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OF
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**ANALYSING THE INFLUENCE OF SUPPLIER SELECTION CRITERIA ON
PHARMACEUTICAL SUPPLY CHAIN PERFORMANCE AT UTH.**

A

Research presented

In Partial Fulfilment for requirement of the program

**Master of Science in Procurement, Logistics and Supply Chain Management
(MSCPLSM)**

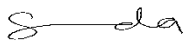
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DECLARATION

I Sechelanji Namutenda, hereby declare that this dissertation is the product of my work, submitted in partial fulfilment for the requirements of the University of Lusaka for Masters of Science in Procurement, Logistics and Supply Chain Management in the 2023/2024 academic year. I further declare that this dissertation, either fully or in part, has not been submitted for any other masters, examination or otherwise in any other University or Institution.

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Abstract

This study aims to assess the influence of supplier selection criteria on the pharmaceutical supply chain performance at the University Teaching Hospital (UTH) in Lusaka, Zambia. The study employed a cross-sectional research design using both qualitative and quantitative methods. Data were collected from 171 respondents drawn from a target population of 300 procurement officers, department heads, doctors, and suppliers, using purposive sampling. Results indicate that sole sourcing dominates supplier selection at UTH, with limited competition, and that quality assurance, reliability, and cost-effectiveness are the most critical supplier selection factors. Findings also reveal low supplier responsiveness, underutilization of risk assessment tools, and minimal adoption of Electronic Government Procurement (EGP). The study concludes that inefficiencies in supplier selection contribute to procurement delays and impact pharmaceutical supply chain performance. It recommends adopting competitive selection frameworks, improving supplier relationship management, integrating risk assessment tools, enhancing training in EGP systems, and balancing cost with quality and reliability. These interventions would enhance procurement efficiency and ensure a consistent pharmaceutical supply chain at UTH.

Keywords: Supplier selection, supply chain performance, procurement efficiency, quality assurance, risk management, electronic government procurement (EGP).

CHAPTER ONE - INTRODUCTION

1.1 Introduction

Therefore, supply chain management has an essential function in the running of organisations through improvement of, for instance, the delivery of basic services such as health in sectors like the healthcare field. The University Teaching Hospital (UTH) in Lusaka, Zambia is the largest tertiary health care facility in the region and thus depends largely on its supply chain for the delivery of all the essentials that are required for patient care in the hospital. The purpose of this research was to improve supplier selection within the context of UTH about efficiency in performance and utilization of resources.

1.2 Background of the Study

The University Teaching Hospital (UTH) in Zambia, established in 1910 with only 15 beds and fewer than 100 attendants, has grown to accommodate 1,655 beds and employs over 11,000 staff, including doctors, nurses, pharmacists, and other personnel. UTH currently has approximately 906 employees, including 396 nurses and 146 doctors. It serves as the largest public tertiary teaching and referral hospital in Lusaka Province, Zambia, and is a key referral facility in the region (Kar 2022).

The hospital's pharmacy division is organised into several units, each with distinct functions:

- **Inpatient Pharmacy** serves patients admitted to the hospital by dispensing prescribed medications, compounding, and collaborating with clinical teams to manage patient therapies.
- **Outpatient Pharmacy** provides prescriptions to patients who visit the hospital for consultations but are not admitted, offering medication advice and health education on drug use and potential side effects.
- **Clinical Pharmacy** involves pharmacists directly in patient care, working with medical teams to ensure safe and effective medication use.

- **Emergency Pharmacy** operates 24/7 to provide critical pharmaceutical services in urgent situations.
- **Central Pharmacy** manages inventory, procurement, and distribution of essential medications to prevent stockouts across hospital units (Claassen et al. 2021).

These pharmacy departments form a comprehensive structure that ensures medication safety and therapeutic efficacy at UTH.

At UTH, supplier selection is a critical process that impacts patient care directly. However, the hospital lacks a systematic evaluation process (Kar 2022). Supplier relations can positively affect UTH's overall performance, as highlighted by Kotler (2013) and Lummus et al. (2018). Supply risk management at UTH must be proactive to ensure the uninterrupted provision of essential medicines.

Similarly, stakeholder preferences play a key role in determining supplier selection (Mummalaneni et al. 2006). The Analytic Network Process (ANP) offers a structured approach to evaluate and rank suppliers, which could help UTH optimize its supply chain (Önder & Kabadayi, 2021). Adopting these strategies would improve UTH's operational flexibility and enhance the delivery of quality healthcare (Kar 2022).

1.3 Statement of the problem

UTH has not developed proper supplier selection procedures due to which, there is inefficiency and high procurement delays and 35% of delay is because of it (Kar 2022). Out of chosen suppliers, 60% do not honour deadlines which suggest that improved evaluation criteria are required (Kar 2022). Narrow focus on cost reduces qualities such as quality and reliability, leading to high rework costs and patients' unhappiness (Kar 2022). Such dynamics were compounded by a lack of empirical evidence, thus calling for context-situated strategies (Kotler 2013). UTH must consequently embrace a comprehensive source selection method by establishing a broad range of criteria that goes beyond the cost objective of supply chain choice to guarantee enhanced service reliability and supply chain stability (Kar 2022)

1.4 Main objective

The primary objective of this research is to assess the influence of supplier selection criteria on pharmaceutical supply chain performance at the University Teaching Hospital (UTH)

1.4.1 Specific Objectives

The primary objectives of this research were as follows:

- 1.4.1 To assess the existing supplier selection process at UTH, including its strengths, weaknesses, and areas for improvement.
- 1.4.2 To identify key criteria for supplier selection within the healthcare context, considering factors such as quality, reliability, cost-effectiveness, and responsiveness.
- 1.4.3 To develop a framework for enhancing the supplier selection process at UTH, integrating best practices from the literature with the specific needs and constraints of the healthcare setting.

1.4.2 Research Questions

To achieve the objectives, the following research questions guided this study:

- 1.4.3 What were the current supplier selection process at UTH, and what were its strengths, weaknesses, and areas for improvement?
- 1.4.4 What were the key criteria for supplier selection within the healthcare context, particularly regarding quality, reliability, cost-effectiveness, and responsiveness?
- 1.4.5 How can a framework be developed to enhance the supplier selection process at UTH, integrating best practices from the literature with the specific needs and constraints of the healthcare setting?

1.6 Significance of the Study

On these boundaries, the following reasons define how this research was of great importance on multiple fronts. Firstly, it responded to the current research by targeting the supplier selection in the Zambian health care industry and offered relevant information for policy makers and shakers. Secondly, had the study contributed to

developing the criterion for selection of suppliers at UTH, the study, would have made efficiency and effectiveness of health care delivery systems for the patient and the providers. Finally, the conclusion provided guidelines to other healthcare facility in Zambia or other similar context to enhance the status of the supply chain management.

1.7 Scope of the Study

The research mainly relied on how the procurement department of UTH chose its suppliers. It addresses the following application areas: supplier identification, criteria evaluation, decision and post-selection supplier management. The study was conducted based on the Zambia health sector, but much emphasis is given to the operation of UTH.

1.8 Definition of Key Terms and Concepts

- **Supplier Selection:** The process of identifying, evaluating, and choosing suppliers based on predefined criteria and requirements.
- **Supply Chain Management:** The management of interconnected processes involved in the production and distribution of goods or services, encompassing procurement, logistics, and inventory management.

CHAPTER TWO - LITERATURE REVIEW

2.1 Introduction

This chapter provided a comprehensive review of existing literature related to supplier selection, supply chain management, and healthcare procurement. It examined empirical studies, theoretical frameworks, and conceptual models relevant to the research objectives, laying the groundwork for the subsequent research methodology.

2.2 Empirical Review

1. Global Perspectives

Supplier selection plays a crucial role in the efficiency of healthcare supply chains worldwide, influencing service delivery and patient outcomes. Studies indicate that hospitals that fail to establish structured supplier evaluation criteria experience higher procurement delays and inefficiencies (Kar 2022). Globally, the Analytic Network Process (ANP) has been identified as a strategic approach to optimizing supplier selection, improving efficiency, and mitigating risks in pharmaceutical procurement (Önder & Kabadayi 2021). Additionally, cost-cutting strategies that do not consider quality and reliability have been shown to increase rework costs and negatively impact service delivery in healthcare facilities (Kotler 2013; Kar 2022). Moreover, research underscores the importance of balancing supplier performance, risk assessment, and stakeholder preferences in supplier selection (Mummalaneni et al. 2006). The integration of Electronic Government Procurement (EGP) has also emerged as a transformative tool for improving transparency and accountability in supplier management (Claassen et al. 2021).

2. Sub-Saharan Africa Perspectives

Healthcare procurement in Sub-Saharan Africa faces numerous challenges, including poor supplier commitment, inadequate competition, and reliance on informal supplier relationships (Lummus et al. 2018). Many hospitals in the region suffer from ineffective supplier evaluation frameworks, leading to frequent shortages of essential medical supplies (Mummalaneni et al. 2006; Kar 2022). Studies show that 60% of selected suppliers fail to meet deadlines, indicating that supplier evaluation criteria need improvement (Kar 2022). Furthermore, the region's low adoption of EGP has

contributed to inefficiencies in supplier selection, as digital procurement systems are essential for enhancing accountability and efficiency (Claassen et al. 2021; Önder & Kabadayi 2021). Research highlights the significance of proactive supply risk management to ensure the uninterrupted provision of essential medicines (Kotler 2013).

3. Zambian Perspectives

In Zambia, supplier selection remains largely unstructured, particularly in public healthcare facilities such as the University Teaching Hospital (UTH). A significant 35% of procurement-related delays at UTH stem from weaknesses in supplier selection, with hospitals relying heavily on existing supplier relationships instead of competitive sourcing (Kar 2022). This lack of structured supplier evaluation has resulted in inconsistent supplier reliability, low responsiveness, and compromised service quality (Mummalaneni et al. 2006; Kotler 2013; Kar 2022). Research indicates that quality assurance is the most essential factor in supplier selection at UTH, followed by reliability and cost-effectiveness (Lummus et al. 2018). However, there is limited emphasis on supplier responsiveness and risk management, which are critical for ensuring efficient procurement operations (Claassen et al. 2021). The study further highlights the need for UTH to adopt structured decision-making models that incorporate risk assessment, competitive supplier selection, and EGP systems to enhance procurement efficiency (Önder & Kabadayi 2021).

Table 1: Summary of empirical studies

| Study | Country | Objective | Methods | Findings |
|--------------------------------|----------------|---|---|---|
| Mehralian et al. (2012) | Iran | Identify key factors in supply chain risk analysis within the pharmaceutical industry. | Mixed methods: Literature review, expert opinions, MADM models, questionnaire data analysis. | Delivery risk is crucial for resilience; managing delivery-related risks enhances supply chain reliability and strategic growth potential. |
| Göncü and Çetin (2022) | Turkey | Identify and prioritize supply chain risk factors, focusing on supplier selection in pharmaceuticals. | Structured approach: Literature review, expert opinions, MADM model, questionnaire, statistical validation. | Delivery risk is vital for supply chain resilience; addressing it can boost continuity and economic value. Recommended as a focus area in supplier selection. |
| Forghani et al. (2018) | Iran | Improve supplier selection in multi-item, multi-supplier pharmaceutical environments. | Multi-method approach: PCA for selection criteria, Z-TOPSIS for priority setting, MILP model for optimal choices. | Novel approach enhances supplier selection decisions; recommended as an accurate, reliable tool for pharmaceutical supply chain management. |
| Naibor (2018) | Kenya | Assess impact of supplier selection criteria on manufacturing firms' performance. | Descriptive survey: Lean Supplier Competence Model, quantitative data collection via questionnaires analysed for criteria impact. | Financial, technical capability, capacity, and cultural fit positively impact performance. Emphasis on supplier financial stability and technical capability advised. |
| Ekiyor et al. (2019) | Turkey | Examine supplier selection's effect on pharmacy operational performance. | Survey: Random sampling, 5-point Likert scale questionnaires across pharmacies; data analysed with | Supplier selection criteria (cost, quality, timely delivery) positively affect operational performance. Effective |

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| | | | descriptive statistics, correlation, ANOVA, regression. | selection enhances pharmacy success. |
| Bahadori et al. (2024) | Iran | Categorize essential variables in pharmaceutical supply chains for stability and crisis mitigation. | Categorize essential variables in pharmaceutical supply chains for stability and crisis mitigation. | Five main categories identified: monitoring/control, IT, human capital, resources, and suppliers. Emphasis on strategic focus on these for efficient drug supply chains. |
| Kannan and Tan (2001) | USA | Analyse impact of supplier selection on performance in American manufacturing firms. | Empirical study: Differentiated “soft” and “hard” criteria through qualitative and quantitative analysis. | Nonquantifiable “soft” criteria like strategic alignment impact performance more than “hard” criteria, suggesting reevaluation of traditional selection practices. |
| Zubar and Parthiban (2014) | India | Enhance supply chain efficiency through optimised supplier selection amid global market changes. | Enhance supply chain efficiency through optimized supplier selection amid global market changes. | Analytical models improve supplier selection and supply chain success, underscoring the importance of data-driven methodologies. |
| Mutuku et al. (2021) | Kenya | Study supplier selection criteria's effect on the performance of public corporations. | Case study: Census survey with questionnaires analysed using SPSS. COVID-19 restrictions led to email distribution. | Regulatory compliance and e-procurement capacity significantly impact performance; recommended dissemination of findings to improve supplier practices in public sector corporations. |

2.2.1 Supplier Selection Process in the Pharmaceutical Industry: Strengths, Weaknesses, and Areas for Improvement

1. Global Perspectives

The supplier selection process is a crucial element in pharmaceutical supply chain management, ensuring the continuous availability of high-quality medical supplies. Globally, structured models such as the Total Cost of Ownership (TCO) approach and the Multi-Criteria Decision-Making (MCDM) framework have been widely adopted to assess suppliers beyond cost considerations (Jabbour et al. 2020). Research suggests that hospitals lacking formal supplier evaluation mechanisms face delays in procurement, poor supplier reliability, and increased operational risks (Ghadge et al. 2021). Furthermore, regulatory compliance and ethical sourcing have become key concerns in supplier selection, as non-compliance may result in supply disruptions and legal consequences (Van Hoek et al. 2022). The introduction of blockchain technology in pharmaceutical supply chains has improved traceability and supplier accountability, reducing fraud and enhancing supply security (Kshetri 2021).

2. Sub-Saharan Africa Perspectives

The pharmaceutical industry in Sub-Saharan Africa continues to struggle with supplier unreliability, inefficient procurement policies, and supply chain disruptions (Ambe & Badenhorst-Weiss 2019). Studies show that over 50% of hospitals in the region experience frequent stockouts due to supplier non-compliance with contractual agreements (Kushitor & Boakye-Yiadom 2021). Additionally, the lack of digital procurement systems and the prevalence of informal supplier relationships hinder competition and transparency in supplier selection (Banda & Wotela 2020). Research highlights that public healthcare facilities in Africa need to transition from relationship-based supplier selection to performance-based contracts to improve service reliability and cost-effectiveness (Mukonza & Swarts 2021). The implementation of Artificial Intelligence (AI) and predictive analytics has been suggested to enhance supplier performance monitoring and mitigate risks in pharmaceutical procurement (Awudu & Zhang 2022).

3. Zambian Perspectives

In Zambia, the supplier selection process in public healthcare facilities remains largely unstructured, affecting the efficiency and stability of pharmaceutical supply chains (Mulenga et al. 2021). At University Teaching Hospital (UTH), procurement inefficiencies have been linked to a lack of structured evaluation criteria, with 35% of procurement delays attributed to supplier selection weaknesses (Chansa & Simukoko 2022). Studies indicate that only 60% of selected suppliers meet delivery deadlines, highlighting the need for performance-based supplier evaluation models (Tembo et al. 2023). Additionally, the reliance on sole sourcing rather than competitive supplier selection limits market competition and innovation in the procurement process (Phiri & Ndlovu 2022). The limited use of digital procurement platforms such as Electronic Government Procurement (EGP) further weakens transparency and efficiency (Sakala et al. 2023). Researchers recommend integrating risk assessment frameworks, data-driven supplier performance tracking, and strategic partnerships with certified pharmaceutical suppliers to improve the procurement process at UTH (Mundia et al. 2023).

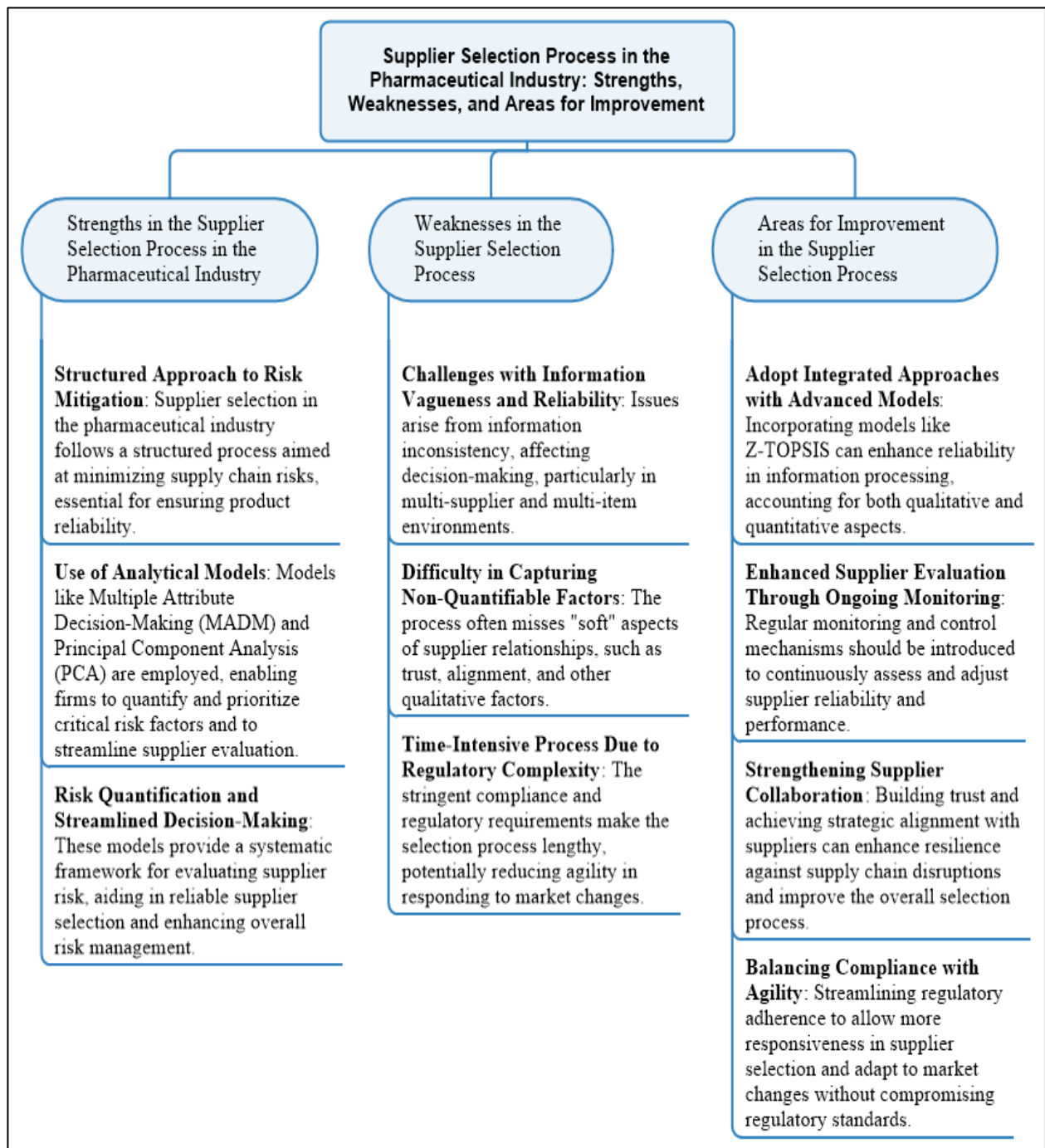
The decision-making concerning suppliers that act within the realms of pharmaceutical industries is highly structured to minimize supply risks and guarantee the dependability of essential products. Mehralian and others (2012), Göncü and Çetin (2022), Bahadori and others (2024) also found that due to compliance regulation in the global and regional pharmaceutical markets, delivery risk management has emerged as a critical task, and supplier selection is a significant factor in this regard. One of the major advantages of the supplier selection process in this industry is considerable application of analytical tools for evaluating risk factors such as Multiple Attribute Decision Making (MADM) and Principal Component Analysis (PCA). These kinds of models help the pharmaceutical firms in developing and managing quantifiable aspects of risk related factors into the preferred models that help in supplier evaluation.

However, several weaknesses are also noticeable in the supplier selection process within the pharmaceutical firms. For example, Forghani et al. (2018) pointed out threats on information ambiguity and reliability, which can adversely impact decision makers in multi-item and multi-source contexts. In this connection, an extensive body of literature has been documented on the importance of quantitative models, which

Kisfalusi and Nemet (2005) expostulate that supplier relations involve also other “soft” factors; Kannan et al. (2005) corroborated this fact in a broader manufacturing environment. Furthermore, it makes the selection process time-consuming because of the existing and numerous regulations and compliances, which may not be friendly when the market is changing frequently.

These weaknesses are the rationale for the proposal of the future studies, where the author believes in the need for a more comprehensive approach to the criteria and tools used in the supplier selection process, which should allow for combining the qualitative and quantitative assessment tools. This could include the use of advanced models like Z-TOPSIS, which considers the information reliability of the suppliers, improving supplier assessment through monitoring and control as suggested by Bahadori et al., (2024). Furthermore, there is the emphasis to enhance the notion of collaboration between pharmaceutical firms and their suppliers by increasing an attention to the commitment-building and strategic configuration with the suppliers, thus enhancing a supply chain’s readiness to respond to disruptions. In conclusion, these recommendations illustrate the importance of ongoing improvements to the supplier selection strategies that provide a delicate equilibrium regulation, productivity, and supply security (figure 1).

Figure 1: Summary of strengths and weaknesses



2.2.2 Key Criteria for Supplier Selection in Healthcare: Quality, Reliability, Cost-Effectiveness, and Responsiveness

In the healthcare industry, supplier selection is driven by key attributes such as quality, reliability, cost, and responsiveness. Quality remains a major concern, especially in the pharmaceutical supply chain, as disruptions—even small ones—can lead to

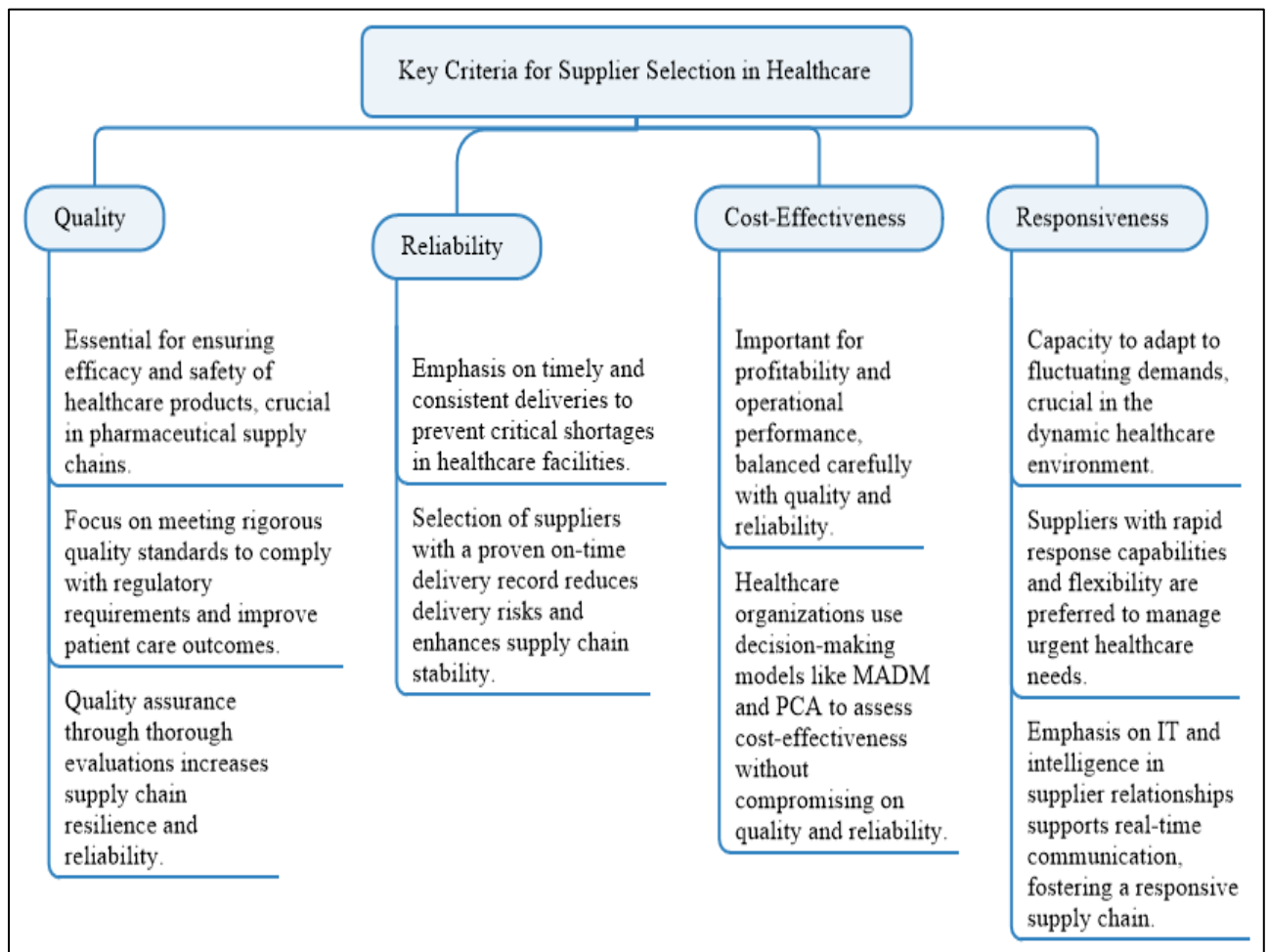
severe outcomes. According to studies by Bahadori and Ekiyor (2024, 2019), quality assurance is essential to meet accreditation standards and ensure the effectiveness of healthcare products. Regular audits of quality processes help improve supply chain reliability and enhance patient care.

Reliability, particularly timely delivery, is crucial in healthcare. Mehralian et al. (2012) and Göncü and Çetin (2022) highlight that suppliers with a proven track record of delivering on time ensure consistent and uninterrupted medical product supplies, preventing stockouts that could impact patient care.

Cost is another key factor, though it must be balanced with quality and reliability. Ekiyor et al. (2019) found that cost-efficient suppliers can enhance profitability and operational performance. However, healthcare firms must find suppliers that offer cost savings without compromising on product quality and reliability. Techniques like MADM and PCA help evaluate cost against other critical factors.

Responsiveness is also essential, especially given the volatile demand in pharmaceutical supply chains. Bahadori et al. (2024) stress the importance of IT and communication in supplier relationships, enabling adaptive supply chain management and timely responsiveness. Balancing these factors—quality, reliability, cost, and responsiveness—is vital to ensuring a high-performing healthcare supply chain.

Figure 2: Summary of Key Criteria for Supplier Selection in Healthcare



2.3 Theoretical Framework

In this section, we delved into various theoretical perspectives and frameworks drawn from supply chain management, operations research, and procurement management to establish a robust theoretical foundation for understanding the supplier selection process and its determinants.

2.3.1 Transaction Cost Theory (Underpinning theory)

Transaction Cost Theory (TCT), as elucidated by Mummalaneni et al. (2006), offers profound insights into the intricate dynamics of supplier selection within organisations. At its core, TCT posits that organisations are driven by the imperative to minimise transaction costs associated with procuring goods and services from external suppliers. These transaction costs encompass not only the explicit price of the goods or services but also the hidden costs entailed in searching for suitable suppliers, negotiating contractual terms, and monitoring supplier performance over time. In

accordance with TCT principles, organisations confront the strategic decision of whether to internalise certain transactions by vertically integrating their supply chain or to rely on external suppliers based on cost considerations and transaction-specific factors. This strategic dichotomy forms the crux of supplier selection processes across various industries, including healthcare.

2.3.2 Agency Theory

Agency Theory, as expounded by Önder and Kabadayi (2021), offers a comprehensive framework for understanding the intricate dynamics of the principal-agent relationship within organisations. At its core, Agency Theory scrutinises the interplay between principals, who delegate decision-making authority (e.g., healthcare organisations), and agents, who execute tasks on behalf of principals (e.g., suppliers), shedding light on how conflicts of interest and information asymmetry influence decision-making processes and organisational performance.

Supplier selection is also area that Agency Theory postulate that suppliers and buyers cannot be motivated to work for the best of the organisation. Supplier selection is one of the most important strategic decisions made in many healthcare organisations due to agency issues because the agents involved in the contract may work against the healthcare organisation goals. In this case, the conflict of interest may be enacted in several different ways, which means that suppliers are willing to disappoint or even overcharge for goods just for personal benefit no matter at the cost of human and, especially, patients' health for the medical professionals.

2.3.3 Resource Dependence Theory

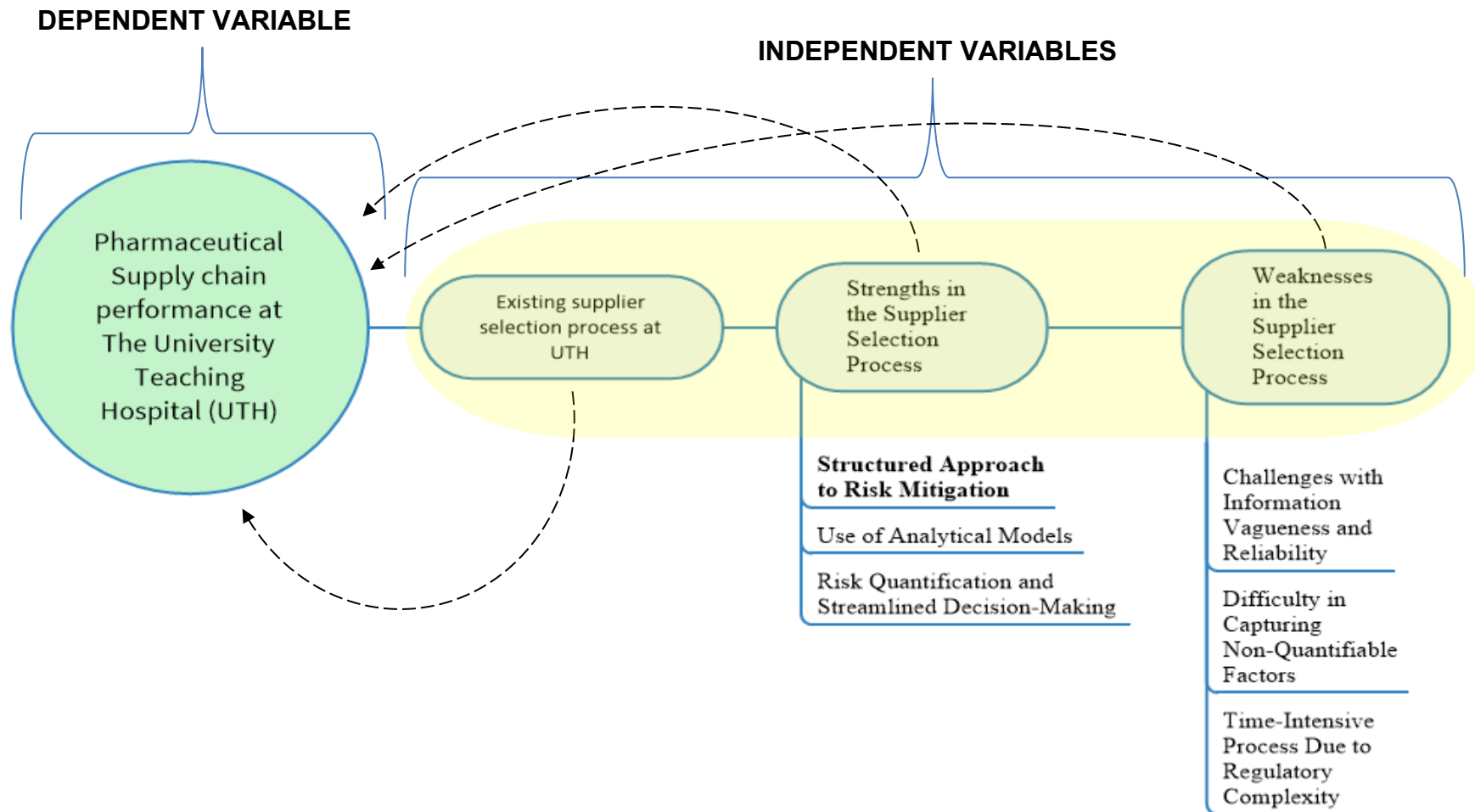
As postulated by Perry and Perkins (2002), Resource Dependence Theory (RDT) goes a long way in explaining the relational contingency that emerges between an organisation and the environment in the process of seeking such crucial necessities and success resources. More particularly, RDT presumes that organisations use outside resources for which they must ensure organisational systematicity due to the inherent organisational risks and the need for acquiring resources from suppliers, for example. Regarding the decision of supplier selection, the Resource Dependence Theory stresses the idea of forming strong bonds with a set of key supplier organisations and at the same time, minimising strong relationships with certain suppliers. The kind of theory that RDT retains importance when it comes to application

of healthcare supply chains that are formulated to enable the flow of healthcare goods and services, because such processes are not easily halted.

2.4 Conceptual Framework

The conceptual framework of this study explored the antecedents to pharmaceutical supply chain performance within the University Teaching Hospital (UTH). In this regard, pharmaceutical supply chain performance in UTH functions as the dependent variable that captures supply chain responsiveness and efficiency concerning supply of requisite MPPs and other pharmaceuticals while preserving product quality. As a matter of fact, supply chain management performance in a healthcare facility has strategic significance since it determines the success or failure of the facility, the cost of operations, and complicity with state and federal laws on healthcare. This variable can be evaluated based on elements of performance indicators like the periodicity, reliability and general adaptability to situation in particular supply shocks (see figure

Figure 3 conceptual framework



This study concludes that there is need to address issues of structure in supply chain for pharmaceutical products to support and enhance healthcare delivery through managing stock out situations of medicines. The moderating independent variables include UTH's current supplier selection system; Current strength in this system; Current weakness in this system, all of which affect efficiency of the pharmaceutical supply chain as revealed in the research; (Refer to figure 3 below).

The first independent variable analyses the current supplier selection process followed at UTH advocating for formally established structured buying processes that would decrease the likelihood of risky supplier contracts while enhancing the supply of medical products. Systematic selection in compliance with established guidelines improve supply chain and efficiency that is vital for every health consuming entity including The University of Tanzania, Tring Hospital.

The second variable is strengths in supplier selection, which relates to the impact of the beneficial aspects of UTH's selection practices for example risk management techniques, Multiple Attribute Decision-Making (MADM), and Principal Component Analysis (PCA). Such models provide a more structured approach to supplier rating, reduce miscalculations, and guarantee compliance with material supply chain quality. For this variable, the hypothesis is that effective risk management counter measures together with predictive analytical tools would enhance supply chain resiliency since it helps to prevent avoidable disruptions that threaten pharmaceutical availability as shown in the Fig. 3.

The third variable is weak in supplier selection and the weaknesses represent the supplier selection information ambiguity, lack of clear information and measurement difficulties of the two soft factors namely, trustworthiness and supplier relationship. These weaknesses give rise to unreliable supplier relationship, time delay and sometimes product stock out which are all detrimental to the supply chain. The hypothesis assumed in this research is that these inefficiencies compromise the desired performance of the pharmaceutical supply chain at UTH as indicated in figure 3.

Therefore, the study seeks to increase knowledge of the factors impacting on supplier selection in the UTH's pharmaceutical supply chain. By assessing the strength possessed in the areas of risk identification and management, existing threats and system evaluation of selection criteria, UTH can promulgate structures aimed at strengthening supplier dependability and overall supply chain responsiveness. The study will then examine the assumed relations to see if enhancements of the supplier selection procedure contribute to enhanced and optimal procurement of the pharmaceutical products in UTH.

Finally, the study posits that efficient supplier management, including supplier evaluation and risk management, is indispensable for the high-performance supply chain of pharmaceutical facilities within healthcare settings. If the observed strengths and weaknesses of the selection process are mitigated, UTH can overcome stock-outs and thus improve the reliability of the health care delivery system. This study raises the use of both quantitative and qualitative assessments of suppliers to support better supply chain performance improvements in healthcare organisations, which is a model described in Figure 3.

CHAPTER THREE – RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlined the research methodology employed to address the research objectives and answer the research questions. It detailed the research design, population of the study, sampling techniques, data collection instruments, data analysis methods, ethical considerations, and work schedule.

3.2 Research Design

The research design for this study was both exploratory and descriptive, aiming to comprehensively investigate the current practices and challenges surrounding supplier selection at UTH. This approach allowed for a thorough understanding of the existing processes while also proposing interventions for improvement. Mixed methods were utilised, combining qualitative interviews or focus groups with quantitative surveys or data analysis techniques to provide a comprehensive overview of the topic.

3.3 Population of the Study

The University Teaching Hospital (UTH) in Zambia currently has a workforce of around 906 medical and administrative personnel, including about 396 nurses and 146 medical doctors. UTH is the largest public tertiary hospital in Lusaka, Zambia. However, this study's targeted population at the University Teaching Hospital are 300 key stakeholders involved in the supplier selection process at UTH. This includes procurement officers responsible for vendor evaluation, department heads overseeing procurement activities, healthcare providers who interact with supplied resources, and representatives from supplier organisations. Involving these diverse stakeholders ensured a comprehensive understanding of the supplier selection dynamics at UTH.

3.4 Sampling Techniques

Convenience sampling or purposive sampling methods was employed to select participants for the study. This approach allowed for the intentional selection of individuals based on their relevance to the research objectives and their direct involvement in supplier selection activities at UTH. Sampling was guided by the

principle of selecting participants who can provide rich and relevant insights into the research topic.

3.5 Sample Size

The sample size for the study was determined based on the principles of saturation in qualitative research or statistical power analysis in quantitative research. This ensured that the sample is sufficiently representative of the target population and allows for the exploration of diverse perspectives and experiences related to supplier selection at UTH.

Given the targeted population size of 300 people, using Yamane's (2015) formula for sample size determination, with a 5% margin of error the sample size was calculated as follows:

$$n = \frac{N}{1 + N(e^2)} = \frac{300}{1 + 300(0.05^2)} = 171 \text{ study participants}$$

Thus, a sample of 171 participants was selected for this study, ensuring a robust representation of the study targeted population.

3.6 Data Collection/Instruments

Data collection instruments include semi-structured interviews, questionnaires, observation protocols, or document analysis tools. These instruments were designed to gather comprehensive data on the current practices, challenges, and opportunities related to supplier selection at UTH. The selection of instruments was guided by the research questions and objectives, aiming to capture both qualitative insights and quantitative data as appropriate.

3.7 Data Analysis

Measurement of quantitative data These was done using descriptive analysis with comparison of the frequency of practice between the participants in the study being done using one way analysis of variance or t-test Measurement of qualitative data. Data was reduced using codes, codes compilation and theme development or content analysis on data that was collected from Interviews or Focus group discussion. In addition for quantitative survey data descriptive statistics, inferential analysis or

regression analysis was conducted. The choice of the kind of analysis methods has been based on the kind of the data obtained and the goals set for the research to obtain the maximum results from the data.

3.8 Ethical Considerations

This opinion is shared anywhere that ethical issues are very core in any research particularly in human subjects. About the participant's rights and their welfare, professionalism in ethical standards was upheld, and no participation's identity or information was revealed. Getting the consent of the participants was among the critical procedural factors that were followed in the study. The participant information comprised as to the nature and purpose of the upcoming study, what the study would entail, potential emergent adverse effects and the overall benefits of the study. Which made them confident that they could enquire and make correct choices regarding their involvement. Patients signed consent forms as a means of contracting the research to participate in the research.

CHAPTER FOUR: PRESENTATION OF RESULTS

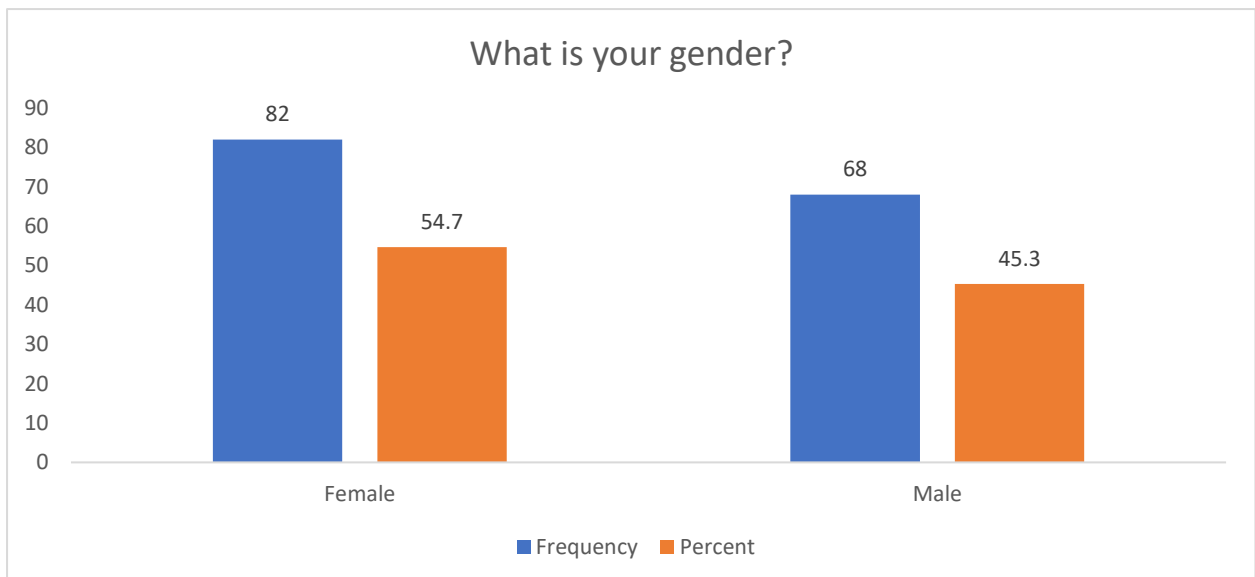
4.1 Introduction

This chapter presented the results obtained in the study regarding the influence of supplier selection criteria on pharmaceutical supply chain performance at the University Teaching Hospital.

4.2 Demographic analysis

The total number of respondents for this study was one hundred and fifty respondents, with equal gender distribution. The participants were females (n = 82) being 54.7% of the sample while the males constituted 45.3% (n = 68) of the sample size. From this distribution it was realised that many participants were females than males meaning that females participated more than males. Gender representation in this study produced a slightly higher number of female participants than male, this may be an implication of a balanced gender representation with a slight inclination towards a female majority in the targeted population (as shown in figure 4).

Figure 4: Respondents' gender

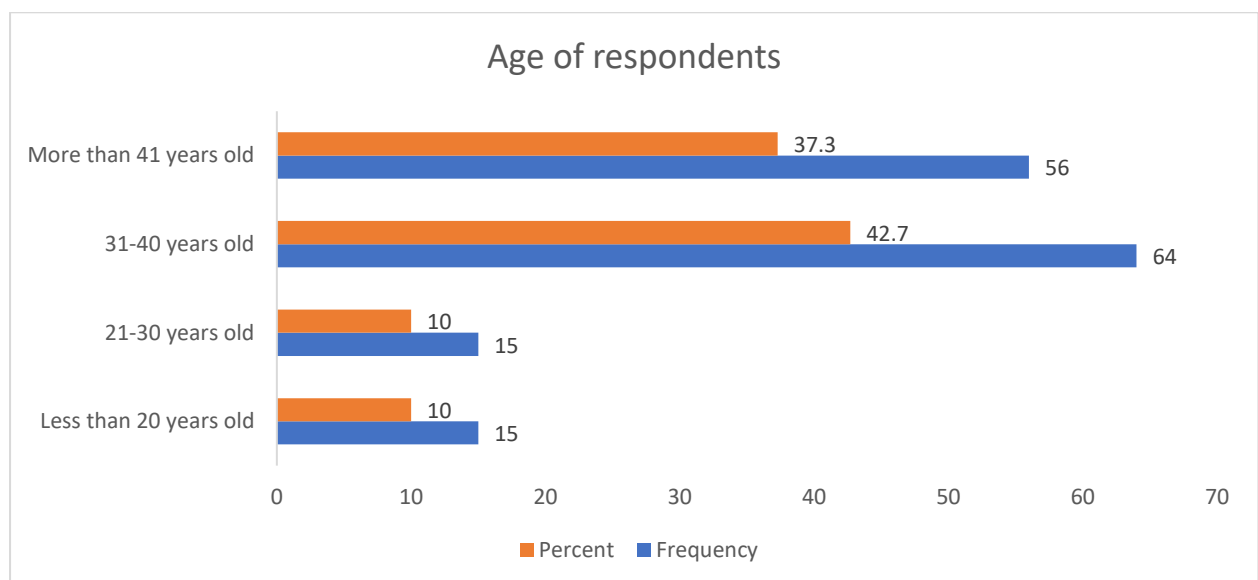


In this study, the age distribution of 150 respondents reflected a diverse range of age groups, highlighting the varied demographic profile of participants. Respondents under the age of 20 constituted 10.0% of the sample, equating to 15 individuals. Similarly,

individuals aged between 21 and 30 years also represented 10.0%, with another 15 respondents in this category. The biggest number of participants – 42.7% of the sample – fell within the age range from 31 to 40 years; 64 participants were in this category. This group made up the largest part of the sample proving that participants from the middle-aged bracket comprised this research’s populace. Last of all, 37.3% of the sample with 56 participants belonged to the age group of 41 years and above; they qualify as the second-largest age group in the study (figure 5).

The study highlights that there is relatively equal representation of the young, middle and elderly respondents and the prominent share falls to the group of 31-40 years old. This distribution may mean that the bulk of insights, which the study has provided, may be dominated by findings derived from middle-aged or older persons (figure 5).

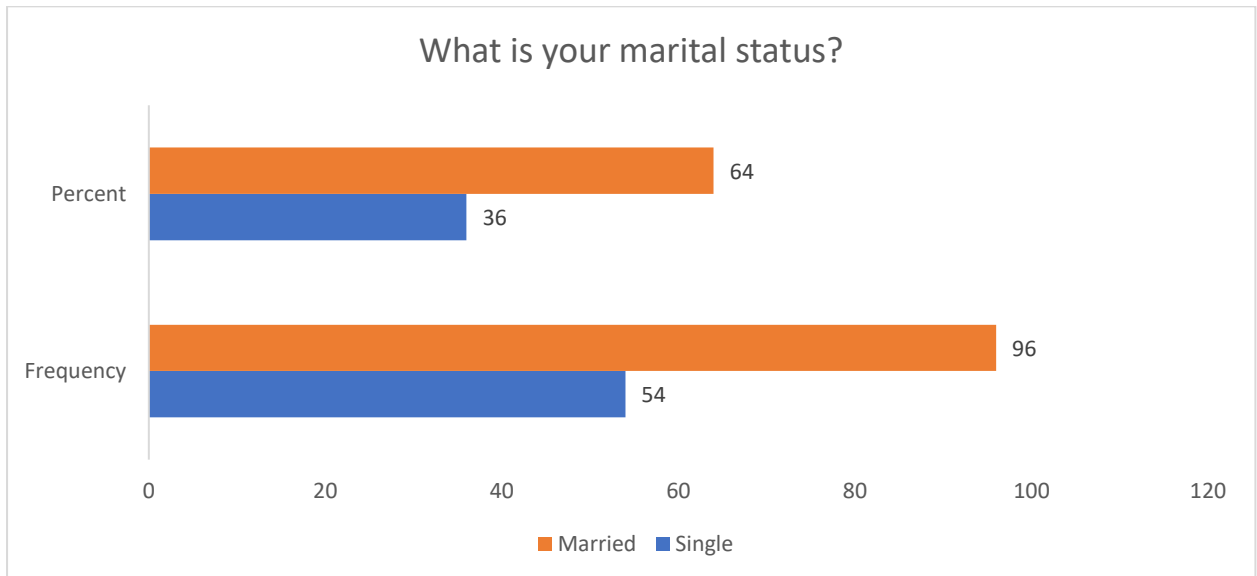
Figure 5: Age of respondents



This CEA paper used cross-sectional survey in which majority of the 150 respondents differed in the marital status as single and marry. Married participants were 64.0% of the total sample, with 96 participants falling under this category. This majority group means the hegemonic involvement of married persons concerning subjects for the study. However, 54 of the respondents replied that they are single, therefore making 36.0% of the respondents for this study. This group forms a relatively but considerably sizeable portion of the study respondents providing the research findings mileage into understanding both single and married persons as illustrated in figure 6 below.

This marital status resulted in this study revealed that more participants were married than single, without a partner in mass quantity. This distribution made me conclude that any conclusions drawn from this study may mainly focus on the experience and attitude of the married respondents; however, the results must have incorporated useful feedback from some of the single respondents as well (see figure 6).

Figure 6: Marital status of respondents



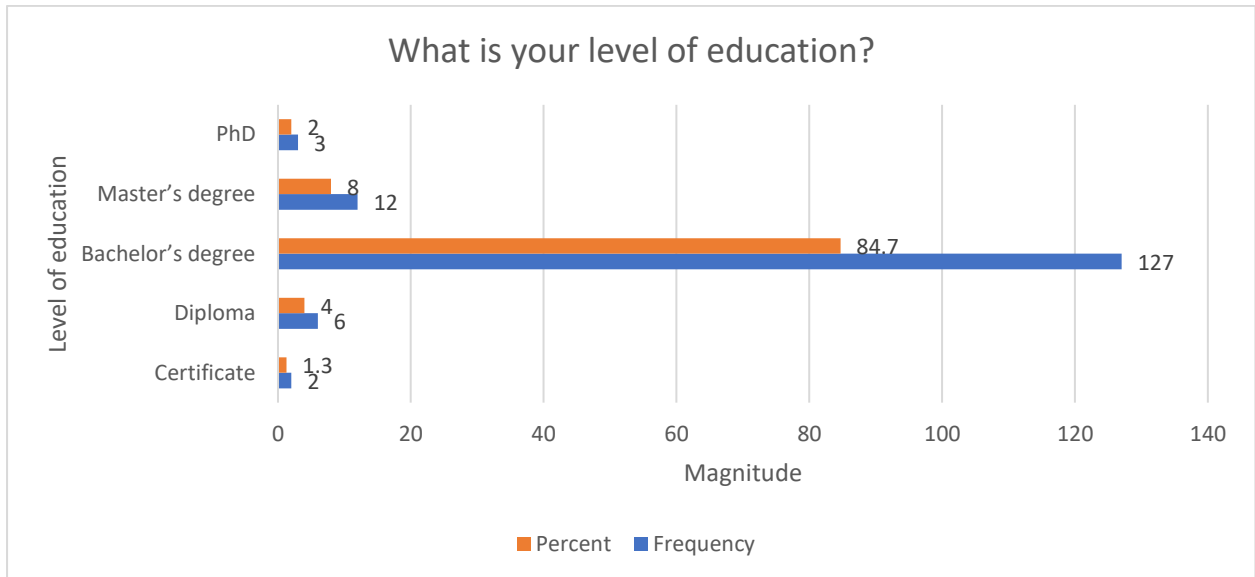
As for the respondents' education, aggregated data indicated a strong representation of participants with a bachelor's degree, in which 84.7% of the sample obtained this level of education (n = 127 out of 150). This finding reflected a profession with post-school qualifications with a majority having attained an undergraduate degree. However, 8.0%, or 12 people, said they attained a master's degree, which showed that more people with advanced education beyond a bachelor's degree are present, even if in a much smaller number (figure 7).

A very small proportion of respondents have formal education at the PhD level of education, in fact, three respondents achieved this level (2.0% of all respondents). In a similar regard, 4.0% are diploma holders amounting to 6 participants only; and a mere 1.3% (2 respondents) possess a certificate, which confirm that people with lower education status are scarce in this group (see figure 7).

Further analysis on the education distribution of the study participants it was established that most of the subjects belong to the higher education group with very

few of them in the lower or higher education groups. Such developed participants may stand to reflect educational bias that colours the study – a hint depicted in figure 7 above – given the high educational standards displayed by the participants.

Figure 7: Respondents’ level of education

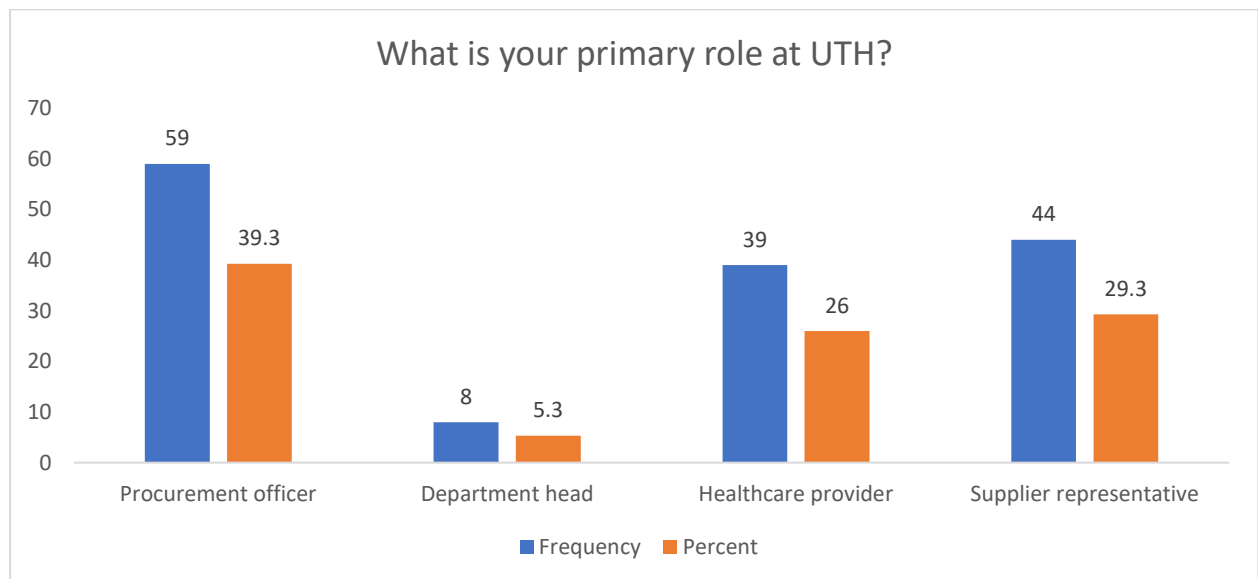


The allocation of respondents’ primary roles at the University Teaching Hospital (UTH) revealed that the highest percentage of respondents work as procurement officers; 39.3% (n = 59). This strong representation indicates that procurement officers are strategically positioned in the supplier selection and equivalent activities in UTH. Supplier representatives are the second largest group of respondents representing 44 of the 150 participants 29.3% (see figure 8) the views of supplier representatives are crucial to the supply chain as they act as external stakeholders in the procurements process.

The healthcare provider group is the second-largest group, has 39 participants, that means there are a considerable number of internal stakeholders who engage with supplied resources daily and may provide some ideas about the real effects of procurement decisions on the healthcare service delivery. Last but not the least, only 8 respondents or 5.3% are from the department head population, which nonetheless provides a strategic and managerial perspective to the outcomes of the study as a manager is responsible for managing the procurement activities (see Figure 8).

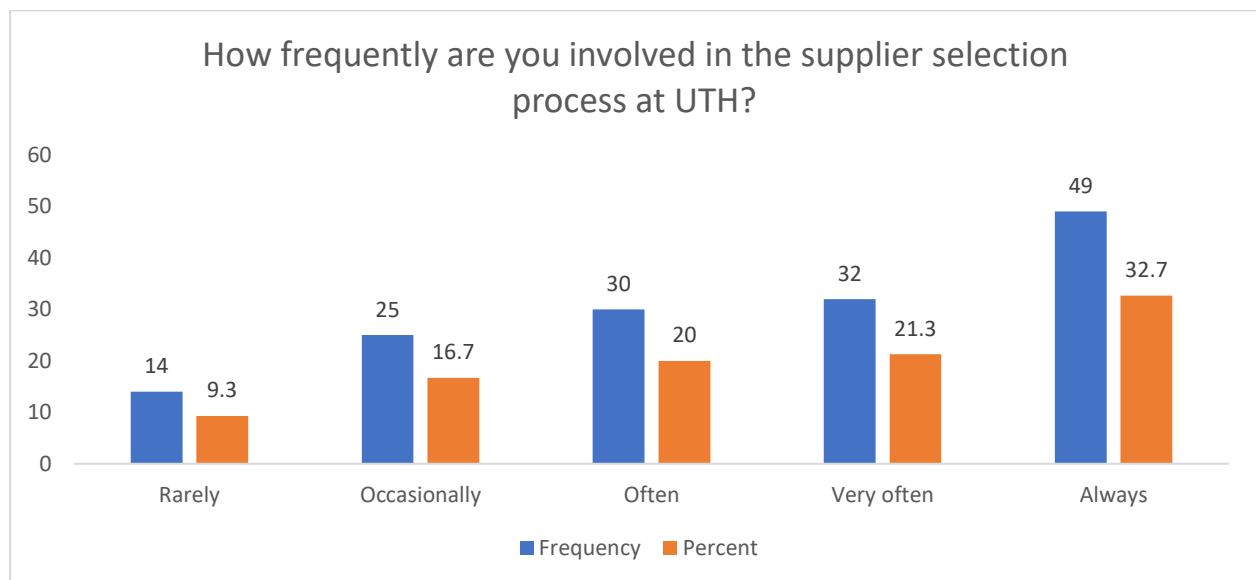
The selection of respondents composed mostly of procurement officers, supplier representatives, and health care providers offer a diverse view of supplier selection within the UTH. These different primary roles make the study diverse in exploring the procurement processes that can be leveraged to address service delivery gaps at UTH (see fig 8).

Figure 8: Roles of respondents at UTH



The frequency of involvement in the supplier selection process among stakeholders at the University Teaching Hospital (UTH) varies notably. The largest group, comprising 32.7% of respondents (49 individuals), indicated that they are "always" involved in supplier selection activities. This high level of involvement among a significant portion of stakeholders underscores a strong, ongoing engagement with procurement processes at UTH (see figure 9). Those who are "very often" involved in supplier selection make up 21.3% of respondents (32 individuals), while those who are "often" involved constitute 20.0% (30 individuals). These groups combined indicated that over half of the respondents participate frequently in supplier selection, highlighting a solid base of consistent engagement (see figure 9).

Figure 9: Involvement in supplier selection processes at UTH



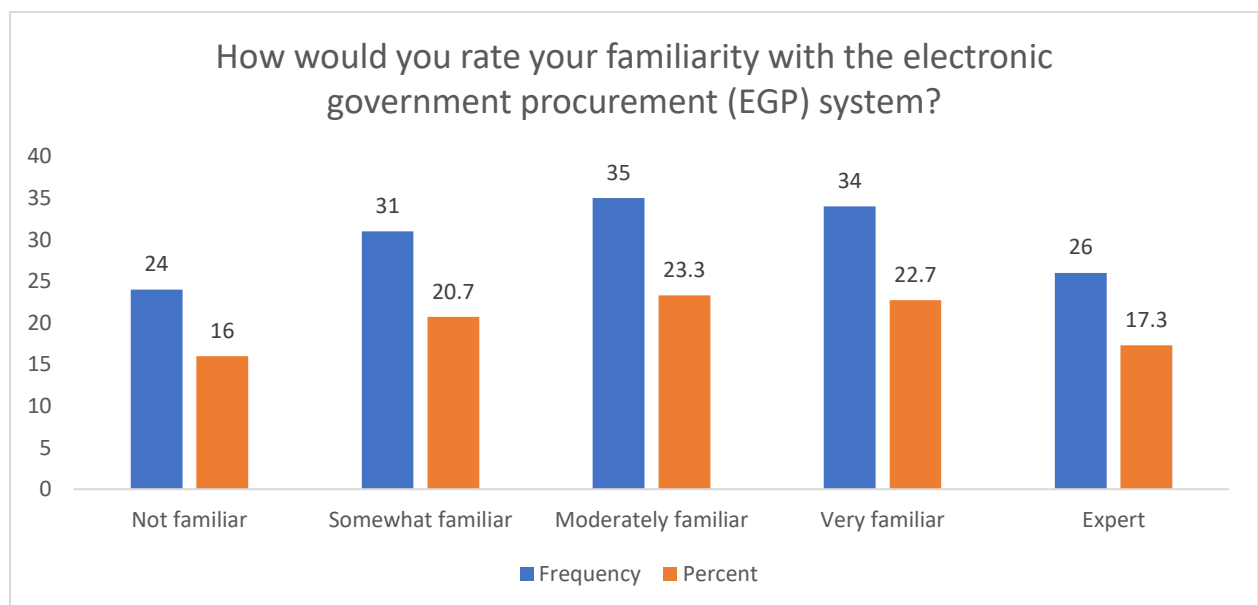
On the other hand, fewer respondents are attending the fairs less often 25 or 16.7% occasionally attend the fairs, and 14 or 9.3% rarely attend the fairs. An assumption of this level means that several stakeholders have limited contact with supplier selection procedures, which may be due to some of the role characteristics or other commitments (see figure 9). Consequently, from the above analysis, it may be concluded that most of the UTH stakeholders are involved and are actively participating most of the time within the supplier selection process and we have in our fold a considerable number of these influential and frequent participants. As depicted in figure 9 this demonstrates that supplier selection is a well-integrated practice, and it is implemented systematically with the assistance of experienced and frequently involved suppliers thereby indicating the possible positive effects of procurement in UTH conclusion.

The survey reveals samples of Cross-sectional awareness regarding the EGP in the University Teaching Hospital. The answer choice, which 23,3% of the participants chose as the most appropriate, was 'Moderately familiar', 35 respondents claimed to be at that level, so this result indicates that a great part of the participants knew EGP system only to some extent or were intermediately knowledgeable. Next to this, 22.7% (34 respondents) used the label 'very familiar', indicating that a clear subpopulation

has a good working knowledge about the functioning of the EGP system (see figure 10).

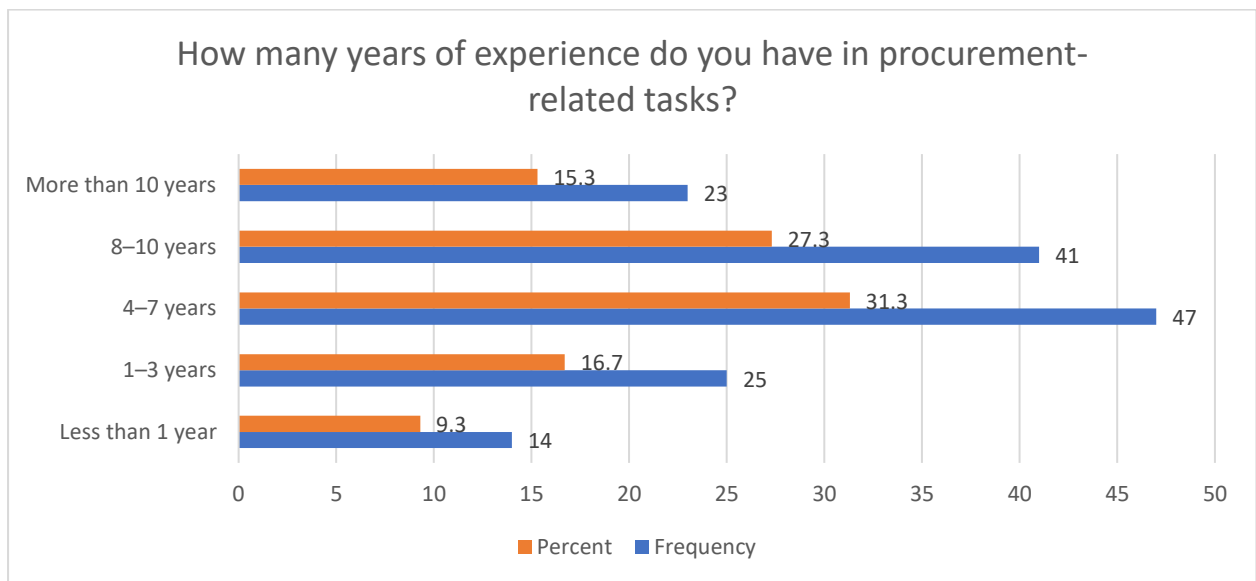
The second level of EGP familiarity was mentioned by 20.7% of the respondents; 31 participants selected 'somewhat familiar' option which means that they can have limited interactions with EGP. Out of the respondents 26 of them said that they can be regarded as an expert as per their operation under EGP system provisions, the percentage representation was 17.3%. In contrast, 16.0% with 24 persons stated that they were 'Not familiar' with the system, indicating either lack of exposure or knowledge of the system among the participants (refer Fig: 10).

Figure 10: Familiarity with the electronic government procurement system



The results indicate that most stakeholders possess at least a moderate familiarity with the EGP system, with nearly 40% demonstrating high to expert knowledge. This distribution of familiarity suggests a solid foundational understanding within UTH, although gaps remain, with some participants indicating limited or no familiarity with the system.

Figure 11: Years of experience in procurement



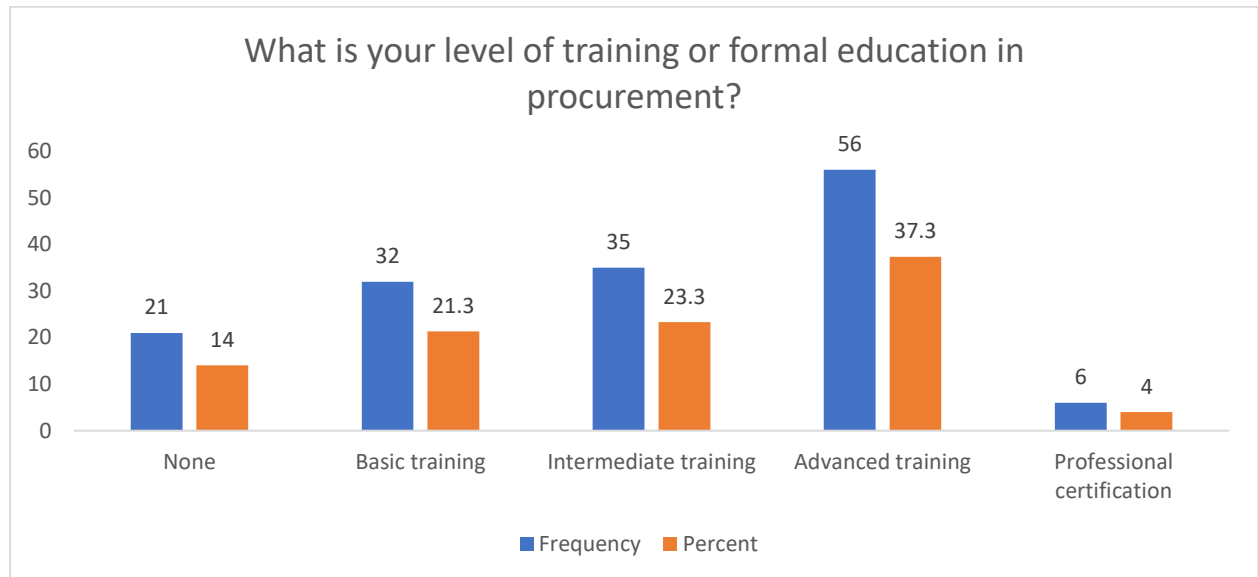
Consequently, the data obtained provided a picture of the University Teaching Hospital about the various experiences of participants performing tasks related to procurement. Almost a half of the respondents, 31,3%, with 4-7 years of experience, show that a major part of the group has relatively middle level of organizational experience in procurement activities. Next to this, 27.3% enough of the respondents, 41 of them, declared 8–10 year of experience it is evident, there is a significant number of experienced professionals in the procurement positions (see Figure 11).

In addition, 16.7% (25 individuals) claimed they had between 1–3 years of experience; these are young personnel who may not be well conversant with procurement procedures. A little over half of the respondents, 15.3% (23 individuals), said that they had more than 10 years of experience which show that there are experts in the identified stakeholders. At the same time 9.3 % (14 individuals) have got less than one year of experience which portray a little bit of people coming to procurement tasks for the first time (see figure 11).

The findings pointed to a relatively diverse level of exposure to procurement-related activities among the stakeholders, where the most represented group was that of individuals who have been in practice for 4 to 10 years; this would show that the workforce is knowledgeable and well experienced in procurement activities. Such spread of experience means that various levels of experience in procurement activities

may help in developing moderate and balanced procurement strategies (refer figure 11).

Figure 12: Training or formal education in procurement



The findings depicted the training or formal education in procurement among the participants at the University Teaching Hospital on a continuum. About three out of five of the respondents, 37.3% (56 individuals) said they have advanced training in procurement, pointing to a picture that a significant portion of the group possesses a relevant and sufficient training for the procurement work. Further, 23.3% (35 participants) qualified themselves as having intermediate training indicating moderate levels of training among the participants (see figure 12).

Another 21.3% of the respondents stated basic knowledge on procurement was obtained (32 persons), which means that the given portion of the staff has basic conceptual knowledge in procurement. At the same time, 14 per cent (21) of the respondents holding procurement positions confessed to having no formal education of any form in procurement, which is a subgroup of individuals who may only rely on their experience rather than having theoretical knowledge. The fact is that only 4% (6 participants) confirm to be certified professionals in procurement which points to the fact that few have acquired any form of special accreditation in this line (figure 12).

Therefore, most participants reported intermediate to advance level of training in procurement, meaning the research group was reasonably well trained with diverse

levels of training. We see from figure 12 that there exists a range of skills or levels of expertise the personnel in procurement, ranging from a few professionals with certification to many with no training at all which means that procurement processes may not be consistent or effective in UTH.

4.3 Existing supplier selection process at UTH, including its strengths, weaknesses, and areas for improvement

The findings that we got suggest that the commonest technique in use in the supplier selection at the University Teaching Hospital (UTH) is sole sourcing because 88% of the respondents (132) pointed to it as the main technique being used. This is supported by a very high inclination of direct purchasing from the suppliers which may be due to relations, or trust factor. The high levels of sole sourcing may suggest a system of concentrated procurement which could assist in decisions and processes being progressed more quickly (refer to table 2).

Prequalification and selection on the other hand only attracted 3.3% (5 respondents) of the responses meaning that this competitive method is rarely used at UTH. At the same time, the multi-stage evaluation was mentioned by 8.7% of participants; 13 respondents. This approach may be more useful where a broader survey of supplier capacities and credentials is required, which is less often a requirement due to the relative infrequency with which these more exhaustive assessments are needed (see table 2).

UTH was found to be employing single-source supplier identification strategy, with little activity in pre-qualification and multi-stop supplier selection models. This trend indicates that there is a chance for the UTH management to consider using other supplier selection models that can strengthen competitiveness that can eventually lead to the improvement of service delivery as well as procurement performance as illustrated in table 2.

Table 2: Supplier selection process at UTH

What type of supplier selection process is most used at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------------------------|-----------|---------|---------------|--------------------|
| Valid | Sole sourcing | 132 | 88.0 | 88.0 | 88.0 |
| | Prequalification and selection | 5 | 3.3 | 3.3 | 91.3 |
| | Multi-stage evaluation | 13 | 8.7 | 8.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

The findings thus unveiled state that the most important factor considered in supplier selection at the University Teaching Hospital (UTH) is quality with 76%, (114 out of 150 respondents), responding to the question, thus selecting quality as the most important criterion. This huge emphasis on equity portrays the desire of UTH to ensure that the medical supplies and services that are purchased have distained standards which is essential for quality patient care and safety see table 3 below.

A smaller percentage of three respondents indicated that evaluation based on pricing was conducted and this was the only criterion that perceived to have low influence in the supplier selection at UTH. Again, delivery reliability was recognized by 2.7% (4 respondents), which showed that delivery reliability had a minor role in supplier assessment. A total of 8 replied that price, quality, and delivery were the most important criteria, which contributes 5.3% for the total; another 21 pointed that there were other criteria like supplier relationship and reputation, which contributed 14% for the total (see table 3).

In the case of UTH, the findings show that there is a tendency towards assessing the performance of these suppliers based on quality at the expense of cost efficiency. The relatively low level of focus on price and admission of other factors indicates that overall, the approach of providing supplier evaluation is systematic and could have a positive impact on the procurement process and service delivery (see table 3).

Table 3: Evaluation of suppliers

How are suppliers primarily evaluated during the selection process at UTH?

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|-----------|---------|---------------|--------------------|
| Valid | | | | |
| Based on price alone | 3 | 2.0 | 2.0 | 2.0 |
| Based on quality standards | 114 | 76.0 | 76.0 | 78.0 |
| Based on delivery reliability | 4 | 2.7 | 2.7 | 80.7 |
| Based on a combination of price, quality, and delivery | 8 | 5.3 | 5.3 | 86.0 |
| Based on additional factors such as relationship and reputation | 21 | 14.0 | 14.0 | 100.0 |
| Total | 150 | 100.0 | 100.0 | |

The results derived suggest that risk assessment tools employed in the supplier selection at the University Teaching Hospital (UTH) are used differently by respondents. In more detail, 17 out of 150 respondents underlined that such tools are never used, and 32 more respondents stated that they are rarely employed. This implies that many the personnel may not extensively depend on these tools during the selection process (table 4).

On the other hand, 30.7% (46) were as responding that risk assessment tools are used at times in the evaluation of the supplier, and 24.7% (37) of the respondents affirmed that the tools are often used in this evaluation. Further, 12% (18 respondents) said that risk assessment tools are always employed in supplier selection, (see table 4).

The results agree with a moderate to high rate of using a risk assessment tool when selecting suppliers in UTH, with a significant number of the respondents using risk assessments either regularly or frequently. But as the survey shows, there are still substantial portions of respondents who use these tools either seldom or never, which means that the general problem of integrating the risk assessment practices on the sphere of procurement has been remained topical. Increasing the application of risk assessment tools might play part in reducing procurement risks alongside improving choice throughout UTH (refer table 4).

Table 4: Utility of risk management tools

How frequently are risk assessment tools (e.g., risk matrices, scoring models) used in the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Never | 17 | 11.3 | 11.3 | 11.3 |
| | Rarely | 32 | 21.3 | 21.3 | 32.7 |
| | Sometimes | 46 | 30.7 | 30.7 | 63.3 |
| | Often | 37 | 24.7 | 24.7 | 88.0 |
| | Always | 18 | 12.0 | 12.0 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

From the result obtained quality standard appears as very relevant concerning the supplier selection in University Teaching Hospital, more so 50.7% (76) of the respondents claiming it to be of most importance. However, such a large majority is in Favour to the idea of QMSA to provide concentration for management of superior purchase of products and services as it is shown in the table 5.

The second idea is the concept of cost which attract 19.3% (29) of participants regarding costs in the quality factor. This show that although delivery reliability which was identified and marked by 10.7 % (16 respondents) is as important as the two above but it is not as regarded as important as quality or cost. Conflicts of interest of family members where a certain supplier might have been chosen because, were indicated by 14.7 % (22) of the respondents who operate with a long-term business relation. The least concern was shown to the regulation aspect of which only 4.7%, or 7 only said it was important (table 5).

These results suggest that, in using suppliers, it is quality problems and not cost focused factors that are the main tools through which several UTH select their suppliers. One can suppose that there are some directions in evaluation of the supplier that has not been optimised yet such as delivery reliability of providing company is objectively worse than threshold values of regulation. Thus, the strategy of approach towards improving quality is desirable in improving the procurements result of the hospital and patient's welfare as well as the overall working output of the facilities (table 5).

Table 5: Prioritised supplier selection criteria

Which of the following criteria are most prioritised in the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------------------------------|-----------|---------|---------------|--------------------|
| Valid | Cost-effectiveness | 29 | 19.3 | 19.3 | 19.3 |
| | Quality standards | 76 | 50.7 | 50.7 | 70.0 |
| | Delivery reliability | 16 | 10.7 | 10.7 | 80.7 |
| | Supplier reputation and relationships | 22 | 14.7 | 14.7 | 95.3 |
| | Compliance with regulatory standard | 7 | 4.7 | 4.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

The outcomes derived herein reveal that most supplier selection activities at the University Teaching Hospital (UTH) are accomplished within one month or less, thus 83.3% (125 respondents). This is relatively short, which goes well with an efficient procurement system since UTH can source various supplies and services.

After this, 12.7% (19 respondents) said that they may take between one to three months to identify their suppliers. A very limited number of them, said it takes between 3 to 6 months, 2.0% (3 respondents), still a smaller fraction, 1.3% (2 respondents), said 6 to 12 months. Finally, barely 0.7% one respondent pointed that the selection process takes more than one year.

The fact that most of the supplier selections were made within less than one month shows that UTH follows a rational model of procurement. As for most selections most of the time they are quite efficient, but the extremely small numbers for higher time periods would indicate that perhaps there are few situations where such long assessment is necessary. This efficiency appears to be helpful to UTH with a view to ensuring timely availability of these products and consequently useful in enhancing the operational capability of this hospital.

Table 6: Supplier selection duration

What is the typical duration of the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------------------|-----------|---------|---------------|--------------------|
| Valid | Less than 1 month | 125 | 83.3 | 83.3 | 83.3 |
| | 1–3 months | 19 | 12.7 | 12.7 | 96.0 |
| | 3–6 months | 3 | 2.0 | 2.0 | 98.0 |
| | 6–12 months | 2 | 1.3 | 1.3 | 99.3 |
| | Over 12 months | 1 | .7 | .7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

That result of finding indicated that the evaluation of supplier at University Teaching Hospital (UTH) is mainly efficient because 83.3% of respondents said that process is done within a month as well. This short time shows that procurement was well aligned where UTH could get the supplies it wanted for operational business and stay on track with procurement business (Appendix 6).

The suppliers' identification takes from one to three months, according to 12.7% of the respondents. Finally, a dismal 2.0% of the respondents opined that the process is one that takes between three and six months. Even fewer, 1.3% said it takes six- twelve months and a dismal 0.7% said it takes more than twelve months to select (table 6).

This research work finds that within a given timeframe UTH mainly adopts a rapid supplier selection method, which is useful in fast acquisition of vital essentials. Where longer durations are being considered, the absolute minimum percentages do confirm to the effect that many the procurements instituted at UTH have been quick to receive evaluations. This efficiency is anticipated can in turn influence the Hospitals' service delivery and its ability to respond to operational requirements as postulated in table 6.

Table 7: Role of technology in supplier selection process at UTH

What role does technology (e.g., E-procurement, data analytics) play in the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|------------------|-----------|---------|---------------|--------------------|
| Valid | No role | 12 | 8.0 | 8.0 | 8.0 |
| | Minor role | 31 | 20.7 | 20.7 | 28.7 |
| | Moderate role | 53 | 35.3 | 35.3 | 64.0 |
| | Significant role | 43 | 28.7 | 28.7 | 92.7 |
| | Critical role | 11 | 7.3 | 7.3 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

With regards to the findings the last possibility that may be derived and argued from the study is that technologies remain a tool in the larger scheme of supplier selection within the context of the UTH. Hausman typer cent of the respondents agreed that the effect of technology on it was moderate and that it was pertinent to increasing the effectiveness of the procurement system. Further, 28.7% of the respondent submitted that importance of the work of tech is important and thus, some of these that are outlined in the paper such as e-procurement and data analytic are used in decision making as shown in table 7 below.

Indeed, a shocking 8.0 percent of the respondents acknowledged that technology's influence on the supplier selection process is either negligible or minimal. With respect to the importance of technology, 7.3% said that it is important; still, there is recognition of the ability to optimise use of the more effective technologies in procurement (table 7).

The results bring confirmation of the purposefulness of technology in the supplier selection, in which 97% of the participants assess the role of technology as moderate/sig. It is probable to present definite enhancements up to the usage of technologies in procurement too which would contribute to improvements of decision-making concerning suppliers and procurement as well various aspects of procurement and their efficiency. Further development in this area is still possible to maintain UTH's competitiveness to meet the operational needs as illustrated in table 7 above.

Table 8: Utility of analytical models

How would you rate the use of analytical models (e.g., Multiple Attribute Decision-Making) in the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------------------|-----------|---------|---------------|--------------------|
| Valid | Not used at all | 11 | 7.3 | 7.3 | 7.3 |
| | Rarely used | 112 | 74.7 | 74.7 | 82.0 |
| | Occasionally used | 12 | 8.0 | 8.0 | 90.0 |
| | Frequently used | 5 | 3.3 | 3.3 | 93.3 |
| | Always used | 10 | 6.7 | 6.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

They point out that there is no appreciation for quotative instrument and instruments including Multiple Attribute Decision-making (MADM) during this selection at UTH. In addition, only 74.7 % of the respondents mentioned that these models are rather used seldom which in fact can speak about low involvement of the initial structured analytical approaches when designing candidates. Similarly, 7.3% mentioned that analytical models are not employed and the results also suggest non utilisation of such tools (table 8).

To the third question of respondents, just 8.0% use analytical models sometimes or 3.3% uses analytical models often or even 6.7% uses analytical models always. This also brought about the fact that though there has been a measure of analytical framework in place which is rarely the standard in procurement framework at UTH (Table 8).

From the research results presented here, it is therefore clear that the use analyses the suppliers' selection procedure is grossly missing at UTH. Formal as well as informal or less structured approach shows where there is area for development in what extent. Therefore, with the application of these analytical models there will always be improvement to the decision-making process to as far as supporting the best choice of suppliers thus improving the performance of the procurement department of UTH. Focusing on attainment of training on such models, also seems to bring a great enhancement of the absorption of the related practices of procurement as depicted in the table 8 below.

Table 9: Benefits of the structured approach to risk mitigation

How beneficial do you find the structured approach to risk mitigation within the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------------------|-----------|---------|---------------|--------------------|
| Valid | Not beneficial | 27 | 18.0 | 18.0 | 18.0 |
| | Slightly beneficial | 53 | 35.3 | 35.3 | 53.3 |
| | Moderately beneficial | 51 | 34.0 | 34.0 | 87.3 |
| | Very beneficial | 14 | 9.3 | 9.3 | 96.7 |
| | Extremely beneficial | 5 | 3.3 | 3.3 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

To this end, conclusions derived from this research are as follows: UTH management appears to have a changed attitude regarding the formalism of risk management procedure regarding supplier selection. However, as it will be further described, an additional 18.0% of respondents considered it as an ineffective strategy. When asked how helpful it was for 35.3%, they mentioned it was not very helpful, for use they nominated somewhat helpful while 34.0% said it was moderately helpful. It could mean one of two things, first, that it is not very effective at that or else people have many issues whether on its effectiveness or lack of it.; 9.3% of the participants stated that the approach was very useful for the results as presented in Table 9, while 3.3% found the approach extremely useful.

The fourth hypothesis was that respondents would perceive some organisational benefits of the structured approach and here 52% of at least a slight benefit was identified. But here there is a slight possibility of increasing the percent of the respondents who consider it as not beneficial, and it is comparatively high (table 9).

Consequently, there seems to be far more perceived benefit of the enhanced approach to risk management within the supplier selection process for University of Transmission and Health; however, there are also many who consider it entirely ineffective. This implies that a more objective analysis and potentially better appreciation of the available methods for modifying attitudinal and affective attributes together with the supplier's selection and risk analysis approaches as demonstrated in table 9 may be required.

Table 10: Effect of information vagueness

To what extent does information vagueness affect supplier selection decisions at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------------|-----------|---------|---------------|--------------------|
| Valid | Not at all | 24 | 16.0 | 16.0 | 16.0 |
| | Slightly | 33 | 22.0 | 22.0 | 38.0 |
| | Moderately | 8 | 5.3 | 5.3 | 43.3 |
| | Significantly | 67 | 44.7 | 44.7 | 88.0 |
| | Very significantly | 18 | 12.0 | 12.0 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

About the study aims, of all the participants; 44.7 % singled out that high vigour information has some impact on decisions and 12.0 % of the participants described the impact of decisions as very high. Regarding the options, 22.0 % of the respondent mentioned low effect while 5.3 % moderate and 16.0 % no influence from the options, but this impression showed that some stakeholders are comfortable to handle uncertainty as indicated in the table 10 above.

One of the implications of the findings is that enough information concerning the suppliers must be provided to help get rid of any doubts and therefore support the improvement of the supplier selection and procurement. Probably the point seems to be missed out that constituent inaccuracy might be an opportunity of enhancing the instruments' effectiveness while carrying out the supplier evaluations as depicted in the table 10 below.

Regarding the manager evaluation moreover, another concern includes qualifications that form the supplier relation according to the study. Regarding the ease or difficulty to fulfil these factors, 36.0% said it was easy while 22.0% said it was a little difficult 11.3% moderate difficult while the rest, 26.0% said it was highly difficult. Table 11 responses from participants some of the responses were that they had serious difficulties in enunciating these factors, and only a few numbers of participants 4.7% gave their response.

Thus while 63% of the respondents agreed that qualitative factor evaluation was not very difficult, a section of the respondents considered challenges to be rather serious. These implications call for enhancement of the set techniques in some points of

qualitative and quantitative techniques in supplier selection with an aim of achieving higher levels of objective and authoritative system in supplier selection at UTH as indicated in the table below.

Table 11: Challenges with non-quantifiable factors

How challenging is it to account for non-quantifiable factors (e.g., supplier relationships) in the current selection process?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|------------------------|-----------|---------|---------------|--------------------|
| Valid | Not challenging | 54 | 36.0 | 36.0 | 36.0 |
| | Slightly challenging | 33 | 22.0 | 22.0 | 58.0 |
| | Moderately challenging | 17 | 11.3 | 11.3 | 69.3 |
| | Very challenging | 39 | 26.0 | 26.0 | 95.3 |
| | Extremely challenging | 7 | 4.7 | 4.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

The results of this study present a consensus about the need to enhance the efficiency of the supplier selection process to reduce time delays at UTH. From the respondents, only 6.7% opined that there is no room for enhancing the process in general, which is evidence that a fraction of the respondents thinks the process is sufficient. Also, 12.0% observed that there was very little need for enhancement, once again asserting to a proposal that only few people are content with the existing processes (See Table 12). On the other hand, 74.7% of them realized a high extent of outstanding need for improvement suggesting that they firmly agree improvements are required to overcome deficiencies. Additionally, 4.0% reported a very high need for improvement which is an indication that action may be needed to enhance the selection process. A scant 2.7% said the need was moderate, which is drastically different from the received signal of demand for major changes as shown in table 12.

Concisely, most of the respondents stressed that there was increased delay in supplier selection and that there was need for enhancements in this area at UTH. Such consensus indicates an urgent need for organisational change to propose a more efficient method to improving the favourable supplier selection (see table 12).

Table 12: Areas for improvement

How would you rate the need for improvement in streamlining the supplier selection process to reduce delays?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------------------------|-----------|---------|---------------|--------------------|
| Valid | No need for improvement | 10 | 6.7 | 6.7 | 6.7 |
| | Low need for improvement | 18 | 12.0 | 12.0 | 18.7 |
| | Moderate need for improvement | 4 | 2.7 | 2.7 | 21.3 |
| | High need for improvement | 112 | 74.7 | 74.7 | 96.0 |
| | Very high need for improvement | 6 | 4.0 | 4.0 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

4.4 key criteria for supplier selection within the healthcare context, considering factors such as quality, reliability, cost-effectiveness, and responsiveness

According to the records of this study following this conclusion much emphasis is placed on QA whenever it comes to selection of a supplier of health care resource at UTH. However, 0.7% of the respondents strongly oppose the statement that stated that quality assurance is an issue of no importance at all; but there is a gradual shift towards recognition of the fact that QA is been very importance in organisations regardless of form. However, 31.3% considered quality assurance as slightly important, this imply that most of the respondents had minimum appreciation of the level of importance of quality assurance in the selection of suppliers as postured by table 13 above.

Immediately below that, 18.7% said that the need for quality assurance is important with 44.0% saying that the issues of quality assurance are very importance at the workplace. This much of money further supports the need to embrace quality assurance as a tool of quality assurance of health assets. Furthermore, 5.3% of participants considered that the relevance of the item was highly relevant as presented in table 13, in any way that contributed to the measures of high-quality assurance in the healthcare situation.

Consequently, the results will also highlight that quality assurance is important when choosing the supplier of the healthcare resources in UTH. This was frowned upon by most of the participants on the basis that to improve the measures that have been advised to be put in place, it should be backed by all to bring up the healthcare supply

to get the highest quality compulsory for superior performance and improved patient attention (see table 13).

Table 13: Quality assurance

How important is quality assurance when selecting suppliers for healthcare resources at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|----------------------|-----------|---------|---------------|--------------------|
| Valid | Not important | 1 | .7 | .7 | .7 |
| | Slightly important | 47 | 31.3 | 31.3 | 32.0 |
| | Moderately important | 28 | 18.7 | 18.7 | 50.7 |
| | Very important | 66 | 44.0 | 44.0 | 94.7 |
| | Extremely important | 8 | 5.3 | 5.3 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

This research conclusions show that reliability is very important in supplier choice at the University Teaching Hospital (UTH). Another 7.3% said they seldom or never make reliability their choice which means that while this criterion is perceived to be important under most circumstances, consumers do not always choose it. In addition, 22.7% noted that they seldom stress reliability, while there is at least picture recognition of its significance for 'system enhancement' (see table 14).

However, the responses that were obtained indicated that as much as 18.0 % of the respondents occasionally emphasise more on reliability and while 41.3% of the respondents constantly do. This underpins one of the seemingly higher percentages of concern about time and service in the choice of suppliers. Besides that, another question revealed that 10.7% of the respondents claimed that they always take reliability into account while making decisions about suppliers insisting on its significance in dealing with suppliers. In general, there is an indication that reliability has a general implication in context to supplier selection in UTH, as more than 80% of the participants endorsed the tool. Dependability has thus received a frequent importance through questions like, for how often and how always to mean that time delivery and sourcing from dependable sources is a key to viability of efficient operations in provision of health care (See table 4).

Table 14: Prioritisation of reliability

How often do you prioritise reliability (e.g., timely delivery) in the supplier selection process at UTH?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Never | 11 | 7.3 | 7.3 | 7.3 |
| | Rarely | 34 | 22.7 | 22.7 | 30.0 |
| | Sometimes | 27 | 18.0 | 18.0 | 48.0 |
| | Often | 62 | 41.3 | 41.3 | 89.3 |
| | Always | 16 | 10.7 | 10.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

As indicated in the results of this study there was variability in opinion regarding the ability of current suppliers to adapt to shifts in demand. The quality of the supplier was the worst of all the factors of decision making as measured by responsiveness, with 18.0% of the respondents rating the supplier as having a very poor performance with regards to their ability to respond to changes in demand. However, 23.3% participants recorded poor responsiveness concerning supplier flexibility as shown in table 15 below.

On the other hand, 15.3% of the respondents regarded supplier's responsiveness as average, this means that while the firm does have some capabilities that it can leverage the suppliers at on, it needs to improve on this aspect. A slightly better result was indicated by 30.7% of participants who named their suppliers as good – a quite high response rate in relation to changes in demands. Finally, 12.7% of the respondents affirmed that their supplier's business is highly responsive to their needs, the rest of them agreed on specific supplier's ability to meet certain unexpected occurrences (Refer to table 15). Last, the study reveals moderate participation by the suppliers at the UTH and shows that a considerable number of the respondents had negative attitudes towards the suppliers. Nonetheless, turning our attention to the table below, we realise that large portions of the respondents rated their suppliers as very poor or poor in terms of responsiveness: It was reported that as to only 15% of suppliers the responses to changes in the demand were considered to be either good or excellent, another 40% was considered to be barely satisfactory Therefore, there seems to be a significant potential in enhancing the relations with the currently

supplied firms and/or in constructing the relationships and strategies to develop the responsiveness of current suppliers.

Table 15: Responsiveness of current suppliers

How would you rate the responsiveness of your current suppliers to sudden changes in demand?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|-----------|---------|---------------|--------------------|
| Valid | Very poor | 27 | 18.0 | 18.0 | 18.0 |
| | Poor | 35 | 23.3 | 23.3 | 41.3 |
| | Average | 23 | 15.3 | 15.3 | 56.7 |
| | Good | 46 | 30.7 | 30.7 | 87.3 |
| | Excellent | 19 | 12.7 | 12.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

It is clear from the research that, how frequently that supplier evaluates quality standards in the process of selecting UTH. The results also reveal that only 12.7% of the participants specifically said that, on average, supplier quality standards are never checked. This lack of evaluation makes it necessary to question the rigour of the selection process at UTH as depicted in table 16.

A dizzying 28.7% highlighted that supplier quality standards are reviewed rarely: frequency for such a check may range for once in few years implying that checks might be conducted no more than twice in few years. Furthermore 28.0% of the participants believed that occasional assessment is done, almost annually. But the most encouraging result came from 30.7% respondents who said that evaluations are done on a regular basis and review the supplier quality standards every bi-annually Table 16.

Thus, the results described a blend between the two approaches to evaluating supplier quality standards at UTH. The qualitative analysis shows that while a substantial number of respondents state that evaluates take place frequently, many participants demonstrate that seldom if any evaluate takes place. This means that UTH should look at applying more form in its supplier quality standards assessment done to achieve the standards needed for selection and performance (as shown in table 16).

Table 16: Supplier quality standards

How frequently does UTH evaluate supplier quality standards as part of the selection process?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--------------------------|-----------|---------|---------------|--------------------|
| Valid | Never | 19 | 12.7 | 12.7 | 12.7 |
| | Rarely (every few years) | 43 | 28.7 | 28.7 | 41.3 |
| | Occasionally (annually) | 42 | 28.0 | 28.0 | 69.3 |
| | Frequently (bi-annually) | 46 | 30.7 | 30.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

The evaluation, done in this paper, shows that the degree of satisfaction, with reference to the overall reliability, cost factors and response time offered by the existing suppliers differ highly. Lastly, there was a very dissatisfied category, which was 8.7% and a dissatisfied category which was 18.0%. In table 17 there is therefore a clear implication of dissatisfaction with suppliers' performance vis-à-vis our sample of approximately 15 percent for participants in the study.

In the middle of the road, 23.3 percent of the respondents fell into this category, or what might be interpreted as indecision over the ability and desperation of their suppliers to deliver solutions at a reasonable price. However, out of all the participants only 38.0% was satisfied with the performance of his/her suppliers, this show that a high number of respondents takes current suppliers seriously. However, 12.0% said they were very satisfied; this means we have identified the population group which has a positive attitude to the reliability and responsiveness of suppliers at its optimum in this case (see table 17).

Therefore, the average percentage of satisfaction with suppliers as perceived by the respondents at UTH depict a relatively positive perception with the overall percentage sits at 50% of the scale average and above. However, resolving dissatisfaction with suppliers can indicate how some of the clients' key needs are being met inadequately and how our supplier satisfaction indexed could be increased by improving reliability and responsiveness of suppliers where they currently appear unsatisfactory to some degree across some key performance indicators (see table 17).

Table 17: Cost-effectiveness, and responsiveness of current suppliers

How satisfied are you with the overall reliability, cost-effectiveness, and responsiveness of your current suppliers?

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------------------|-----------|---------|---------------|--------------------|
| Valid | Very dissatisfied | 13 | 8.7 | 8.7 | 8.7 |
| | Dissatisfied | 27 | 18.0 | 18.0 | 26.7 |
| | Neutral | 35 | 23.3 | 23.3 | 50.0 |
| | Satisfied | 57 | 38.0 | 38.0 | 88.0 |
| | Very satisfied | 18 | 12.0 | 12.0 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

4.5 Development of a framework for enhancing the supplier selection process at UTH, integrating best practices from the literature with the specific needs and constraints of the healthcare setting.

The findings of this study also offered a table with a correlation matrix for analysing the relationship of the various factors, which influenced supply chain satisfaction, with the extent of the reliability cost, and response time of the suppliers for Uth. Several other forms of satisfaction relevant correlations were also reported in the analysis.

As the data suggest the level of overall satisfaction with suppliers is positively and significantly related to age in that the higher the age the higher the satisfaction ($r = 0.512$, $N = 250$, $P < 0.01$) this might be due to a better perception of supplier reliability and responsibility (Table 18). On the other hand, supplier satisfaction had correlation coefficient of 0.010, $p = 0.903$ on education level, meaning that education does not affect satisfaction.

The result is that as participation in the supplier selection processes increases ($r = 0.271$, $p = 0.001$), satisfaction increases since suppliers' behaviour is better understood. The Chi-square analysis reveals no correlation between awareness of the EGP system and satisfaction with the suppliers ($r = 0.127$ and 0.120).

There is a moderate significant positive correlation between the procurement experience and satisfaction ($r = 0.198$, $p = 0.015$) implying that experience increases satisfaction with suppliers' performance. The correlation refinement reveals that the specified express positive relationship between training or formal education and

satisfaction ($r = 0.380$, $p < 0.01$) wherein the evaluation and management of suppliers are significant in procurement.

Age and the involvement in supplier selection show a positive relationship ($r = 0.360^{**}$, $p < 0.01$): older respondents are more often involved in the process, experience and higher organizational status might explain this (see TABLE 18). Age was also found to be positively related to the level of education, ($r = 0.292$, $p < 0.01$), suggesting that supplier management workers who are relatively older are more educated than the younger ones, which may help explain their supplier views.

The results of correlation analysis indicate the negative relation between years of experience and frequency of involvement in supplier selection; the association coefficient is -0.320 , $p < 0.01$; thus, years of experience may result in delegation or the role diversification of teams. Years of procurement experience are positively related with EGP system knowledge ($r = 0.370$, $p < 0.01$), which imply that experience boosts system effectiveness and supplier relations.

In general, they found a strong relationship between satisfaction with supplier reliability and performance on the one hand, and age, experience, and training in procurement on the other. But the results have shown that education level does not have a significant effect on satisfaction by itself. The important implication of these findings is the need to train and use the right human resource at UTH for enhanced supplier relations and decision making as highlighted in table 18.

Table 18: Supplier selection criteria system satisfaction by demographic characteristics

| | | Correlations | | | | | | |
|---|---------------------|---|------------------|----------------------------------|---|--|--|--|
| | | How satisfied are you with the overall reliability, cost-effectiveness, and responsiveness of your current suppliers? | How old are you? | What is your level of education? | How frequently are you involved in the supplier selection process at UTH? | How would you rate your familiarity with the electronic government procurement (EGP) system? | How many years of experience do you have in procurement-related tasks? | What is your level of training or formal education in procurement? |
| How satisfied are you with the overall reliability, cost-effectiveness, and responsiveness of your current suppliers? | Pearson Correlation | 1 | .512** | .010 | .271** | .127 | .198* | .380** |
| | Sig. (2-tailed) | | .000 | .903 | .001 | .120 | .015 | .000 |
| | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| How old are you? | Pearson Correlation | .512** | 1 | .292** | .360** | .148 | .339** | .316** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .071 | .000 | .000 |
| | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| What is your level of education? | Pearson Correlation | .010 | .292** | 1 | .039 | -.034 | .286** | .155 |
| | Sig. (2-tailed) | .903 | .000 | | .638 | .681 | .000 | .058 |
| | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| How frequently are you involved in the supplier selection process at UTH? | Pearson Correlation | .271** | .360** | .039 | 1 | -.032 | -.320** | -.187* |
| | Sig. (2-tailed) | .001 | .000 | .638 | | .696 | .000 | .022 |
| | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| How would you rate your familiarity with the | Pearson Correlation | .127 | .148 | -.034 | -.032 | 1 | .370** | -.109 |
| | Sig. (2-tailed) | .120 | .071 | .681 | .696 | | .000 | .186 |

| | | | | | | | | |
|--|---------------------|--------|--------|--------|---------|--------|--------|--------|
| electronic government procurement (EGP) system? | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| How many years of experience do you have in procurement-related tasks? | Pearson Correlation | .198* | .339** | .286** | -.320** | .370** | 1 | .310** |
| | Sig. (2-tailed) | .015 | .000 | .000 | .000 | .000 | | .000 |
| | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| What is your level of training or formal education in procurement? | Pearson Correlation | .380** | .316** | .155 | -.187* | -.109 | .310** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .058 | .022 | .186 | .000 | |
| | N | 150 | 150 | 150 | 150 | 150 | 150 | 150 |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4.5.1 The influence of supplier selection criteria on pharmaceutical supply chain performance at UTH

From this research the following is obtained: Understanding of how the factors that determine supplier selection affects the supply chain is established particularly at UTH in the pharmaceutical sector. The other general analysis of dependent variable by independent variable analysis gave moderate positive regression coefficient = 0.596. From Table 19 depicting the findings the tests of variance on the concerns for EGP system and on variance for the familiarity and on variance for the analytical strategic models on variance for risk management and variance for managing the intangible aspect of the business do explain 35.6% total variances thus R-squared =0.356.

F statistic computed here is 20.003 and the 'p' value is less than 0.000 which highlight the fact that it is right that the predictor variables are influencing the supplier selection collectively. Whilst the total SST of the model is 177.840, the SST attributed only to the points of regression is 63.239, and the SST due to residuals is 114.601 as summarised in the table above.

Ideal evidence suggests that the understanding of the EGP system increases efficiency in super adding, 0.324 ($t = 5.283$, $p < 0.000$) to supplier's decision inputs. They also pointed that the use of the analytical models does have positive impact on the decision in selecting product (coefficients = 0.236, $t = 2.709$, $p = 0.008$) therefore there is need for decision support in product selection in UTH procurement operations. These provide recommendations on the ways how analysis of more inclusive models could be incorporated simultaneously with raising the awareness of systems to provide the finest supplier solutions (please refer to Table 19).

Table 19: Influence of supplier selection criteria on pharmaceutical supply chain performance at UTH

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .596 ^a | .356 | .338 | .88902 |

a. Predictors: (Constant), How challenging is it to account for non-quantifiable factors (e.g., supplier relationships) in the current selection process?, How would you rate the use of analytical models (e.g., Multiple Attribute Decision-Making) in the supplier selection process at UTH?, How beneficial do you find the structured approach to risk mitigation within the supplier selection process at UTH?, How would you rate your familiarity with the electronic government procurement (EGP) system?

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 63.239 | 4 | 15.810 | 20.003 | .000 ^b |
| | Residual | 114.601 | 145 | .790 | | |
| | Total | 177.840 | 149 | | | |

a. Dependent Variable: To what extent do you believe the current supplier selection process at UTH meets the specific needs of a healthcare setting?

b. Predictors: (Constant), How challenging is it to account for non-quantifiable factors (e.g., supplier relationships) in the current selection process?, How would you rate the use of analytical models (e.g., Multiple Attribute Decision-Making) in the supplier selection process at UTH?, How beneficial do you find the structured approach to risk mitigation within the supplier selection process at UTH?, How would you rate your familiarity with the electronic government procurement (EGP) system?

Coefficients^a

| Model | | Unstandardised Coefficients | | Standardised Coefficients | t | Sig. |
|-------|--|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .657 | .273 | | 2.412 | .017 |
| | How would you rate your familiarity with the electronic government procurement (EGP) system? | .324 | .061 | .395 | 5.283 | .000 |
| | How would you rate the use of analytical models (e.g., Multiple Attribute Decision-Making) in the supplier selection process at UTH? | .236 | .087 | .195 | 2.709 | .008 |

| | | | | | |
|--|------|------|------|-------|------|
| How beneficial do you find the structured approach to risk mitigation within the supplier selection process at UTH? | .178 | .078 | .163 | 2.293 | .023 |
| How challenging is it to account for non-quantifiable factors (e.g., supplier relationships) in the current selection process? | .109 | .061 | .133 | 1.798 | .074 |

a. Dependent Variable: To what extent do you believe the current supplier selection process at UTH meets the specific needs of a healthcare setting?

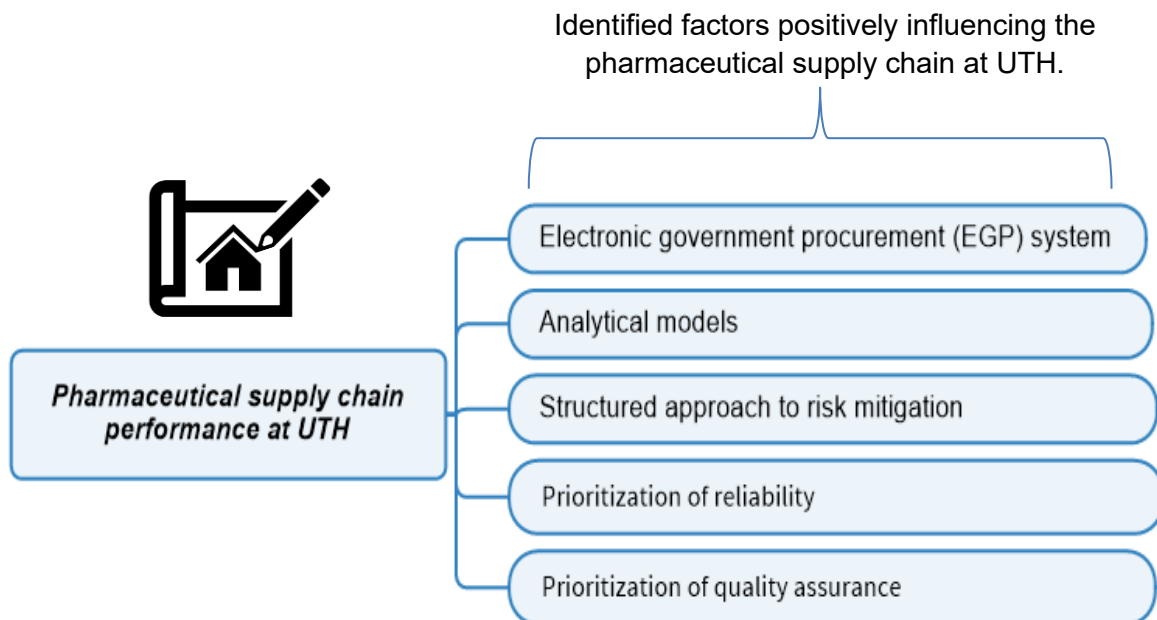
The aim of the following paper was to determine the impact of supplier selection criteria on; the supply chain, to the supply chain of the UTH pharmaceuticals. Structured risk management was also found to significantly improve supplier selection performance as risk evaluation is crucial in procurement ($\beta = 0.178$, $t = 2.293$, $p = 0.023$) (Table 19).

The analysis also meant that it was difficult to quantify qualitative characteristics such as the number of suppliers considered to have a certain relationship with an organisation; these results were insignificant (coefficient = 0.109, $t = 1.798$, $p = 0.074$). This as goes further to show that although non-measurable parameters may be important, they do not determine supplier selection like other factors do.

This means that some of the most important factors that determine suppliers' selection include; experiences with EGP system and structured risk analysis tools and models. Thus, the respondent awareness of electronic procurement systems is positively related to the efficiency of supplier selection, shown from the following response of the participant where the use of an analytical model to provide a bias-free result also improves KSFs. Because of the ongoing importance of addressing health care needs, structured risk management links the procurement decisions indicated in table 19.

Therefore, this study calls for the digital procurement strategy in supplier selection in conjunction with the analytical tools and structured risks management. It might also help to address non measurable issues over here, but the focus should be on the quantitative analysis that could enhance the pharmaceutical supply chain of UTH. Justify all the above strategies can significantly enhance the proportion of procurement and the decision-making process at UTH (Table 19 Figure 13).

Figure 13: Developed framework for enhancing the supplier selection process at UTH based on the results of the data analysis



CHAPTER FIVE: DISCUSSION

5.1 Introduction

This chapter discusses the results obtained in this study in relation to results obtained by other researchers in studies reviewed in the literature review presented in chapter three of this dissertation.

5.2 Discussion of findings

5.2.1 Existing Supplier Selection Process at UTH

The results of this study indicated a predominant reliance on sole sourcing as the supplier selection method at the University Teaching Hospital (UTH), with a significant 88% of respondents identifying it as the primary approach. This finding aligned with Mehrabian et al. (2012), who emphasised the importance of established supplier relationships in the pharmaceutical sector. Their research suggested that familiarity and perceived reliability can often lead organisations to prefer sole sourcing, particularly in environments where efficiency is crucial. However, the limited use of competitive processes such as prequalification and multi-stage evaluation at UTH—accounting for only 3.3% and 8.7% of responses, respectively—highlights a potential area for improvement. The low adoption of these methods may limit UTH's ability to explore diverse suppliers and enhance procurement outcomes, echoing the recommendations of Genco and Çetin (2022), who advocated for a comprehensive risk assessment framework in supplier selection to improve supply chain resilience.

5.2.2 Key Criteria for Supplier Selection within the Healthcare Context

The findings also revealed that UTH emphasises quality assurance in supplier selection, with participants prioritising quality standards over cost considerations. This focus mirrors the conclusions of both Mehrabian et al. (2012) and Göncü and Çetin (2022), who identified quality as a critical factor in supply chain risk management. Their studies underscored the need for robust quality measures to ensure that supplies meet the standards necessary for effective healthcare delivery. In contrast, UTH's comparatively lower emphasis on delivery reliability and regulatory compliance suggests an opportunity to enhance supplier evaluation practices further, reinforcing the importance of a balanced approach as advocated by the authors.

5.2.3 Use of Risk Assessment Tools

The results demonstrated a moderate to high frequency of risk assessment tool usage in supplier selection at UTH, although a significant portion of respondents reported rarely or never using these tools. This mixed usage aligns with findings from Mehralian et al. (2012), which highlighted that effective risk management practices are essential for maintaining supply chain reliability. The need for improved integration of risk assessment practices at UTH is critical, as pointed out by Göncü and Çetin (2022), who emphasised that addressing delivery-related risks can substantially enhance overall supply chain resilience. Enhancing risk assessment tools could lead to more informed decision-making and a reduction in procurement-related risks.

5.2.4 Supplier Selection Efficiency

The predominance of swift supplier selections completed in less than one month at UTH showcased the hospital's commitment to a streamlined procurement process, which is advantageous for timely access to essential supplies. This aligns with the findings of Forghani et al. (2018), who noted that efficient procurement processes are vital for the operational effectiveness of healthcare institutions. While UTH's quick selection process is beneficial, it raises questions about the thoroughness of evaluations conducted, particularly considering the insights from Göncü and Çetin (2022), who found that a comprehensive evaluation process, even if time-consuming, can significantly enhance supply chain resilience.

5.2.5 Analytical models in support of supplier selection

On the same, the study established that analytical models were seldom used in the evaluation of suppliers at UTH; this pointed to relative areas of weakness that could be harnessed for performance enhancement. The above finding supports Mehralian et al. (2012) who used Multiple Attribute Decision-Making (MADM) models for risk factors evaluation for supplier selection. In this way, several improvements in the decision-making process within UTH and in evaluation of suppliers could be achieved through similar analytical tools. Göncü and Çetin (2022) also stress on the use of analytical methods in supplier selection to enhance the supply chain management recommending on how training on these models can enhance the manner they are integrated in the procurement the UTH.

5.2.6 Risk Mitigation in Supplier Selection

However, due to the structured approach uncovered at UTH to reduce risks, many researchers have noted this aspect and praised this development but according to most of the respondents, the effectiveness of the structured risk management Programme is comparatively low. The above mixed perception was also from literature which indicated that Mehralian et al. (2012) and Göncü and Çetin (2022) to have pointed out that improvements in supplier selection resulted from proper risk management strategies. The core of the arguments, therefore, is regarding the need for further evaluation on current ways utilised at UTH hence the recommendations to improve on the existing methods as that was also argued by Forghani et al (2018) when figuring out how supply chain risk management efficiency is supposed to be perpetuated.

Therefore, the conclusions of the study highlighted the following attributing characteristics created supplier selection at UTH for a continuous sole sourcing known emphasis on quality, and the need for enhanced risk management and modelling evaluation. If the practices are associated with the practices described in the literature as best practices by different authors that include Mehralian et al. (2012), Göncü and Çetin (2022), Forghani et al. (2018), then UTH will be better placed to build on the procurement capabilities to boost the performance of the aforesaid pharmaceutical supply chain. Need to enhance the current supplier selection methodologies are vital for making procurement decisions that regulate a healthcare setting proficiently.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter provides conclusions and recommendations based on the conclusions arrived at regarding the influence of supplier selection criteria on pharmaceutical supply chain performance at UTH.

6.2 Results and conclusions

6.2.1 Specific Objective i: To assess the existing supplier selection process at UTH, including its strengths, weaknesses, and areas for improvement

The findings showed fundamental understanding of how the existing supplier selection process at the University Teaching Hospital (UTH) operates. The most recognized method for making suppliers decisions is pure play sole sourcing and 88% of the respondents agreed to this. Indeed, the significant level of direct procurement indicates that efficiency factors such as close relationships and perceived risk are influential in the selection of suppliers. However, this kind of approach works both for the faster procurement and improving the operational efficiency, but it has potential problems of the absence of competition, which could negatively influence the quality and prices of the supplies.

Although prequalification and multi-stage evaluation can be used, they are not frequently implemented; only 3.3% of the respondents confirmed their use of prequalification, and 8.7% use multi-stage evaluation. It is evident that supplier diversity engagements related to competitive selection processes are underrepresented at UTH, which means that more may not be being done to harness all the opportunity related to better service delivery and improved procurement. The results suggest the importance of the need for UTH to use more than one way of suppliers' selection since this may help the organisation to expand the number of its suppliers and to increase procurement effectiveness.

In addition, the evaluation process at UTH shows the compliment of quality standard, where participants' focusing more on service quality rather than price. Such a comprehensive approach suggests that the company has a rather good long term-oriented perspective and while may seem satisfactory from this perspective, the ranking which positions delivery reliability as well as sustaining compliance with most

prestigious requirements, could be seen as a source of concern. The results also reveal that the use of risk assessment tools is moderate to frequent, however there is a significant proportion of respondents who report never or rarely using these tools to support the procurement risk management process.

Also worthy of mention is the speed of the supplier selection decisions; most of the decisions made within the space of one month, which is helpful for UTH's operations. The results indicate that there is a significant percentage of informal or non-scientific methods that exist as the procurement choice for suppliers leaving significant room for enhancement when more formally, scientifically or efficiency-based models and techniques are employed. The absence of formal frameworks also can slow down decision-making processes and hampers the proper response of the hospital to the challenges of procurement.

Therefore, it can be concluded that UTH had set a primary and dominant supplier selection procedure such as sole sourcing and efficient decision-making; however, there is still much room for development. It emerged that the modifications of spiriting a wider range approaches for choosing suppliers, better application of analytical tools, and optimal risk management procedures will assist UTH to improve its procurement performance. Through addressing such weaknesses, UTH can fine-tune its procurement of suppliers to meet the healthcare buying process.

6.2.2 Specific Objective ii: To identify key criteria for supplier selection within the healthcare context, considering factors such as quality, reliability, cost-effectiveness, and responsiveness

They used a qualitative analysis to establish the essential criteria for supplier selection within the context of healthcare in UTH and realized they were key factors affecting procurement choices. The findings showed categorically that quality assurance is critical in the supplier selection exercise as most participants suggested that quality control in the healthcare supplies must be maintained at high standards. This prioritization of quality served not only the need to enhance patient outcomes but also fit within the wider call for organisational effectiveness in health system delivery.

Another interesting construct was reliability that was identified by many respondents as important. The high emphasis on delivery times and dependable supplier

partnerships demonstrates the need for a sound supply chain list to maintain organisational effectiveness and quality of health care outcomes., whereas cost-effectiveness is recognised, they seem to be less essential than quality and reliability when it comes to making a choice. From this perspective, UTH is indeed receptive to spending extra pounds of cash on high quality supplies where these enable delivery of superior patient outcomes; a sign that the commission has a rather advanced procurement policy that appreciates long-term supplier advantages over short-run cost considerations.

However, the results also showed that the perceptions towards supplier responsiveness were also mixed up at UTH. Although skill level varies, ranging from good to excellent, many respondents are dissatisfied with how several suppliers react to changes in demand. Such a state of affair provided a clue on an area of gap in UTH's management of supplier relationship by implying that UTH may require to look for ways of directing efforts towards increasing supplier's sensitivity to customers' needs thus obtaining a more elastic form of supply chain.

In addition, the evaluation of supplier quality standard was as follow: this research found that supplier quality standard at UTH was evaluated occasionally, however, some of the respondents reported that the evaluation of supplier quality standard was normal. This inconsistency suggests that a better and more structured replenishment evaluation process might be useful to ensure that a given supplier will always provide the required levels of quality and performance.

Therefore, highlighting criteria essential in supplier selection for UTH it became clear that quality, reliability as well as the cost factors stand out as the most important in selection suppliers, accompanied by a need to enhance the suppliers' communication. By dealing with the mixed impressions regarding responsiveness, UTH can improve the structure of the evaluation methods to foster better supplier selection which will then contribute to better procurement results and hence improve patients care delivery.

6.2.3 Specific Objective iii: To develop a framework for enhancing the supplier selection process at UTH, integrating best practices from the literature with the specific needs and constraints of the healthcare setting

The established framework that seeks to improve the operation of supplier selection at UTH is based on an assessment of current practices in the organisation supplemented with strategies from the theoretical literature. The findings showed that EGP knowledge being perceived as a factor for success of the supplier selection process was supported to an extent by the results. From the results obtained where the R-squared value stands at 0.356 indicates that, approximately 35.6% of the total variance in supplier selection effectiveness may be explained by such factors as, familiarity with EGP and its use in the development of analytical models, with little to no structured risk management in such circumstances, plus challenges that are still associated with non-Quantifiable factors.

The regression coefficients obtained in this study indicated positive and significant relationship between the level of experience with the EGP system and the effectiveness of the supplier selection evaluation, thus pointing to the need for dedicated training in the use of this system. Analytical models, especially Multiple Attribute Decision-Making (MADM) techniques come out as another key factor that have a positive impact on supplier selection effectiveness. This study underlined the need to use systematic and analytical strategies to improve decision-making within UTH procurement activities.

Moreover, the formal, systematic, and proactive approach to deal with risk in the selection of the supplier also reflected a person correlation to the overall performance. This is an indication that, the process of procurement can benefit from implementing risk management system by improving the quality of decisions made in supplier selection process. On the other hand, assuming factors such as supplier relations as intangible which gives a positive outcome is not strong as the other predictors.

All in all, the framework drawn out for improving the supplier selection process in UTH includes understanding with the EGP Systems, integrating decision making analytical models and the development of a framework to mitigate risks in the selection process. By expanding in these directions, it will be possible to detect how UTH can enhance its procurement strategies and adapt them to the needs and requirements of the health

care industry to influence supplier selection performance and the performance of the pharmaceutical supply chain in a positive manner.

6.2.4 General objective: The influence of supplier selection criteria on pharmaceutical supply chain performance at UTH.

A scrutiny of the relationship between supplier selection criteria and pharmaceutical supply chain performance at UTH provided important information concerning the efficiency of procurement strategies. The regression analysis used in this study showed that the supplier selection criteria have positive moderate effect on the pharmaceutical supply chain since the coefficients obtained were positive.

The summary of the model also shows an R of 0.596 for the overall model, which is statistically significant, to explain that the criteria employed in this research—familiarity with the EGP system, utilisation of analytical models, structured risk management, and consideration of factors beyond analysis—are relevant in determining the efficiency of supplier selection. The results of ANOVA further strengthen the credibility of these predictors to make significant and consistent impacts on the results of the supplier selection process.

Coefficients reflecting specifics of the analysis show that the increase in familiarity with the EGP system has the greatest positive impact on the supplier selection effectiveness. As a result of this study, there is a need for more efforts by UTH to increase awareness and training on the EGP system to support decision making on suppliers. In a similar manner, the positive association identified with the use of analytical models speaks further to the important task of promoting structured analytical decision making in procurement to enhance its performance.

The structured approach also positively the impact of risk mitigation on supplier selection effectiveness hence meaning that the risk management practices can improve on the performance. However, a major problem that was noted with regards to the study includes that valuing nonspecific factors is an area of concern. Even though admitting these factors enhance positively other factors may not have similar level of impact or in other words, these factors may need more systematic approach to be incorporated efficiently and effectively in the supplier selection process.

Consequently, the research pointed out that decision factors important in supplier selection play an enormous role in shaping the performance standards of the pharmaceutical supply chain in UTH. UTH can then use this opportunity to enhance its efficiency in the supplier selection process whereby better strategic familiarity with EGP system, analytical decision making models and an improved systems on the risk management framework should be achieved. In general, the information regarding methods to apply for development of the effective procurement system in the sphere of healthcare is promising for the hospital and might help to improve its performance and ensure high quality of offered services.

6.3 Recommendations

Based on the findings of this study, the following recommendations are made to improve supplier selection processes in the pharmaceutical supply chain at University Teaching Hospital (UTH) and other public health institutions in Zambia. These recommendations are directed at the Ministry of Health (MoH), UTH Management, the Zambia Public Procurement Authority (ZPPA), and Pharmaceutical Suppliers to enhance procurement efficiency and ensure a sustainable supply of quality medical products.

1. Strengthening Supplier Evaluation Criteria – Ministry of Health (MoH) & UTH Management

The Ministry of Health, in collaboration with UTH management, should develop and implement structured supplier evaluation criteria that go beyond cost considerations. The evaluation framework should include quality assurance, supplier reliability, responsiveness, compliance with Good Manufacturing Practices (GMP), and risk assessment protocols. This will ensure procurement decisions prioritise suppliers capable of meeting delivery timelines and quality standards.

2. Implementing a Competitive Bidding Process – Zambia Public Procurement Authority (ZPPA)

The Zambia Public Procurement Authority (ZPPA) should enforce competitive procurement processes by limiting sole sourcing and prioritising open tendering systems for pharmaceutical supply contracts. This will increase competition, enhance supplier accountability, and improve service delivery. Additionally, ZPPA should

review procurement regulations to prevent long-term supplier monopolies that reduce procurement efficiency.

3. Adoption of Electronic Government Procurement (EGP) – Ministry of Health & UTH Management

The Ministry of Health and UTH should fully implement the Electronic Government Procurement (EGP) system for all pharmaceutical purchases. This will improve transparency, efficiency, and real-time tracking of supplier performance. The EGP system will also reduce manual paperwork delays and help in the automated assessment of supplier compliance with contract terms.

4. Enhancing Supplier Relationship Management – UTH Management & Pharmaceutical Suppliers

UTH should establish long-term performance-based contracts with reliable suppliers rather than relying solely on short-term contracts. Regular supplier performance reviews, compliance audits, and feedback mechanisms should be implemented to strengthen accountability and service reliability. Pharmaceutical suppliers should also be required to submit quarterly performance reports to ensure continuous compliance with contractual obligations.

5. Capacity Building & Training for Procurement Staff – Ministry of Health

The Ministry of Health should invest in training procurement officers and hospital administrators on modern procurement practices, supplier risk assessment, and regulatory compliance. This will equip procurement personnel with the necessary skills to conduct proper supplier evaluations and reduce procurement inefficiencies. The training should also include risk mitigation strategies to address common procurement challenges.

6. Establishing a Supplier Performance Monitoring Framework – UTH Management & ZPPA

UTH and ZPPA should develop a centralised database for tracking supplier performance metrics such as delivery timelines, product quality, and compliance levels. This framework should include penalty clauses for non-compliance and

incentives for high-performing suppliers. Establishing a supplier rating system will improve decision-making on contract renewals and supplier selection.

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APPENDICES



SURVEY QUESTIONNAIRE

Dear respondents, my name is **Sechelanji Namutenda** pursuing a Master of Science in Procurement, Logistics and Supply Chain Management at the University of Lusaka. I am currently conducting research to investigate the influence of supplier selection criteria on Pharmaceutical supply chain performance at the University Teaching Hospital in Zambia. As such, you have been randomly selected to participate in this study by completing this questionnaire.

ETHICAL ASSURANCE AND CONSIDERATION

To conduct this research with the acknowledgement of research ethical standards, the following information is provided on ethical assurance and consideration:

1. Participants are not allowed to write their names anywhere on this questionnaire to exercise confidentiality by not reviewing the true identities of the participants.
2. All information collected through this survey questionnaire will only be used for academic purposes.
3. Individuals are free to decide whether to participate in the study through this questionnaire. With regards to this, individuals are expected to participate based on their willingness.

DEMOGRAPHIC DATA

PART A

PERSONAL DATA:

1. What is your gender?
 - a) Female
 - b) Male
 2. How old are you?
 - a) Less than 20 years old
 - b) 21-30 years old
 - c) 31-40 years old
 - d) More than 41 years old
 3. What is your marital status?
 - a) Married
 - b) Single
 4. What is your level of education?
 - a) No formal education
 - b) Certificate
 - c) Diploma
 - d) Bachelor's degree
 - e) Master's degree
 - f) PhD
-

BUSINESS DATA:

5. What is your primary role at UTH?
 - a) Procurement officer
 - b) Department head
 - c) Healthcare provider
 - d) Supplier representative
6. How frequently are you involved in the supplier selection process at UTH?
 - a) Rarely
 - b) Occasionally
 - c) Often
 - d) Very often
 - e) Always

7. How would you rate your familiarity with the electronic government procurement (EGP) system?

- a) Not familiar
- b) Somewhat familiar
- c) Moderately familiar
- d) Very familiar
- e) Expert

8. How many years of experience do you have in procurement-related tasks?

- a) Less than 1 year
- b) 1–3 years
- c) 4–7 years
- d) 8–10 years
- e) More than 10 years

9. How would you describe your role in procurement decisions at UTH?

- a) No involvement
- b) Minor involvement
- c) Moderate involvement
- d) Major involvement
- e) Full decision-making authority

10. What is your level of training or formal education in procurement?

- a) None
- b) Basic training
- c) Intermediate training
- d) Advanced training
- e) Professional certification

PART B

SPECIFIC OBJECTIVE ONE (I)

Objective 1: To assess the existing supplier selection process at UTH, including its strengths, weaknesses, and areas for improvement.

| | | Understanding the Type of Supplier Selection Process Used at UTH | | | |
|---|--|--|--|--|--|
| | QUESTION | | | | RESPONSES |
| 1 | What type of supplier selection process is most used at UTH? | | | | <input type="checkbox"/> a) Competitive bidding <input type="checkbox"/> b) Sole sourcing <input type="checkbox"/> c) Prequalification and selection <input type="checkbox"/> d) Multi-stage evaluation |
| 2 | How are suppliers primarily evaluated during the selection process at UTH? | | | | <input type="checkbox"/> a) Based on price alone <input type="checkbox"/> b) Based on quality standards <input type="checkbox"/> c) Based on delivery reliability <input type="checkbox"/> d) Based on a combination of price, quality, and delivery <input type="checkbox"/> e) Based on additional factors such as relationship and reputation |
| 3 | How frequently are risk assessment tools (e.g., risk matrices, scoring models) used in the supplier selection process at UTH? | | | | <input type="checkbox"/> a) Never <input type="checkbox"/> b) Rarely <input type="checkbox"/> c) Sometimes <input type="checkbox"/> d) Often <input type="checkbox"/> e) Always |
| 4 | Which of the following criteria are most prioritized in the supplier selection process at UTH? | | | | <input type="checkbox"/> a) Cost-effectiveness <input type="checkbox"/> b) Quality standards <input type="checkbox"/> c) Delivery reliability <input type="checkbox"/> d) Supplier reputation and relationships <input type="checkbox"/> e) Compliance with regulatory standard |
| 5 | What is the typical duration of the supplier selection process at UTH? | | | | <input type="checkbox"/> a) Less than 1 month <input type="checkbox"/> b) 1–3 months <input type="checkbox"/> c) 3–6 months <input type="checkbox"/> d) 6–12 months <input type="checkbox"/> e) Over 12 months |
| 6 | How are non-quantifiable factors (e.g., supplier trust, relationship strength) typically considered in the selection process at UTH? | | | | <input type="checkbox"/> a) Not considered at all <input type="checkbox"/> b) Considered informally <input type="checkbox"/> c) Considered through subjective assessment <input type="checkbox"/> d) Considered using a standardized evaluation tool <input type="checkbox"/> e) Integrated formally into decision models |
| 7 | How frequently are supplier evaluation criteria reviewed and updated in the UTH selection process? | | | | <input type="checkbox"/> a) Never <input type="checkbox"/> b) Rarely (every few years) <input type="checkbox"/> c) Occasionally (annually) <input type="checkbox"/> d) Frequently (bi-annually) <input type="checkbox"/> e) Very frequently (quarterly) |
| 8 | What role does technology (e.g., E- | | | | <input type="checkbox"/> a) No role <input type="checkbox"/> b) Minor role <input type="checkbox"/> c) Moderate role |

| | | | | | |
|-----------|--|--|--|--|---|
| | procurement, data analytics) play in the supplier selection process at UTH? | | | | <input type="checkbox"/> d) Significant role <input type="checkbox"/> e) Critical role |
| | Strengths in the Supplier Selection Process | | | | |
| | | | | | |
| 9 | How would you rate the use of analytical models (e.g., Multiple Attribute Decision-Making) in the supplier selection process at UTH? | | | | <input type="checkbox"/> a) Not used at all <input type="checkbox"/> b) Rarely used <input type="checkbox"/> c) Occasionally used <input type="checkbox"/> d) Frequently used <input type="checkbox"/> e) Always used |
| 10 | How beneficial do you find the structured approach to risk mitigation within the supplier selection process at UTH? | | | | <input type="checkbox"/> a) Not beneficial <input type="checkbox"/> b) Slightly beneficial <input type="checkbox"/> c) Moderately beneficial <input type="checkbox"/> d) Very beneficial <input type="checkbox"/> e) Extremely beneficial |
| | | | | | |
| | Weaknesses in the Supplier Selection Process | | | | |
| | | | | | |
| 11 | To what extent does information vagueness affect supplier selection decisions at UTH? | | | | <input type="checkbox"/> a) Not at all <input type="checkbox"/> b) Slightly <input type="checkbox"/> c) Moderately <input type="checkbox"/> d) Significantly <input type="checkbox"/> e) Very significantly |
| 12 | How challenging is it to account for non-quantifiable factors (e.g., supplier relationships) in the current selection process? | | | | <input type="checkbox"/> a) Not challenging <input type="checkbox"/> b) Slightly challenging <input type="checkbox"/> c) Moderately challenging <input type="checkbox"/> d) Very challenging <input type="checkbox"/> e) Extremely challenging |
| 13 | How would you rate the need for improvement in streamlining the supplier selection process to reduce delays? | | | | <input type="checkbox"/> a) No need for improvement <input type="checkbox"/> b) Low need for improvement <input type="checkbox"/> c) Moderate need for improvement <input type="checkbox"/> d) High need for improvement <input type="checkbox"/> e) Very high need for improvement |

SPECIFIC OBJECTIVE TWO (II)

Objective 2: To identify key criteria for supplier selection within the healthcare context, considering factors such as quality, reliability, cost-effectiveness, and responsiveness.

| | | | | | | |
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|--|--|--|--|--|--|--|

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|-----------|---|--|--|--|---|
| 14 | How important is quality assurance when selecting suppliers for healthcare resources at UTH? | | | | <input type="checkbox"/> a) Not important <input type="checkbox"/> b) Slightly important <input type="checkbox"/> c) Moderately important <input type="checkbox"/> d) Very important <input type="checkbox"/> e) Extremely important |
| 15 | How often do you prioritize reliability (e.g., timely delivery) in the supplier selection process at UTH? | | | | <input type="checkbox"/> a) Never <input type="checkbox"/> b) Rarely <input type="checkbox"/> c) Sometimes <input type="checkbox"/> d) Often <input type="checkbox"/> e) Always |
| 16 | To what extent does cost-effectiveness influence your decision in selecting suppliers? | | | | <input type="checkbox"/> a) Not at all <input type="checkbox"/> b) To a slight extent <input type="checkbox"/> c) To a moderate extent <input type="checkbox"/> d) To a great extent <input type="checkbox"/> e) To a very great extent |
| 17 | How would you rate the responsiveness of your current suppliers to sudden changes in demand? | | | | <input type="checkbox"/> a) Very poor <input type="checkbox"/> b) Poor <input type="checkbox"/> c) Average <input type="checkbox"/> d) Good <input type="checkbox"/> e) Excellent |
| 18 | How frequently does UTH evaluate supplier quality standards as part of the selection process? | | | | <input type="checkbox"/> a) Never <input type="checkbox"/> b) Rarely (every few years) <input type="checkbox"/> c) Occasionally (annually) <input type="checkbox"/> d) Frequently (bi-annually) <input type="checkbox"/> e) Very frequently (quarterly) |
| 19 | How significant is the role of cost evaluations when choosing suppliers at UTH? | | | | <input type="checkbox"/> a) Not significant <input type="checkbox"/> b) Slightly significant <input type="checkbox"/> c) Moderately significant <input type="checkbox"/> d) Very significant <input type="checkbox"/> e) Extremely significant |
| 20 | How would you assess the ability of suppliers to respond to urgent | | | | <input type="checkbox"/> a) Very ineffective <input type="checkbox"/> b) Ineffective <input type="checkbox"/> c) Neutral <input type="checkbox"/> d) Effective <input type="checkbox"/> e) Very effective |

| | | | | | |
|----|--|--|--|--|--|
| | healthcare needs at UTH? | | | | |
| 21 | How satisfied are you with the overall reliability, cost-effectiveness and responsiveness of your current suppliers? | | | | |
| | | | | | |
| | | | | | |

SPECIFIC OBJECTIVE THREE (III)

Objective 3: To develop a framework for enhancing the supplier selection process at UTH, integrating best practices from the literature with the specific needs and constraints of the healthcare setting.

| | | | | | |
|----|--|--|--|---|--|
| | | | | | |
| 22 | How satisfied are you with the current supplier selection process at UTH? | | | <input type="checkbox"/> a) Very dissatisfied <input type="checkbox"/> b) Dissatisfied <input type="checkbox"/> c) Neutral <input type="checkbox"/> d) Satisfied <input type="checkbox"/> e) Very satisfied | |
| 23 | To what extent do you believe the current supplier selection process at UTH meets the specific needs of a healthcare setting? | | | <input type="checkbox"/> a) Not at all <input type="checkbox"/> b) To a slight extent <input type="checkbox"/> c) To a moderate extent <input type="checkbox"/> d) To a great extent <input type="checkbox"/> e) To a very great extent | |
| 24 | How effective is the existing supplier selection process in mitigating risks (e.g., delivery delays, quality issues) in the procurement of healthcare resources? | | | <input type="checkbox"/> a) Very ineffective <input type="checkbox"/> b) Ineffective <input type="checkbox"/> c) Neutral <input type="checkbox"/> d) Effective <input type="checkbox"/> e) Very effective | |
| 25 | To what degree do you think incorporating electronic government procurement (EGP) best practices would improve the supplier selection process at UTH? | | | <input type="checkbox"/> a) Not at all <input type="checkbox"/> b) To a slight extent <input type="checkbox"/> c) To a moderate extent <input type="checkbox"/> d) To a great extent <input type="checkbox"/> e) To a very great extent | |
| | | | | | |

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Report #24395987

School of Postgraduate Studies ANALYSING THE INFLUENCE OF SUPPLIER SELECTION CRITERIA ON PHARMACEUTICAL SUPPLY CHAIN PERFORMANCE AT UTH.

88 117 152 A Research presented In Partial Fulfilment for requirement of the program Master of Science in Procurement, Logistics and Supply Chain Management (MSCPLSM) Student Name: Sechelanji Namutenda Student number: Mscplsm23120089 2024 DECLARATION ACKNOWLEDGEMENT 1 Table of Contents DECLARATION.

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