

THEORIES FOR ENHANCING THE EFFICIENCY OF MEDICINE PROCUREMENT IN LIMPOPO PUBLIC HOSPITALS

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Abstract

The paper seeks to analyse theories for enhancing the efficiency of medicine procurement in Limpopo public hospitals of South Africa. Medicine procurement is a critical function for the delivery of health services in public hospitals. The availability of medicines depends on the efficient procurement practices in public hospitals. There has been a problem of medicine procurement in public hospitals impacting negatively on delivery of health services. The main question of the study: How can the medicine procurement in the public hospitals be improved? The study aimed to enhance the efficiency of medicine procurement in Limpopo public hospitals. The study employs qualitative method using document analysis tool. The secondary data reviewed comprises of journal articles. The researcher used Google Scholar to search for journal articles relevant to procurement theories. The study's results showed that theories could improve an efficiency of the medicine procurement in public hospitals, resulting in cost-effective health service delivery. The study recommended that all procurement practitioners be developed through in-house training on the procurement theories for enhancing the efficiencies of medicine procurement for the improvement of knowledge and skills in public hospitals. The research additionally suggests that procurement theories could enhance the efficiencies of medicine procurement in public hospitals.

Keywords: Medicine procurement; Public hospitals; procurement theories; efficiencies

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1. Introduction

The paper seeks to analyse procurement theories for enhancing the efficiency of medicine procurement in Limpopo public hospitals. Medicine procurement is a critical function for the delivery of health services in public hospitals. There has been a problem of medicine procurement in public hospitals impacting negatively on delivery of health services. The procurement system in many countries continues to underperform, resulting in medicine stock outs and the inability to provide high-quality healthcare services. (World Health Organisation, 2018). Procurement efficiencies are necessary for the proper medicine to be accessible at the appropriate time, in the appropriate amount, for the appropriate patient, at a fair price, and with acceptable quality standards. Recent studies have been conducted on the shortage of medicine due to medicine procurement challenges in the health facilities (Modisakeng et al., 2020). Fourie and Malan (2020) point out that the primary goal of government sector acquisition policies worldwide is to provide value for money rather than focusing on the cheapest option. Before choosing the best option that satisfies the responsibility managers' needs, procurement officials and organisations must consider a wide range of variables. Public entities carry out the procurement function, which includes purchasing goods, services, and works, to improve government operations. (Changalima, et al., 2022). Procurement is a backbone of service delivery in public hospitals. Kivunja (2018), states that through a lengthy study that uses empirical evidence to support claims based on deductive and inductive analysis of the data, a theory is developed. A theory is systemic description of the concepts, constructs, assumptions relationship of specific process or phenomenon in a discipline (du Plooy-Cilliers, 2021). The theories put out by specialists in the discipline into which the researcher wants to conduct research make up the theoretical framework. The data analysis and interpretation of results will be based on this framework (Kivunja, 2018). The theoretical foundation is the unique ideas and theories that pertain to the phenomena that the researcher decides to examine. (du Plooy-Cilliers, 2021). Therefore, existing procurement theories may be used to improve medicine procurement in public hospitals. According to Ambe (2022), procurement can be considered one of the macro processes inside a supply chain, in accordance with the perspectives of the Chartered Institute of Purchasing and Supply Chain and Council of Supply Chain Management Professionals. The process of planning, carrying out, and managing the sourcing and acquisition of both physical and intangible products is called it procurement. Gligor et al. (2018) point out that the theories widely used within the domain of supply chain management over the last 10 years are: game theory, contingency theory, agency theory, information processing theory, inventory theory, transaction cost economics, resource-based theory, practical based view, institutional theory, and stakeholder theory. Although these theories are widely used within the sphere of supply chain management little has been done for medicine procurement in the public hospitals. Therefore, there is need to improve medicine procurement in public hospitals. The significance of the study was to analyse theories for improving the efficiencies of medicine procurement in Limpopo public hospitals. The main question of this study is: How can the medicine procurement in the public hospitals be improved? The study employs qualitative approach using document analysis strategy. It

is against this background that the study aimed to enhance the efficiency of medicine procurement in Limpopo public hospitals. In the following section the literature is to be discussed, followed by methodology and results. Finally, the discussion and conclusion are discussed.

2. Literature review

The section discusses the theories to improve medicine procurement in public hospitals. The following ten theories widely used in procurement and supply chain management are discussed namely: game theory, contingency theory, agency theory, information processing theory, inventory theory, transaction cost economics, resource-based theory, practical based view, institutional theory, and stakeholder theory.

2.1 Game theory

Game theory is crucial for improving the efficiencies of medicine acquisition in public hospitals. Game theory investigates how strategic decision-makers behave in competitive markets, whether through cooperation or conflict (Abdou & Adaway, (2018). The adversary's capabilities and their course of action can both be understood using game theory (Manivannan et al., 2020). Game theory involved decision-makers as players of the game. The decision-makers use different strategies to play the game with a view to maximising the profit. The players are competing for the same customers. Game theory is applied in the business field. Game theory is useful for procurement in the public hospital from manufacturers (pharmaceutical products), distributors, determining pricing, and retailers to the final customers, including the government for public hospitals. The pharmaceutical industry is highly competitive; this includes local companies (mostly focusing on generic medicines) international companies (mostly focusing on branded medicines). The government is a major customer. Due to the nature of medicine procurement complexities in the market, the game theory is played by suppliers, distributors, and public hospital (customer) to ensure efficient and effective delivery of medicine in public hospital. Public hospitals must be an active player by applying game theory in by ensuring monitoring of medicine stock delivery timeframe, as well as quality delivered. Hence, game theory can enhance the efficiencies of medicine procurement in the public hospital. The following section presents contingency theory.

2.2 Contingency theory

A crucial step in increasing the efficiency of medicine procurement in public hospitals is contingency theory. According to Abba et al. (2018), there is no ideal structure for a business, no ideal leader for a business, and no ideal way to make decisions, according to the contingency theory subclass of behavioural theory. The optimal course of action, however, is contingent upon both the external and internal factors. It is a method for studying organisational behavior that focuses on how external and internal contingent variables, like technology, culture, and the environment, affect the functions and organisational structure's design (Abba et., 2018). Kováts (2018) points out that contingency theory, organisational trends that are being observed must be effective organisational structures otherwise better ones would have emerged and spread.

Therefore, identify general trends in organising and then find explanations of why these changes are efficient (Kováts, 2018). The identification and understanding of internal and external environments on medicine procurement by the public hospital is essential. The contingency theory is important for public hospitals, taking into consideration that the hospital depends on technology for procurement of medicines from suppliers. Public hospitals use procurement systems to order medicines and inventory systems to control the medicine stock availability. Therefore, there is a need to have alternatives way to procure when technology is down to avoid disruption in the value chain. This ensures availability of medicines to the patients. Hence contingency theory is important in medicine procurement in public hospitals. Contingency theory assists by providing efficient and effective alternatives procurement systems for ordering from suppliers to avoid hospital disruptions due to technology failure. The following section presents agency theory.

2.3 Agency theory

Agency theory is important for improving medicine procurement in public hospitals. Agency theory has been used to address conflicts in governance between different firm stakeholders. Two issues that may occur in agency relationships are sought to be addressed by agency theory (Tan et al., 2022). The first is the agency problem, which arises when the principal and agent have conflicting interests and goals, and when it is either challenging or expensive for the principal to monitor the agent's conduct. When the principal cannot verify that the agent acted correctly, such problems may occur. Risk sharing, which arises when the principal and the agent have divergent views on risk, is the second issue. The second problem is risk sharing, which happens when the principal and agent have differing risk viewpoints. (Tan et al., 2022). Agency theory demonstrates the complexity of the multi-tiered, worldwide supply chain and aids in resolving the problem of information asymmetry between the contracting parties (Siddika & Ahmad, 2022). In the context of procurement, the two parties involved in the relationship are the buyer (principal) and the supplier (agent). The buyer must ensure that the supplier delivered goods/or services according to the contract or specification. Contract management is an essential element in procurement. Agency theory is important in the public hospital, taking into consideration the complexities of supply chain management. A well-managed agency relationship may improve overall customer satisfaction and gain a competitive advantage for both principal and agent parties. Agency theory support medicine procurement in public hospital by ensuring that the medicines are delivered according to specification as agreed between the hospital and supplier. Therefore, agency theory can improve the medicine procurement in public hospitals. The following section presents information processing theory.

2.4 Information processing theory

Information processing theory is important for improving medicine procurement in public hospitals. Information processing theory (IPT) is the primary theoretical model used to account for the value of information processing in a company (Wijewickrama et al., 2022).

According to this theory, businesses increase their ability to compete by converting uncontrollable exogenous uncertainty into controllable endogenous uncertainty. IPT views the organization as an information processing system, so when designing the organization, the efficient flow of information must be considered in its entirety (Zhou et al., 2022). In the context of procurement information is important for the selection of suitable suppliers. Data analysis and information sharing improves innovation in pharmaceutical industry from manufacturers, distributors, retailers, and consumers. The theory is applicable to this study to determine the efficiency of medicine procurement processes in public hospitals. Therefore, information processing theory can improve the efficiencies of medicine procurement in the public hospital by ensuring that medicine procurement information is available for effective procurement planning. The next section presents inventory theory.

2.5 Inventory theory

Inventory theory is important for improving the efficiency of medicine procurement in public hospitals. Inventory theory primarily focuses on how various, internal firm-level factors, like demand, uncertainty, and costs, influence decisions about inventory that maximize profits (Barker et al., 2022). In the literature on inventory management, the inventory theory is well established, and many academics have embraced its findings. (Feng et al., 2022). Barker et al. (2022) all businesses involved in the manufacture and distribution of physical items must have inventories, which are vital but expensive resources. Inventories are current assets in a firm. In the public hospital, medicines are inventories. Public hospitals should keep the balance between over-stocking (medicines) and shortage of stock (medicines). Over-stocking of medicine results in expired products (medicines) and non-availability or shortage of medicines results in dissatisfaction of customers (patients). Due to the nature of public hospitals, the inventory must be managed by manufacturers of pharmaceutical products, distributors of pharmaceutical products, retailers to final consumers (public hospital) who to avoid shortage of medicines. Theory is relevant in determining the improvement of medicine procurement processes in public hospitals. Therefore, inventory theory can improve the efficiency of medicine procurement in the public hospital. The following section presents transaction cost economics.

2.6 Transaction Cost Economics (TCE)

In this section a transaction cost economics (TCE) theory will be discussed. According to Ketokivi and Mahoney (2020), Transaction cost economics is the study of economic interactions between a purchaser and a provider that take place both inside organisations and outside of them. The primary intention of TCE is to establish the transaction governance approach that is most effective from an efficiency perspective (Ketokivi & Mahoney, 2020). Transactions and expenses are the basic components of the TCE theory, the transaction is the transfer of a unit of goods or service, while the costs are the total of all monetary and non-monetary values related to the transaction. (Ahluwalia et al., 2020). Meinschmidt et al. (2018) point out that a legal census between the central organisation

and lower-tier suppliers is not always a given, TCE suggests. The transaction economic theory promotes the efficiency in the procurement of goods and services resulting in costs reduction. It ensures that the process of procurement is at lower costs from demand specification to delivery of medicines in terms of specification. This includes the procurement of medicines in public hospitals. This theory is relevant to this study as it promotes efficiency in the procurement. Therefore, transaction cost economics can improve the efficiencies of medicine procurement in public hospitals. The next theory that will be discussed is Resource-Based Theory.

2.7 Resource-Based Theory (RBT)

This section discusses the Resource-Based Theory (RBT). When it comes to management and entrepreneurship, resource-based theory is a useful tool for helping managers identify resources that foster competitive parity. These assets may be either physical or intangible. (Corte et al., 2017). The best way to demonstrate how focusing on resources can give you a competitive edge is through the RBT paradigm (Shibin et al., 2020). RBT is the logical foundation for all conceptual discussions about the sustainability performance of the supply chain's economic dimension (Shibin et al., 2017). Zhao and Fan (2018) maintain that RBT has found widespread application in many sectors and provides a theoretical framework for maximising resource utilization to achieve better results. RBT has the benefit of offering theoretical and useful advice on how to analyse an organisation's resources and performance (Zhao & Fan ,2018). This theory focuses on creating a competitive advantage by utilising internal resources such as financial resources, human capital, technology, and infrastructure. Public hospitals have internal resources that can be used to improve medicine procurement outcomes. RBT theory can improve the efficiencies of medicine procurement in public hospitals. The next theory to be discussed is practice based view.

2.8 Practice-based view (PBV)

This section presents the practical based view (PBV) theory. According to Silva et al. (2018), the relational element of practices and beneficial effects between businesses is emphasized by the practice-based perspective (PBV), which is a substitute to the resource-based view (RBV) for comprehension organisation-internal strategy. Bromer et al (2019) state that PBV illustrates how frequent practice, whether inside a single company or between businesses along a supply chain, affects outcomes. Assume that businesses are unable to replicate the practices of their successful competitors due to a lack of or absence of isolating mechanisms (Bromer et al., 2019). This indicates that, to compete successfully in the marketplace, procurement members must occasionally share practices rather than carry out them alone. Additionally, for other organizations to replicate the best practices, they must also be shared. The theory is followed to determine the efficiency of medicine procurement processes in public hospitals, by identifying best practices to be shared among the procurement members in the entire procurement cycle. PBV theory can be used supports and improve medicine procurement in the public hospitals. The next section presents institutional theory.

2.9 Institutional theory

This section presents the Institutional theory. Liao et al (2020) state that institutional theory, the regulations, standards, and values that govern a company's environment will have an impact on its senior management. Institutional theory places a high value on cultural and social conduct (Guerreiroa et al. 2021). Guerreiroa et al. (2021) point out that the common belief is that businesses gain legitimacy by making a conscious effort to satisfy the demands of society. According to the institutional theory, a formal organisation's growth may be influenced by the environment and social context, which can sometimes be more powerful than market forces (Ebrahim & Koh, 2021). Institutional theory used to understand norms, culture, and regulation within the organisation. The theory is adopted to understand procurement policies and regulations governing the procurement of medicine in public hospitals. This promotes the procurement section to operate within the procurement rules and regulations and hospital rules and regulations within the organisational culture. Institutional theory can be used to support and improve medicine procurement in public hospitals. The next section presents the stakeholder theory.

2.10 Stakeholder theory

This section discusses stakeholder theory. The term stakeholder theory refers to a group of theories that assist managers and academics in understanding the interactions between businesses and their stakeholders and how these interactions affect outcomes. (Jones et al., 2018). Freeman et al. (2021) point out that stakeholder theory, a key component of business success is the development and maintenance of long-lasting relationships with stakeholders. The stakeholder theory views stakeholders as ends in themselves, and it holds that managers should strive to advance the interests of all stakeholders as an ultimate objective. A company does not need to sacrifice its financial success to manage for stakeholders (Freeman et al., 2021). Suppliers are the most important stakeholders. Stakeholder relations critical for organisation performance. community engagements and collaboration with different stakeholders are important for service delivery. The theory contributes to the efficiency of medicine procurement by identifying the stakeholders such as suppliers and integrating to procurement activities. This is done through conducting regular meetings and feedback with suppliers. Stakeholder theory supports and improves medicine procurement in the public hospitals. The analysis of literature shows that the above theories are widely used in supply chain space and could improve and support the efficiency of medicine procurement.

3. Methodology

The research is guided by a qualitative approach using document analysis technique. According to Askarzai and Unhelkar (2017), quantitative methodologists fervently support the quantitative approach as a legitimate research method, claiming that reality/truth can be measured or quantified. In contrast, qualitative methodologists dispute this claim and contend that understanding a phenomenon is possible only through the meanings conveyed by individuals (Askarzai & Unhelkar 2017). Morgan (2022) points out the

advantages of using document analysis consist of: (1) employing documents can be more appropriate for novice researchers as minimal preparation is necessary before the data analysis phase (2) document analysis grants researchers access to information that would typically require considerable time and effort to collect. This method is cost-effective for data gathering; for example, there are no travel expenses or other related costs. In this research, the investigator utilised published literature in the form of articles that are easily accessible in the public domain. The researcher used Google Scholar to search for journal articles. Ten procurement theories were analysed. Saunders et al. (2019) state that using secondary data is often less expensive and takes less time than doing your own data collection, which is its primary benefit. The study's findings are covered in the next section.

4. Results

The paper seeks to analysed theories for improving medicine procurement in Limpopo public hospital. Document analysis was done. The following are the results of the study.

- 4.1 The study found that the most popular theories of procurement over the last 10 years are: game theory, contingency theory, agency theory, information processing theory, inventory theory, transaction cost economics, resource-based theory, practical based view, institutional theory, and stakeholder theory (Gligor et al ,2018).
- 4.2 The study uncovers that although contingency theory helps organisations to identify and comprehend their internal and external surroundings, game theory aids in making strategic decisions related to procurement.
- 4.3 The study found that, while information processing systems gather and interpret data to achieve optimal performance—in this case, procurement data is gathered and interpreted—agency theory supports the management of the problem of global procurement, helping to address the issue of information asymmetry between the contracting parties.
- 4.4 The study revealed that while transaction cost economics encourages efficiency in the acquisition of goods and services, leading to cost reduction, inventory theory is significant for stock management, including control of stock, as inventory is a present asset.
- 4.5 The study discovered that resource-based theory uses internal resources like financial resources, human capital, technology, and infrastructure to promote efficiency, whereas practice-based theory encourages best practices to be shared within the institutions and/or with other institutions to copy the best practices procurement.
- 4.6 The study discovered that whereas stakeholder theory encourages organisation contact with stakeholders, institutional theory supports the norms, culture, and regulations within the organization. The following section discusses discussion and conclusion the study.

5 Discussion and conclusion

5.1 Discussion

The focus of a study was to analyse procurement theories for enhancing the efficiency of medicine procurement in Limpopo public hospitals. The following is the compressive discussion of the study results. Procurement theories could play a significant role in boosting the efficiency of medicine procurement within Limpopo public hospitals. The research highlighted the ten most recognised procurement theories which are: game theory, contingency theory, agency theory, information processing theory, inventory theory, transaction cost economics, resource-based theory, practical procurement. Procurement strategies are crucial for advancing based view, institutional theory, and stakeholder theory. Although these theories operate independently, they could work together to enhance and promote the efficiencies of medicine procurement in public hospitals. Contingency and game theories are essential for fostering and enhancing the efficiency of medicine procurement in public hospitals. The research findings reveal that contingency theory addresses both internal and external environments, while game theory aids in strategic decision-making. Consequently, these theories are vital for the formulation of procurement strategies that may lead to efficient procurement of medicine. Gligor et al. (2018) and Abba et al. (2018) further corroborate this. Procurement data is crucial for enhancing medicine acquisition in public hospitals. Information processing systems and agency theories are important for facilitating medicine procurement in public hospitals. Information processing systems analyse data to attain the best results, while agency theory aids in managing the intricacies of global procurement. This is supported by (Siddika and Ahmad, 2022) and (Li and Yuan, 2022). Procurement efficiencies as a method for enhancing medicine procurement in public hospitals. Transaction cost economics and inventory theories are crucial for facilitating medicine procurement. Transaction cost economics promotes efficiency in the purchase of goods while resource-based theory leverages internal resources to foster efficiency. This is supported by (Barker et al. (2022), Ketokivi & Mahoney, (2020), and Shibin et al. (2017). Procurement regulations could play a vital role in enhancing medicine procurement within public hospitals. Stakeholder theory advocates for engagement with the stakeholders, while institutional theory safeguards the norms and culture present in hospitals. These theories could promote the efficiency of medicine procurement in public hospitals by facilitating interaction with various stakeholders and ensuring compliance with the hospital's established norms and standards. This is supported by Liao et al., (2020) and Freeman et al. (2021). The study recommended that all procurement practitioners be developed through in-house training on the procurement theories for enhancing the efficiencies of medicine procurement for the improvement of knowledge and skills in public hospitals. The development of procurement practitioners will cover the following procurement theories:

Table 1.1 Theories for enhancing medicine procurement in public hospitals.

Theory	How the theory improves medicine procurement
Game Theory	Applying game theory in by ensuring monitoring of medicine stock delivery timeframe, as well as quality delivered.
Contingency Theory	The need to have alternatives way to procure when technology is down to avoid disruption in the value chain in public hospitals.
Agency Theory	Theory support medicine procurement in public hospital by ensuring that the medicines are delivered according to specification as agreed between the hospital and supplier.
Information Processing Theory	Theory can improve the efficiencies of medicine procurement in the public hospital by ensuring that medicine procurement information is available for effective procurement planning.
Inventory Theory	keep the balance between the over-stocking (medicines) and shortage of stock (medicines).
Transaction-Cost economics	Theory ensures that the process of procurement is at lower costs from demand specification to delivery of medicines in terms of specification
Resource-Based Theory	Public hospitals have internal resources that can be used to improve medicine procurement outcomes.
Practical Based View	Efficiency of medicine procurement processes in public hospitals, by identifying best practices to be shared among the procurement members in the entire procurement cycle.
Institutional Theory	Promotes the procurement section to operate within the procurement rules and regulations and hospital rules and regulations within the organisational culture.
Stakeholder Theory	The theory contributes to the efficiency of medicine procurement by identifying the stakeholders such as suppliers and integrating to procurement activities.

Source: Own compilation

5.2 Conclusion

The study was undertaken to analyse theories for enhancing medicine procurement in Limpopo public hospitals. The study analysed commonly used theories in procurement for the purpose of improving of medicine procurement in Limpopo hospitals. Procurement theories have the potential to improve decision-making processes, information processing systems, complex global supply chains, inventory control, internal and external environment comprehension, cost reduction, competitive advantage, best practices, understanding organisational culture, and stakeholder relationships. The document analysis techniques were used. The aim and objective of the study was achieved through document analysis. Therefore, procurement theories could improve medicine procurement in public hospitals, resulting in cost effective health service delivery. There is need to capacitate procurement practitioners on theories for enhancing medicine procurement. The results and conclusion of study provided to achieve its aims and objectives.

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