seeks to inform targeted interventions that enhance accountability and integrity in public health procurement systems.

Specific Objective of the Study

To investigate the effect of fraud opportunities (opportunity for collusion, ineffective control mechanisms, accountability gaps, poor tone at the top, and inadequate monitoring) on procurement fraud among public NRHs in Nairobi County, Kenya.

Research Hypothesis

H_{01}: Fraud opportunities (opportunity for collusion, ineffective control mechanisms, accountability gaps, poor tone at the top, and inadequate monitoring) have no significant effect on procurement fraud of public NRHs in Nairobi County, Kenya.

LITERATURE REVIEW

This section provides a review of the previous literature on the variables under study. It also describes the theoretical and conceptual frameworks that guided the study.

Fraud Opportunity and Procurement Fraud

Under RAT and the FDT, the existence of opportunities, such as weak internal control systems and organizational cultures conducive to fraud, triggers individuals to engage in fraudulent activities (Dorminey et al., 2010; Schuchter & Levi, 2015). Fraud opportunities are often formed by the surrounding environment; which potential actors use to commit crimes. Rational individuals take interest in profitable opportunities, implying that virtually all individuals can perpetrate fraud when potentially profitable opportunities are available (Larmour & Wolanin, 2013; Rustiarini et al., 2019).

The opportunities that exist are inseparable from the organization's internal and external accountability systems. Thus, the absence of accountability contributes to increased corruption. Internally, accountability includes the organization's code of ethics, internal control system, auditing processes, employee recruitment practices, fraud detection measures, and sanctions for the commission of fraud. Various factors influence the external

accountability system, and these factors include the availability of a free press, a proactive and dynamic civil society, and an independent criminal justice system. The establishment of an anti-corruption body is also an important external factor that deters fraud in government agencies (Larmour & Wolanin, 2013). An effectively designed and implemented anti-corruption system is expected to deter or prevent public officials from engaging in fraudulent activities and recognize some "blind spots" that organizations internal auditors have not detected (Rustiarini et al., 2019).

Differences in levels of government also create fraud opportunities. On the one hand, decentralization has the effect of reducing fraud opportunities because of its perceived ability to make public officials more responsive to citizens' needs. On the contrary, there are often increased opportunities and less hindrances to fraudulent practices in the local procurement system. In some instances, weak government capacity, an ineffective audit function, and limited human resource capacity in the area of information and technology, creates opportunities for fraud (OECD, 2016). It is also common, especially in developing countries, for corruption among public procurement officers to increase due to multiple gaps and weak law enforcement. When public officers exercise unchecked discretionary powers, they also have more opportunities to engage in corrupt dealings (Lyra et al., 2022).

In addition, opportunities to engage in fraudulent activities are inseparable from weak internal control systems in procurement processes. This is especially the case where organizations fail to have ongoing evaluations to determine whether employees comply with the existing procurement policies and ethical rules. Without effective ongoing evaluations and management reviews, fraudulent activities often proliferate throughout procurement processes or systems. Fraud can also escalate when organizations fail to adopt some common control activities, such as mandatory job rotation, separation of duties, or vacation for personnel that play corruption-prone roles (Tan, 2013).

Previous studies show that opportunity positively influences the occurrence of fraud. Some researchers have found that opportunity has a significant and positive influence on fraudulent fiscal reporting in banks (Fisher, 2015; Siregar & Tenoyo, 2015; Sukmadilaga et al., 2022). Cooper et al. (2013) found that among the three essentials of the fraud triangle theory, opportunity is the highest motivating factor for financial statement fraud to occur. However, other researchers have found that opportunity does not significant affect the potential financial statement fraud (Widnyana & Widyawati, 2022). These studies were primarily based on financial fraud and not on procurement.

Theoretical Framework

In this study, we used RAT and FDT as complementary frameworks to explore the role of fraud opportunities in procurement irregularities. RAT postulates that criminal incidents occur when an inspired offender, an attractive target, and the unavailability of a proficient guardian converge (Clarke & Felson, 2017; Hollis et al., 2013). Within this framework, a motivated offender refers to an individual inclined toward criminal behavior, driven by personal grievances, financial motives, or other factors (Rasheed et al., 2023). In procurement fraud, a suitable target may include vulnerable systems, insufficient internal controls, or inadequate monitoring (Suh et al., 2019). These vulnerabilities make public NRHs attractive targets for fraudulent activities. The absence of a capable guardian—such as robust auditing mechanisms or strong oversight committees—further exacerbates the risk. Guardianship in this context includes systems, policies, and personnel capable of deterring or detecting fraudulent behavior (Hollis et al., 2013).

However, RAT has some limitations. While it stresses the role of guardianship in the prevention of crime, it does not fully address scenarios where guardians themselves may be complicit in fraud. For example, internal collusion among procurement officers or senior management can bypass existing controls. Moreover, RAT's focus on immediate situational factors limits its ability to explain the deeper motivational and structural dynamics of fraud. As a result, we also used the FDT developed by Wolfe and Hermanson (2004).

FDT is an extension of the Fraud Triangle Theory. It incorporates the capability as an element in addition to pressure, opportunity, and rationalization. Pressure is the starting point for fraudulent behavior and includes both financial and non-financial factors (Rustiarini et al., 2019). Opportunity arises when internal control deficiencies, ineffective policies, or a culture of impunity create tolerance for fraud (Murphy & Dacin, 2011). In procurement, opportunities can manifest as accountability gaps, inadequate monitoring, or deliberate violations of controls by

senior managers. These systemic weaknesses enable individuals to exploit their positions without fear of detection or repercussions (Schuchter & Levi, 2015). Rationalization involves justifying fraudulent actions to align with personal ethical codes. For instance, an individual might rationalize procurement fraud by arguing that "everyone else does it" or "the funds are just temporarily borrowed" (Kabue & Aduda, 2017). Finally, capability includes the personal attributes that enable an individual to execute fraudulent schemes. These include holding a position of authority, intellectual capacity, immunity to guilt, and coercive abilities (Wolfe & Hermanson, 2004). Employees in senior positions within public NRHs, such as procurement officers or managers, often possess the requisite knowledge and authority to manipulate processes and conceal irregularities effectively. Without capability, even the convergence of pressure, opportunity, and rationalization may not result in fraud (Lyra et al., 2022).

Combining RAT and FDT provides a holistic view of procurement fraud in public NRHs. In public NRHs, procurement processes often involve high-value contracts, making them attractive targets for fraud. The convergence of motivated offenders (e.g., procurement officers under financial pressure), fit targets (e.g., poorly managed procurement systems), and the lack of capable guardians (e.g., weak auditing mechanisms) aligns with RAT's principles. Furthermore, FDT's elements—pressure, opportunity, rationalization, and capability—provide a deeper understanding of the internal and external factors driving fraudulent behavior. For example, senior managers with coercive abilities may exploit weak internal controls to collude with vendors, rationalizing their actions as a response to organizational inefficiencies. This integration of RAT and FDT demonstrates how individual and systemic factors interact to create opportunities for procurement fraud.

Conceptual Framework

As illustrated in Figure 1, the dependent variable for the study was procurement fraud in public NRHs. It entails biased selection of suppliers, false payments, unwarranted elimination of competitors, fraudulent contract handling process, and bid rigging. Fraud opportunity was the independent variable and it was conceptualized as the set of circumstances that create an environment conducive to fraudulent behavior. They included opportunity for collusion, ineffective control mechanisms, accountability gaps, poor tone at the top, and inadequate monitoring. It was hypothesized that these sub-variables of fraud opportunity significantly contribute to the prevalence of procurement fraud in public NRHs.

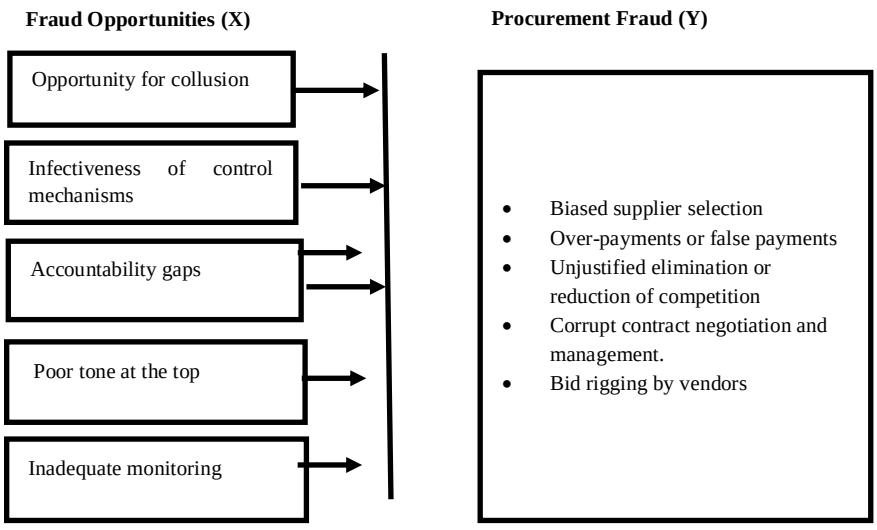

Figure 1 Conceptual framework for the study.

METHODOLOGY

Design

The study employed a cross-sectional descriptive survey design. As noted by Ghauri et al. (2020), this design is well-suited for examining "what," "when," and "how" questions. Moreover, descriptive surveys are both cost-effective and instrumental in gauging the attitudes and perceptions of respondents (Pandey & Pandey, 2021). The chosen design facilitated the collection of data from multiple NRHs, and this data was used for hypothesis testing.

Participants

The study targeted public NRHs in Nairobi County, Kenya. These facilities are renowned for their complex procurement systems that are particularly susceptible to fraud. The study focused on 315 procurement and supply chain management officers working in the three selected NRHs. This choice was informed by the prominence of procurement activities in these facilities and the heightened risk of fraudulent practices in Nairobi County due to the intensity and competitiveness of procurement activities (Ngovi, 2019).

Sampling Procedure

Cochran (1977) sample determination formula provided below was used:

$$n_0 = \frac{Z^2\, p(1-p)}{(e)^2}$$

Where: n_0 = sample size, Z = Z value (95% or 1.96), e = precision level (5%), and p = projected percentage of procurement staff (0.5). Therefore,

$$n_0 = \frac{1.96^2\, 0.5(1-0.5)}{(0.05)^2}$$

n_0 = 385 respondents

Given that the study population (N) was known and was $n_0 > N \times 0.05$, Cochran's correction formula was used in calculating the ultimate sample size as shown below:

$$n_1 = \frac{n_0}{1 + (n_0 - 1)/N}$$

Hence,

$$n_1 = \frac{385}{1 + (385 - 1)/315}$$

n_1 = 173 respondents

As shown in Table I, stratified random sampling was used to allocate the sample proportionately across the three NRHs.

Table I Sample Size

NRHs	**Target Population**	**Sample Size**
Hospital A	111	61
Hospital B	98	54
Hospital C	106	58
Total	**315**	**173**

All senior procurement officers were purposively included due to their small numbers and seniority.

Data Collection

The study relied on a structured, researcher-developed questionnaire to collect data. This instrument included closed-ended, Likert-scale questions (1 = Never to 5 = Always). The drop-and-pick method facilitated questionnaire administration. Data from a pilot test was compute the Cronbach's alpha that evaluated the reliability of the questionnaire. The analysis yielded coefficients of 0.931 for procurement fraud and 0.783 for fraud opportunity. Construct validity was confirmed through factor analysis in which all communalities exceeded the 0.4 threshold as recommended (Ghauri et al., 2020).

Analysis

Pearson's correlation and simple linear regression were used for data analysis in SPSS version 29. The regression equation was specified as:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \varepsilon}$$

Where: Y= combined score of procurement fraud; β_0 = y constant; β_1 = Regression constant for fraud opportunity; and X_1 = Score of fraud opportunity. Tolerance (0.587) and VIF (1.702) values indicated no multicollinearity concerns.

RESULT

Out of the 173 questionnaires distributed, 119 were returned, and after data cleansing and verification, 101 were deemed valid for analysis. Demographically, 55 (54.5%) of the respondents were male and 46 (45.5%) were female. The professional designations of the respondents ranged from lower-level procurement personnel to senior management roles.

Correlation between Fraud Opportunities and Procurement Fraud

In Table II, the Pearson correlation coefficient ($r = .579$, $p < .001$) indicates a moderate, positive relationship between the procurement fraud occurrence and fraud opportunities. In simple terms, as opportunities for fraud increase, cases of procurement fraud also go up in public NRHs.

Table II Correlation between Fraud Opportunity and Procurement Fraud

		Procurement Fraud	**Fraud opportunity**
Procurement Fraud	Pearson Correlation	1	.579**
	Sig. (2-tailed)		<.001
	N	101	101
Fraud Opportunity	Pearson Correlation	.579**	1
	Sig. (2-tailed)	<.001	
	N	101	101
****. Correlation is significant at the 0.01 level (2-tailed).**			

Also, the findings in Table III reveal significant positive correlations between all opportunity sub-variables and procurement fraud in public NRHs. The highest correlation was observed with the sub-variable concerning procurement decisions often involving multiple individuals, which could facilitate collusion and fraudulent activities ($r = .397$, $p < .001$). This is followed by the sub-variable regarding the inadequate monitoring of procurement activities, which also presents a substantial risk for fraud ($r = .332$, $p < .001$). Similarly, the insufficiency of control mechanisms within procurement processes shows a significant positive correlation with potential fraudulent actions by procurement staff ($r = .330$, $p < .001$). Leadership's lack of emphasis on ethical behavior in the procurement department further contributes to an environment conducive to fraud ($r = .296$; $p = .003$). The weakest, yet still significant, correlation relates to the lack of clear accountability, which provides opportunities for fraud during procurement processes ($r = .199$; $p = .046$).

Table III Correlation Between Fraud Opportunity Constructs and Procurement Fraud

Sub-Variables		**Procurement Fraud**
Procurement Fraud	Pearson Correlation	**1**
	Sig. (2-tailed)	
	N	**101**
	Pearson Correlation	**.397****

Procurement decisions in our hospital often involve multiple individuals, providing opportunities for collusion and fraudulent activities.	Sig. (2-tailed)	**<.001**
	N	**101**
The control mechanisms in place for procurement activities are insufficient, creating opportunities for fraudulent behavior by procurement staff.	Pearson Correlation	**.330****
	Sig. (2-tailed)	**<.001**
	N	**101**
There is a lack of clear accountability in our procurement processes, which creates opportunities for fraudulent activities by procurement personnel.	Pearson Correlation	**.199***
	Sig. (2-tailed)	**.046**
	N	**101**
The leadership in our procurement department does not prioritize ethical behavior, contributing to an environment where fraudulent opportunities thrive.	Pearson Correlation	**.296****
	Sig. (2-tailed)	**.003**
	N	**101**
Procurement activities in this hospital are not adequately monitored, allowing for potential opportunities for fraudulent actions by procurement staff.	Pearson Correlation	**.332****
	Sig. (2-tailed)	**<.001**
	N	**101**
****. Correlation is significant at the 0.01 level (2-tailed).**		
***. Correlation is significant at the 0.05 level (2-tailed).**		

Regression Analysis and Hypothesis Testing for Fraud Opportunity

A hypothesis was developed to examine the effect of fraud opportunities on procurement fraud. The null hypothesis was as follows:

H_{01}: Fraud opportunities (opportunity for collusion, ineffective control mechanisms, accountability gaps, poor tone at the top, and inadequate monitoring) have no significant effect on procurement fraud of public NRHs in Nairobi County, Kenya.

In Table IV, the regression model revealed an R^2 of .335, indicating that approximately 33.5% of the change in procurement irregularities was explained by fraud opportunity. The unstandardized regression coefficient for fraud opportunity ($\beta = .638$, $t = 7.066$, $p < .001$) indicated that, a one-unit increase in fraud opportunity increased the predicted incidence of procurement fraud by 0. 638 units.

The F-test result was significant ($F(1, 99) = 49.935$, $p < .001$), indicating that the model as a whole was statistically significant. This implies that fraud opportunity significantly affects procurement fraud in the studied hospitals. These findings supported the rejection of the null hypothesis.

Table I Linear Regression Results for Fraud Opportunity

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.579[a]	.335	.329	.60052

Anova						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18.008	1	18.008	49.935	<.001[b]
	Residual	35.702	99	.361		
	Total	53.710	100			

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.883	.252		3.513	<.001

	Fraud Opportunity	.638	.090	.579	7.066	<.001
a. Predictors: (Constant), Fraud Opportunity						
b. Dependent Variable: Procurement Fraud						

DISCUSSION

Based on RAT and FDT perspectives, the study examined the role of fraud opportunities in triggering procurement fraud among public NRHs. Fraud opportunity was measured using opportunity for collusion, ineffectiveness of control mechanisms, accountability gaps, poor tone at the top, and inadequate monitoring. The Pearson correlation analysis showed that fraud opportunities had a significant and fairly strong positive impact on the occurrence of procurement fraud in NRHs ($r = .579$, $p < .001$). The highest correlation was observed with the sub-variable concerning procurement decisions often involving multiple individuals, which could facilitate collusion and fraudulent activities ($r = .397$, $p < .001$) followed by the sub-variable regarding the inadequate monitoring of procurement activities, which also presents a substantial risk for fraud ($r = .332$, $p < .001$). Other sub-variables with a statistically significant correlation with procurement fraud included the insufficiency of control mechanisms within procurement processes ($r = .330$, $p < .001$), leadership's lack of emphasis on ethical behavior in the procurement department ($r = .296$; $p = .003$), and the lack of clear accountability in procurement processes ($r = .199$; $p = .046$).

Linear regression analysis showed that fraud opportunities have a strong and positive impact on procurement fraud in public NRHs. The R^2 value of .335 means that about 33.5% of the variation in procurement fraud can be attributed to fraud opportunities. The regression coefficient ($\beta = .638$, $t = 7.066$, $p < .001$) indicates that for every one-unit increase in fraud opportunity, the predicted level of procurement fraud rises by 0.638 units, assuming all other factors stay the same. Based on these results, the null hypothesis was rejected.

These findings are consistent with those of the previous studies. For instance, some researchers have found that opportunity significantly and positively influences fraudulent financial reporting in banks (Fisher, 2015; Siregar & Tenoyo, 2015; Sukmadilaga et al., 2022Cooper et al. (2013) found that out of the three elements in the fraud triangle theory, opportunity plays the biggest role in motivating financial statement fraud. Schuchter and Levi (2015) and Dorminey et al. (2010) established that poor internal controls and weak monitoring mechanisms are fertile grounds for fraudulent behavior. The findings align with the RAT and the FDT. Opportunities for fraud within the procurement processes, such as collusion, inadequate monitoring, and poor leadership, create the environment necessary for fraud to occur (Murphy & Dacin, 2011; Rustiarini et al., 2019).

However, the findings of the study also contradict those of Widnyana and Widyawati (2022), who found that opportunity has no significant effect on the potential financial statement fraud. Also, in contrast to the work of Rustiarini et al. (2019), which pointed out that excessively regulated systems could paradoxically increase fraud, this study suggests that in the context of Kenyan public hospitals, the lack of regulation and oversight of the procurement process is the primary concern. This divergence indicates that the relationship between regulation and fraud may be context-dependent, varying significantly between different sectors and regions.

LIMITATIONS

One significant limitation of this study was the difficulty in observing and documenting implicit behaviors that contribute to fraud opportunities, such as informal collusion or poor tone at the top. These behaviors are not easily quantifiable through surveys. In future studies, this limitation can be mitigated through triangulation or the use of multiple data sources, including supplier interviews. Also, the study's geographic focus on NRHs in Nairobi County was another constraint. As a result, the findings might not apply to other counties or healthcare facilities, like private hospitals or smaller public hospitals. Nairobi’s unique socio-economic and administrative environment could mean that fraud opportunities manifest differently elsewhere. The study focused on some of Kenya's largest and most resource-intensive hospitals to ensure the findings were meaningful and relevant. However, the researcher recognizes the importance of comparing results across different regions and types of facilities to confirm and expand on these insights.

Relying on self-reported data from procurement officers and suppliers comes with some challenges, like the risk of bias. People might have exaggerated or downplayed certain fraud-related actions to match what they thought

was expected of them. To address this, we ensured anonymity and confidentiality, making respondents feel safe sharing honest answers. We also used structured questionnaires with clear and straightforward questions to make the responses more reliable. Finally, the inherent complexity of fraud opportunities—ranging from ineffective monitoring systems to deliberate accountability gaps—poses a limitation in fully capturing the multifaceted nature of procurement fraud. While the use of the FDT and RAT provided a robust theoretical lens, practical limitations in data availability and accessibility may have constrained the depth of analysis.

CONCLUSIONS AND RECOMMENDATIONS

This section wraps up the study by sharing key conclusions and offering practical tips, policy ideas, and suggestions for future research. The study concludes that opportunities for fraud, particularly those arising from weak internal controls and inadequate monitoring, are major contributors to procurement fraud in public NRHs. Public NRHs should strengthen their internal controls and accountability mechanisms.

This includes implementing and enforcing comprehensive procurement policies, conducting regular audits, and ensuring that all procurement processes are transparent. The use of technology, such as e-procurement systems, should be expanded to enhance transparency and reduce the risk of manipulation

We used the RAT and the FDT as theoretical frameworks. While the FDT highlights four key factors that contribute to fraud, this research focused only on fraud opportunities. Future studies could dive into the other factors and also examine areas like organizational culture, arrogance, collusion, technology, leadership style, and the role of external stakeholders. Research in different regions and sectors would also help confirm these findings and make them more widely applicable.

It is worth noting that this study gathered data from just one department in each hospital, which might limit the depth of the findings. Future research could involve multiple respondents from each organization to improve accuracy. Also, exploring the perspectives of external auditors and regulatory bodies could provide a more complete view of procurement fraud.

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