



**Role of Public-Private Partnership in the Availability of Essential Medicines in Health
Facilities at Ubungo Municipal Council**

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College of Medicines

Master of Science in Health Supply Chain Management

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RWANDA**

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Facilities at Ubungo Municipal Council**

**A dissertation submitted in partial fulfilment of the requirements for the degree of
MASTER OF SCIENCE IN HEALTH SUPPLY CHAIN MANAGEMENT**

In the college of Medicines

By

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June, 2023

DECLARATION

I, Hezron Aggrey Msongole, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.



Signature:

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ABSTRACT

This study assessed the role of PPP in the availability of essential medicines in health facilities in the Ubungo Municipal Council. The study further determined the role of PPP guidelines, assessed the influence of PPP awareness, and assessed the effects of PPP implementation on the availability of essential medicines in health facilities in the Ubungo Municipal Council.

The study employed 118 respondents and a case study methodology in practice. To choose the respondents from whom questionnaires and interview techniques were used to collect pertinent data and information, random and purposeful sampling was used.

Precisely, the coefficient analysis of factors that were used to determine the role of PPP guidelines and the availability of essential medicines found a robust positive relationship between PPP guidelines, PPP awareness, and PPP implementations and the availability of essential medicines in health facilities in Ubungo Municipal Council with a coefficient of correlation of 0.5523 and variability of 30.5%.

Conclusively, the study recommends that the government develop and implement clear guidelines that outline the roles and responsibilities of all stakeholders involved in PPPs for the provision of essential medicines, allocate more funding for the procurement of essential medicines in public health facilities, and actively promote public-private partnerships for the provision of essential medicines by creating a favorable policy environment that encourages private sector investment in the provision of medicines, and by providing incentives to attract private sector partners.

DEDICATION

I would like to take this opportunity to dedicate this work and express my heartfelt gratitude to my Lord, who played a great role in working out this report. They exempted me from different family commitments, which helped me in finalizing my report, and also for their valuable support on education and my career, and all my friends for all the support they have shown me.

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LIST OF SYMBOLS & ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
FOB	Faith-Based Organization
HIV	Human Immune Virus
HSR	Health Sector Reform
MoH	Ministry of Health
MSD	Medical Stores Department
NGOs	Non-Governmental Organizations
NIMR	National Institute for Medical Research
PFP	Private for Profit
PNFP	Private-not-for-Profit
PPP	Public Private Partnership
RCH	Reproductive and Child Health
SAPs	Structural Adjustment Programs
SLAs	Service Level Agreement
TB	Tuberculosis
UoR	University of Rwanda

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CHAPTER ONE

INTRODUCTION

1.1 Context

A "public-private partnership" (PPP) is an arrangement between public and private entities in which the private entity is responsible for the operation, maintenance, and/or management of a facility in whole or in part in exchange for compensation based on the facility's performance relative to agreed-upon performance metrics [1]. In exchange for favorable outcomes and predetermined financial compensation, the private entity bears the related risks for an extended period of time. PPPs are an example of a joint venture that best meets clearly defined public needs by allocating resources, taking calculated risks, and profiting from the venture. This arrangement allows both parties to share risks and benefits while ensuring that public services are delivered in a more efficient and effective manner. By combining the strengths of the public and private sectors, PPPs can lead to better service delivery, reduced costs, and improved outcomes for the public [2].

The Tanzanian government is aware of how crucial private investments are in advancing socioeconomic development [3]. It has been determined that the use of Public-Private Partnerships (PPPs) is a workable solution to problems with the funding, administration, and upkeep of public goods and services. PPPs can also help the government carry out its duties in the effective provision of socioeconomic goods and services while preserving service accountability, quality, and reach. With few provisions for renovation and new investments, the majority of PPPs in use are concession agreements for managing operating businesses. It is important to note that Faith-Based Organizations (FBOs) have been implementing PPPs successfully for many years in the water, health, and education sectors [4]. The effectiveness of PPPs, however, has varied in other industries. This is largely because such projects are complex and there aren't clear guidelines on what constitutes a successful public-private partnership.

Background to the study

The availability of essential medicines is a critical component of universal health coverage and is vital in addressing patients' satisfaction and increasing their health-seeking behavior. The World Health Organization (WHO) recommends that essential medications be available and accessible at all times, in acceptable quantities, dosages, and qualities, and at an affordable price [5]. An estimated two billion people do not have access to medications globally. In developing countries, around four million lives would be saved annually if the proper treatment and medication were available [6]. However, inadequate forecasts, low financing, delays in funding disbursements, and lengthy lead times (tendering and manufacturing) impair the adequate supply of medicines to health facilities, particularly in developing countries [2]. In Tanzania, the acquisition, storage, and distribution of medicines and medical supplies to health facilities are the responsibility of the Medical Store Department (MSD), a government-semi-autonomous institution. However, similar to central medical stores in other countries, the MSD in Tanzania has challenges supplying essential medicines to health facilities [1].

In many developing nations, Public Private Partnership (PPP) have become the preferred delivery mechanism for medications and medical equipment [5]. The government and the private sector can only provide some of the necessary health medications and equipment at the right time and at all times. Thus, PPP in health services has been applied in several regions of the globe to expedite service delivery to all individuals and reduce costs. The partnership is crucial in achieving the high level of healthcare delivery desired. The PPP has devoted itself to establishing relationships and providing assistance in delivering health services using two principles: maximizing the use of available resources and investing so that both parties profit. The PPP ensures that both private and public resources are used effectively to meet the healthcare demands of the population [Munga, 2009]. For instance, in

Italy, the government was able to provide better health insurance to its citizens via collaboration with the private sector [6]. For example, public hospitals in Mexico and Asia are mostly supported by user fees and insurance revenues (7). Likewise, in America and Europe, PPP is found to include a combination of major government direct delivery systems and private companies' provision of health services [8]. In Africa, the scenario is similar to that of the rest of the globe, as most nations have begun to exploit the advantages of PPPs to leverage financing for public health services. As the government tries to fill present shortages in healthcare funding, there is rising interest in leveraging the private sector to expand healthcare delivery via public-private partnerships (PPP). For instance, in Uganda, the partnership between the government and private sectors has increased the accessibility of health services to the majority of people as compared to before the PPP [9]. Through PPP, public hospitals have been able to get more modern laboratory diagnostic equipment, such as ultrasound and X-ray machines, that have improved diagnosis, reduced the amount of time spent waiting for laboratory findings, and lowered the costs of health services [10].

In Tanzania, as in other African nations, the emergence of PPP can be traced back to the Health Sector Reform Plan Action of 1996–1999, when the partnership was adopted to improve health service provision [11]. The supply of essential medicines to public health facilities is one of the services the private sector provides to the Tanzanian public. The government has established prime vendors for each region; private companies complement the MSD in supplying essential medicines to public health facilities. Before establishing prime vendors in 2018, the private sector supplied essential medicines to public health facilities through tendering, whereby private companies competed for the tender [12]. However, it needs to be better understood how the private sector, through prime vendors, has improved the availability of essential medicines in public health facilities.

1.2 Problem Statement

In an effort to improve Tanzania's medical care delivery, in 2018 the government reviewed the use of PPP [12]. PPP has been the preferred model for the delivery of social services since the early 2000s. Following the 2018 review, the government introduced a prime vendor system for supplying essential medicines in public health facilities, with each region having one prime vendor.

However, since the review of the policy, it needs to be clarified to what extent the delivery of essential medicines to public health facilities has improved. Previous PPP policy was mired by factors such as ineffective coordination of PPP [13], uneven distribution of human resources, inadequate funding, the unavailability of other essential inputs such as equipment, the poor state of health facilities, and poor road infrastructure [14, 15, 16, 17].

As a result, the poor availability of essential medicines resulted in a high death rate, particularly among women and children, and the spread of preventable diseases such as cholera. Therefore, this study assessed the availability of essential medicines in health facilities following the review and implementation of the PPP policy in 2018 [12].

1.3 Research objectives

The study was guided by the following objectives;

1.3.1 General objective

The main objective of the study was to identify the role of PPP in the availability of essential medicines in health facilities at Ubungo Municipal Council.

1.4.2 Specific objectives

The study had the following specific objectives;

- i. To determine the role of PPP guidelines on the availability of essential medicines in health facilities at Ubungo Municipal Council.

- ii. To identify the influence of PPP awareness on the availability of essential medicines in health facilities at Ubungo Municipal Council.
- iii. To explore the effects of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of Public Private Partnership in Tanzania

In Tanzania, Public-Private Partnerships (PPPs) were introduced as a means of complementing government efforts in providing healthcare services [15]. The introduction of user fees, pre-paid systems, and health insurance programs were all part of the Comprehensive Health Sector Reforms (HSR), which were put in place in response to the Structural Adjustment Programmes (SAPs) in the 1990s. A formalized partnership between the public and private sectors is known as a PPP. PPPs sought to formalize non-profit organizations' participation in the delivery of healthcare services, encourage private sector investment in healthcare, and increase the quality and accessibility of healthcare services. [15]. Additionally, PPPs were intended to enhance efficiency and effectiveness in healthcare service delivery, promote innovation, and develop more user-sensitive services that are appropriate for the local context [15].

A helpful regulatory framework was established in Tanzania to guarantee the efficacy and efficiency of PPPs in the delivery of healthcare services [12]. The PPP policy of 2009, the PPP regulation of 2011, the Tanzania Investment Act of 1997, the Public Procurement Act of 2011, and the Public-Private Partnership (Amendment) Act of 2014 are among the various legal and policy guidelines that make up this framework. These rules outline private property rights and their distribution, as well as the partnership's relationship with its members and participation norms like fair competition, ethical business conduct, and reciprocal trust. These laws and rules seek to improve collaborations and aid in the provision of accessible healthcare services [8].

To ensure the efficiency of healthcare delivery, the government of Tanzania has adopted three PPP models: contracting out, subsidizing, and privatizing. The contractual stipulations for each of these channels are different. Under the contracting-out model, the government supplies private health entrepreneurs with all the resources (including infrastructure, people, and money) they need to operate. Private hospitals are incentivized to provide care for mothers and children by the government through grants and other forms of financial assistance. With privatization, private entities either take over public healthcare operations or are given permission to do so in exchange for financial incentives in the form of tax breaks and free or heavily discounted goods and services.

PPP agreements have a number of advantages regardless of the method used to deliver health services. The establishment and application of PPP in Tanzania's health sector has helped to lessen the difficulties in providing healthcare services and to increase access to preventive and therapeutic measures. Along with government-owned facilities, private health facilities that collaborate with the government have helped to lower maternal and infant mortality. PPP has also improved access to healthcare in rural areas, helped lower the number of emergency room visits at public hospitals, improved the delivery of healthcare services as a result of competition, and created job opportunities. One of the topics of discussion among academics is the importance of PPP in the health sector.

2.2 Factors associated with Public Private Partnership

PPPs in healthcare are collaborative arrangements between public and private entities to deliver healthcare services. These partnerships can be structured in various ways, such as joint ventures, management contracts, or concession agreements. According to [10], the determinants of PPPs in healthcare can be categorized into four main factors: political, economic, social, and institutional.

- i. Political factors: Political factors play a crucial role in determining the success of PPPs in healthcare. Government support and commitment to the partnership, as well as the regulatory environment, are important factors that can influence the success or failure of a PPP. The stability of the political environment, including the level of corruption and bureaucracy, can also affect the PPP's success.
- ii. Economic factors: economic factors such as financing and funding models, cost-benefit analysis, and risk allocation are critical determinants of PPPs in healthcare. The availability of funding sources and the capacity of the private sector to invest and manage healthcare services can impact the PPP's feasibility. The cost-benefit analysis is essential to assessing the economic viability of the PPP and identifying the most cost-effective solution. The allocation of risks between public and private partners is also a critical factor in the PPP's success.
- iii. Social factors: social factors such as public acceptance, stakeholder involvement, and community engagement can affect the PPP's success. The involvement of local communities, patients, and healthcare professionals can ensure that the PPP addresses the needs of the population it serves. The ability to integrate culturally sensitive approaches into healthcare delivery can also enhance the PPP's success.
- iv. Institutional factors: Institutional factors such as legal frameworks, procurement processes, and the capacity of the public and private sectors to work together are important determinants of PPPs in healthcare. A clear legal framework that defines the roles and responsibilities of each partner is essential. The procurement process should be transparent and fair, and there should be a mechanism in place to monitor and evaluate the partnership's performance. Building the capacity of the public and private sectors to work together and manage the PPP effectively is critical to its success.

2.3 Impact of Public Private Partnership

The National Public-Private Partnerships Policy of the Government of Tanzania emphasizes the importance of PPPs for achieving social and economic objectives [18,19,15]. The PPP Act was passed in 2010, and the PPP policy implementation began in 2009. These documents give all social, political, and economic support structures for PPPs guidelines and a reason for existing so that risks and benefits are fairly distributed among the PPP partners [20, 21]. The Health Sector Strategic Plans III (2009-2015) and IV (2015-2020) emphasize the importance of Service Level Agreements (SLAs) and the need for collaborative healthcare service delivery without needless duplication and competition [20].

SLAs are contractual arrangements that provide opportunities for private actors to access government funding [20]. If properly constructed, SLAs are expected to address the social impacts of PPPs, resource complementarity, and potential gains between a public entity and private partner toward the delivery of just, effective, and high-quality services [21, 22, 23]. The delivery of sustainable healthcare services necessitates close coordination between various sectors and stakeholders. At every stage, from the creation of plans to their execution and evaluation, multi-sector collaborations should be established [20].

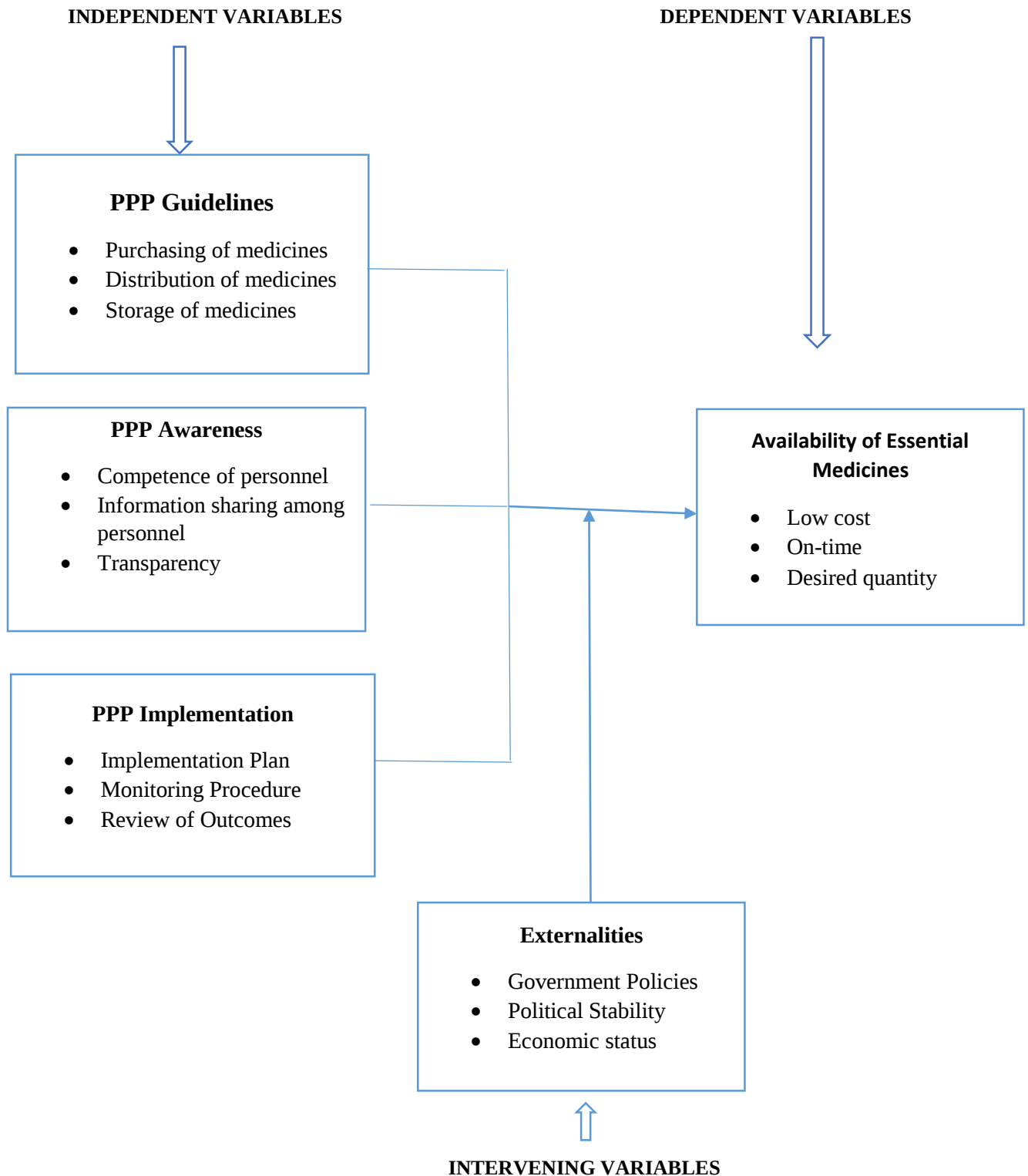
The provision of long-term health care services necessitates the involvement of a wide range of stakeholders, including the local community. As the demand for better health care services and the need to improve public health, especially for rural poor people, increased in the 1990s, Health Sector Reforms (HSR) were initiated. This prompted the government to launch the Health Sector Reform (HSR) program and the HSR Action Plan from 1999 to 2002. The action plans proposed six methods for bettering health care: collaboration, decentralization, management, centralization, improvement, human resources, and funding. A strong healthcare service delivery system is necessary to provide all healthcare seekers with high-

quality, dependable, affordable, and sustainable healthcare services [23]. Different healthcare stakeholders, both public and private, make up such a system. The quality and variety of health services (basic and specialized) offered to a larger population are significantly improved by the numerous various health facilities under private ownership, whether for-profit (PFP) or not-for-profit (PNFP). Rural communities now have access to healthcare thanks to non-governmental organizations (NGOs) and faith-based organizations (FBOs), for instance. PFP and PNFP health service delivery in Tanzania's mainland accounts for 11.2% and 19.9%, respectively, of all government health spending facilities [23].

Services for HIV/AIDS, tuberculosis, malaria, and reproductive, maternal, and child health have been made available by private clinics and community groups in both urban and rural areas. Proactively providing family planning supplies, PFP facilities now account for 27% of all national health services. Healthcare for diarrhea and malaria has also been actively provided by these facilities, accounting for 20% and 24% of all services, respectively [23]. Antenatal care (representing 9% of national health services) and HIV/AIDS counseling and testing (representing 13% of national health services) are two areas in which PNFP facilities have made concerted efforts to improve access. In order to improve the standard of care provided, private healthcare providers can take part in strategic planning, service delivery organization, data sharing, and long-term referral support.

2.4 Conceptual Framework

Figure 2.1: Conceptual Framework



The relationship between the study's variables is shown in Figure 2.1. It demonstrates how the study's independent and dependent variables are assumed to have an influencing-influenced relationship. The research model suggests that the action or influence begins at the point of independent variables denoted by PPP guidelines, which represent purchasing, distribution, and storage of medicines; PPP awareness, which represents staff competency, information sharing, and transparency among staff; and PPP implementation, which represents implementation plan, monitoring procedure, and review of outcome, and then takes further action into intervening variables denoted by PPP awareness, which represents.

2.5 Hypotheses

The study was guided by the following hypotheses:

H₀: Public-Private Partnership plays a vital role in the availability of essential medicines in health facilities in Ubungo Municipal Council

H₁: There is a significant relationship between PPP guidelines and the availability of essential medicines in health facilities at Ubungo Municipal Council

H₂: There is a significant relationship between PPP awareness and the availability of essential medicines in health facilities at Ubungo Municipal Council

H₃: There is a significant relationship between PPP implementation and the availability of essential medicines in health facilities at Ubungo Municipal Council.

CHAPTER THREE

METHODS

3.1 Study design

[24] The procedures involved in data collection, analysis, interpretation, and reporting in studies are referred to as research design. In other words, the research design determines how the necessary data will be collected, how the data will be analyzed, and how the entire process will address the research question [25]. Consequently, a case study research design was used for this study.

Using the case study approach, a researcher can carefully examine the data within a specific context [26]. In their most basic form, case studies carefully consider the context of a small number of related circumstances or events in order to explore and analyze current real-world phenomena. It can be considered a trustworthy research method, particularly when conducting a thorough, in-depth investigation.

3.2 Description of sample

The total number of health facilities selection was guided by taking an equal number of all 20 public facilities and 20 private facilities within the council. Private facilities selection was based on a similar number of health facilities level with the public (2 hospitals, 4 health centers, 14 dispensaries), totaling 40 health facilities. Private health facilities were selected randomly based on similar levels to the public facilities. For the quantitative part of the study, 39 pharmacy dispensers and 39 stores in charge of 40 health facilities were selected to respond to the questionnaires. While for the qualitative part of the study, 40 facilities in charge were selected to participate in in-depth interviews.

The sampling frame and population of this study consisted of facility in-charges, pharmacy dispensers, and stores in-charge of 40 public health facilities in Ubungo Municipal Council. The study used Yamane's formula to determine its sample size. The formula is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Whereby;

n is the sample size to be determined; N is the selected population, which is 60 for pharmacy dispensers and pharmacy store in-charges; and e is the level of precision or sampling error, which is normally expressed in percentages from $\pm 5\%$ to $\pm 10\%$. However, in the case of this study, the level of precision will be $\pm 10\%$.

Therefore;

$$n = \frac{60}{1 + 60(10\%)^2}$$

This will be equal to say;

$$n = \frac{60}{1 + 60(0.01)}$$

Therefore;

$$n = 38$$

But, since the level of precision or sampling error was $\pm 10\%$, 1 respondent will be added to make a total of 39 respondents. Therefore, the study will use a sample of 118 respondents out of the population of 140 health workers from 40 health facilities in Ubungo Municipal.

The distribution of respondents was as follows:

Table 3.1: Distribution of respondents

No.	Type of Respondents	Population	Sample
1.	Facility in charge	40	40
2.	Pharmacy dispensers	60	39
3.	Pharmacy store in charges	60	39
	Total	140	118

3.3 Source of data

[28] Explains data collection as the process that gathers and measure information about variables of the study in a way that enhance and provide answers to the research questions and provide evaluation of outcomes. This study used primary data collected from respondents.

3.4 Data collection and instruments development procedures

Primary data were collected through questionnaires and interviews as follows;

3.4.1 Interview

In an interview, you ask participants in a study questions and get their responses. Individual, face-to-face, and face-to-face group interviews are just a few of the many formats that interviews can take [28]. To gather first-hand information and obtain crucial information, interviews are used. The primary method of gathering information and obtaining crucial data was through an interview. When conducting interviews to supplement the questionnaires, it was important to explore the data and information provided by respondents. A useful interview allows for face-to-face interaction with respondents and access to first-hand information.

3.4.2 Questionnaire

Both closed-ended and open-ended questions were used in the study's data collection process to test its hypotheses. The questionnaires were divided into two main sections: the first asked for the respondents' personal information, and the second asked a variety of questions to gather first-hand information about the study's independent variables. The questionnaire's use was comparatively simple because it gave respondents the freedom to express themselves freely when discussing the PPP guidelines' impact on the accessibility of essential medications in Ubungu Municipal Council health facilities.

3.5 Ethical consideration

The ethical approval was sought from the ethics committees of the University of Rwanda (UoR) and the National Institute for Medical Research (NIMR) in Tanzania. A written informed consent was obtained from participants before involving them in the study. All the collected information was kept confidential. Only nicknames were used so as to conceal the identities of the participants.

3.6 Measures (Description of main variables)

The study had independent variables and dependent variables, whereby it assumed the cause-effect relationship between independent and dependent variables of the study. The independent variables of the study were PPP guidelines, PPP awareness, and PPP implementation.

The study assessed the role of PPP guidelines on the availability of essential medicines, with special attention on the purchasing of medicines, distribution of medicines, and storage of medicines. On the other hand, the study identified the influence of PPP awareness on the availability of essential medicines by looking at personnel competence, information sharing among personnel, and transparency. Lastly, exploration of the effects of PPP implementation on the availability of essential medicines was assessed by the implementation plan, monitoring procedure, and review outcome.

On the other hand, the dependent variable, which was the availability of essential medicines, was measured by assessing the cost of medicines, the lead time of the delivery of medicines, and the availability of medicines.

Additionally, the study assumed the role of externalities and moderated variables measured by government policies, political stability, and economical situation during the course of the study.

3.7 Data processing and analysis

Descriptive and inferential data analysis were both used in the study to generate findings and draw conclusions..

3.6.1 Descriptive analysis

Descriptive analysis was used to examine qualitative data. Finding an absolute number to sum up each individual variable and identify a pattern was done using descriptive data analysis. In this section, the respondents' demographic traits were summed up and described using percentages. This made it possible for the researcher to gather information from the respondents in order to accomplish her research goals and respond to her research questions regarding the current study.

3.6.2 Inferential analysis

To demonstrate the relationship between various variables and to make predictions, inferential statistics were used. The hypothesis was tested for analysis using Pearson correlation and regression analysis.

H₀: Inclusion of PPP guideline, PPP awareness and PPP implementation ensures availability of essential medicines health facilities in Ubungo Municipal.

$$\mathbf{H_0: [PPP_g \wedge PPP_a \wedge PPP_i] \rightarrow A_{EM}}$$

Whereas;

- **PPP_g** is an independent variable representing *PPP Guideline*
- **PPP_a** is an independent variable representing *PPP Awareness*
- **PPP_i** an independent variable representing *PPP Implementation*
- **A_{EM}** is a dependent variable representing *Availability of Essential Medicines*

Each independent variable (such as H1: PPP_g A_{EM}) was tested independently prior to combining the results to test the overall hypothesis H₀: [PPP_g PPP_a PPP_i] A_{EM}. The

inferential analysis was performed in Microsoft Excel because the Likert Scale was used in the questionnaires.

CHAPTER FOUR

RESULTS

4.1 Introduction

The results of the study will be presented in this chapter. There are two main divisions in it. The socio-personality traits of the respondents are explained by the first category. Gender, educational attainment, and employment history of respondents are described in this category in accordance with the characteristics of the respondents consulted for this study. The findings of each objective relating to the PPP's roles in ensuring the availability of essential medications in Ubungo Municipal Council health facilities are explained in the second category.

4.2 Demographic characteristics of respondents

The purpose of the study was to gather feedback from respondents with various sociocultural backgrounds. However, the following criteria were used in this study to evaluate gender, education, and work experience:

4.2.1 Gender of respondents

The study consulted respondents without regard to their gender. It categorized gender into only two categories: male and female. Table 4.1 shows the distribution of gender among respondents.

Table 4.1: Gender of respondents

Gender of Respondents	Freq.	Percent	Cum.
Female	46	58.97	58.97
Male	32	41.03	100.00
Total	78	100.00	

Table 4.1 shows that the study found that females constituted 58.97% of all respondents, while males constituted the remaining 41.03% of all respondents.

4.2.2 Level of education of respondents

The majority of the time, respondents with varying levels of education have definite differences in opinion. This study aimed to elicit opinions from participants at all educational levels. It divided educational levels into formal education, informal education, primary education, secondary education, and postsecondary education. The distribution of respondents' educational backgrounds is shown in Table 4.2.

Table 4.2: Educational Level of Respondents

Educational Background	Freq.	Percent	Cum.
University/College Education	78	100.00	100.00
Total	78	100.00	

The study found that 100% of respondents, who are basically facility in-charges, pharmacy dispensers, and store in-charges, have university or college education. Table 4.2 shows a representation of the levels of education of the respondents.

4.2.3 Experience of Respondents

The study was conducted under the presumption that, when all other variables remained the same, the workers' prior experience dictated how they would respond to the same question. Without regard to respondents' prior employment histories, this study aimed to solicit their opinions. The study that followed divided work experience into six categories: under one year, between one and two years, between three and four years, between five and six years, and over six years. The distribution of respondents by job experience is shown in Table 4.3.

Table 4.3: Work experience of respondents

How long have you been working with Ubungo Health Facility	Freq.	Percent	Cum.
1-2 Years	30	38.46	38.46
3-4 Years	13	16.67	55.13
5-6 Years	9	11.54	66.67
Below 1 Year	6	7.69	74.36
Over 6 Years	20	25.64	100.00
Total	78	100.00	

The results of table 4.3 show that 38.46% of the respondents have job experience of 1-2 years, 16.67% have experience of 3–4 years, 11.454% have experience of 5–6 years, 7.69% have experience of below 1 year, and the remaining 25.64% have job experience of over 6 years.

4.3 Presentation of findings

This section evaluated the impact of PPP on the accessibility of necessary medications in Ubungo Municipal Council's healthcare facilities. Based on the study's specific goals, which included determining the impact of PPP guidelines on the availability of essential medicines in health facilities at Ubungo Municipal Council, identifying the impact of PPP awareness on the availability of essential medicines in health facilities at Ubungo Municipal Council, and investigating the effects of PPP implementation on the availability of essential medicines in h, the findings were analyzed.

Additionally, the study utilized an estimated average for each assumed variable the significance of the information collected from the field. The variables above the weight for each of the aforementioned variables. The weight was categorized into the following:

1. Strongly Agree 2. Agree 3. Undecided 4. Disagree 5. Strongly Disagree

In this particular study, the response with the higher mean was therefore regarded as the most prominent and preferred response, and therefore, the conclusions drawn were based on the average value of each response.

4.3.1 Role of PPP guidelines on the availability of essential medicines

In the Ubungo Municipal Council, the study sought to evaluate the impact of PPP guidelines on the accessibility of essential medications. In order to accomplish this goal, the researcher created a question that required respondents to think about how PPP guidelines might affect the accessibility of essential medications.

Basically, considering the estimated mean of each effect, the study found out that storage guidelines provide enough supply as it weighted an average of 1.615, followed by an average of 1.551 that claimed that distribution guidelines are well established, 1.538 that postulated that distribution guidelines ensure the availability of medicines, 1.525 that claimed that storage guidelines are well established, 1.487 that stated that purchasing guidelines are relevant, and lastly an estimated mean of 1.371 that claimed that purchasing guidelines are well articulated.

Table 4.4 below shows the Stata-generated estimation of the mean of variables that assess the role of PPP guidelines on the availability of essential medicines in health facilities at Ubungo Municipal Council.

Table 4.3: Mean estimation for the role of PPP Guidelines on availability of Essential Medicines

Mean estimation Number of obs = 78

	Mean	Std. Err.	[95% Conf. Interval]	
Guideline_Articulation	1.371795	.0550753	1.262126	1.481464
Guideline_Relevance	1.487179	.0746701	1.338492	1.635867
Guideline_Establishment	1.551282	.0721845	1.407544	1.69502
Guideline_Assurance	1.538462	.0767564	1.38562	1.691303
Storage_Guideline_Establishment	1.525641	.0723617	1.38155	1.669732
Storage_Guideline_availability	1.615385	.0663766	1.483212	1.747557

In that case, the study found that the PPP guideline regarding the storage of medicines ensures enough supply of essential medicines in healthcare facilities in Ubungo Municipal Council. The results confirm a comment made by some facility in-charges to interview session that claimed the following:

"The PPP guideline stipulates that we must keep a buffer stock that can serve the facility for at least two months. And in that case, adherence to the guidelines will eventually ensure the availability and supply of essential medicines in the facility."

4.3.2 Influence of PPP awareness on the availability of essential medicines in health facilities at Ubungo Municipal Council

In essence, the study sought to determine how PPP awareness affected the accessibility of essential medications in Ubungo Municipal Council. In order to accomplish this goal, the researcher created a question that required respondents to evaluate each effect that PPP awareness had on the accessibility of necessary medications.

Explicitly, considering the estimated mean of each effect, the study found out that enough training is provided, as it weighted and scored an average of 2.192, followed by an average of 1.806 that claimed that information is well disseminated, 1.538 that postulated that distribution guidelines ensure the availability of medicines, 1.794 that claimed that

employees are well informed, and lastly, an estimated mean of 1.589 that claimed that transparency is adhered to.

Table 4.5 below shows the Stata-generated estimation of the mean of variables that assess the influence of PPP awareness on the availability of essential medicines in health facilities at Ubungo Municipal Council.

Table 4.5: Mean estimation for the influence of PPP awareness on availability of Essential Medicines

Mean estimation Number of obs = 78

	Mean	Std. Err.	[95% Conf. Interval]	
Awareness_and_training	2.192308	.1224917	1.948395	2.43622
Awareness_and_information	1.794872	.0862876	1.623051	1.966692
Awareness_and_dissemination	1.807692	.0817265	1.644954	1.970431
Awaeness_and_transparency	1.589744	.0739808	1.442429	1.737058

Therefore, the study found that training on PPP is provided and that this influences the availability of essential medicines in healthcare facilities in Ubungo Municipal. However, the result contradicts some of the comments from the interview that postulate that:

"We have some problems with awareness of the PPP guidelines. The majority of store managers are not pharmacists. Hence, they are only provided with on-the-job training that doesn't cover all spheres and stipulations of the guidelines."

4.3.3 Effects of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council

In essence, the study aimed at assessing the effects of PPP implementation on the availability of essential medicines at Ubungo Municipal Council. On the course of attempting this objective, the researcher set a question that required respondents to weigh each pre-mentioned effect of PPP implementation on the availability of essential medicines.

Following that, considering the estimated mean of each effect, the study found that the provision of feedback was weighted and scored an average of 1.769, followed by an average of 1.589 that claimed that implementation is adequately monitored, 1.579 that postulated that PPP guidelines are effectively implemented, and lastly an estimated mean of 1.525 that claimed that PPP implementation is regularly reviewed.

Table 4.6 below shows the Stata-generated estimation of the mean of variables that assess the effects of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council.

Table 4.6: Mean estimation for the effects of PPP implementation on providing Medicines

Mean estimation	Number of obs = 78			
	Mean	Std. Err.	[95% Conf. Interval]	
Implementation_effectiveness	1.576923	.0718882	1.433775	1.720071
Implementation_and_moitoring	1.589744	.0668891	1.45655	1.722937
Implementation_feedback	1.769231	.0929107	1.584222	1.95424
Implementation_review	1.525641	.0723617	1.38155	1.669732

Consequently, the study found that the provision of feedback on PPP implementation affects the availability of essential medicines in health facilities at Ubungo Municipal Council. The Some PPP policy reviews the interview that stated that:

"There are some PPP policy reviews that assess the implementation of PPP guidelines, as setbacks, and suggest possible areas for review."

4.4 Inferential Analysis

Nevertheless, in order to validate the findings and to draw conclusion the researcher run and conducted a linear regression analysis to test the hypotheses and specification of research model.

4.4.1 PPP guidelines and the availability of essential medicine

The coefficient analysis of factors that were used to determine the role of PPP guidelines and

Role of PPP Guideline on availability of essential medicines: $PPP_g \rightarrow AE_M$	1	2	3	4	5	r	r ²
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the availability of essential medicine in health facilities at Ubungo Municipal Council shows that there is strong positive correlation of 0.598 with variability of 24.8% as shown on table 4.7 below.

Table 4.7: Statistical Results and Correlation Matrix for the role of PPP guidelines and the availability of essential medicine

Purchasing guidelines are well articulated	3	1	2	2	4	0.1769	3.5%
Purchasing guidelines are relevant	1	2	2	1	4	0.3796	14.4%
Distribution guidelines are well established	0	3	0	2	0	0.277	7.5%
Distribution ensures availability	3	3	2	0	7	0.1869	3.5%
Storage guidelines are well established	1	1	9	3	3	0.307	15.3%
Storage guidelines ensures supply	8	13	2	2	2	0.399	9.6%
Total Response	16	23	9	10	20		
Average Response	0.6	4.8	21.4	20	3.3		
Percentage of Response	1.3%	9.5%	42.8%	40%	6.5%		
Coefficient of Correlation (r)	0.598						
Coefficient of Determination (r2)	24.8%						

Source: Field data, 2023

Further to that, table 4.7 shows that the found that there is weak positive correlation between articulations of purchasing guidelines to the availability of essential medicines as it was represented by the coefficient of correlation of 0.1769 and variability of 3.5%. Additionally, a correlation of 0.3796 and variability of 14.4% shows a weak positive relationship between relevance of purchasing guidelines to availability of essential medicine while the correlation of 0.277 and variability of 7.5% depicts weak positive relationship between establishment of distribution guidelines to availability of essential medicines.

4.4.2 PPP awareness and the availability of essential medicine

The coefficient analysis of factors that were used to assess the influence of PPP awareness and the availability of essential medicine in health facilities at Ubungo Municipal Council shows that there is strong positive correlation of 0.567 with variability of 25.6% as shown on table 4.8 below.

Table 4.8: Statistical Results and Correlation Matrix for the influence of PPP awareness and the availability of essential medicine

Influence of PPP awareness on availability of essential medicines: $PPP_a \rightarrow AE_M$	1	2	3	4	5	r	r^2
Enough training	11	12	2	3	4	0.845	68.5%
Employees are well informed	2	7	2	2	4	0.3696	16.4%
Information is well disseminated	1	4	2	3	4	0.3471	15.2%
Transparency is adhered	3	5	2	4	4	0.1769	3.5%
Total Response	18	28	8	12	12		
Average Response	4.3	2.8	9.8	6.5	6.5		
Percentage of Response	10%	49%	6%	49%	17%		
Coefficient of Correlation (r)	0.567						
Coefficient of Determination (r ²)	25.6%						

Source: Field data, 2023

Additionally, table 4.8 shows that the found that there is strong positive correlation between enough training to the availability of essential medicines as it was represented by the

Influence of PPP awareness on availability of essential medicines: $PPP_a \rightarrow AE_M$	1	2	3	4	5	r	r ²
Enough training	11	12	2	3	4	0.845	68.5%
Employees are well informed	2	7	2	2	4	0.3696	16.4%
Information is well disseminated	1	4	2	3	4	0.3471	15.2%
Transparency is adhered	3	5	2	4	4	0.1769	3.5%
Total Response	18	28	8	12	12		
Average Response	4.3	2.8	9.8	6.5	6.5		
Percentage of Response	10%	49%	6%	49%	17%		
Coefficient of Correlation (r)	0.567						
Coefficient of Determination (r ²)	25.6%						

coefficient of correlation of 0.845 and variability of 68.5%. Additionally, a correlation of 0.3696 and variability of 16.4% shows a weak positive relationship between informed

employees to availability of essential medicine while the correlation of 0.3471 and variability of 15.2% depicts weak positive relationship between dissemination of information to availability of essential medicines.

4.4.3 PPP implementation and the availability of essential medicine

The coefficient analysis of factors that were used to determine the role of PPP guidelines and the availability of essential medicine in health facilities at Ubungo Municipal Council shows that there is strong positive correlation of 0.628 with variability of 39.4% as shown on table 4.9 below.

Table 4.9: Statistical Results and Correlation Matrix for the effects of PPP implementation and the availability of essential medicine

Source: Field data, 2023

Further to that, table 4.9 shows that the found that there is weak positive correlation between

Effects of PPP implementation on availability of essential medicines: $PPP_i \rightarrow AE_M$	1	2	3	4	5	r	r ²
PPP is effectively implemented	1	4	2	3	4	0.3761	14.1%
Adequately monitored	1	7	2	2	4	0.3796	14.4%
Feedback provided	11	2	6	2	3	0.810	65.6%
Regularly reviewed	3	8	2	4	7	0.1869	3.5%
Total Response	16	21	12	11	18		
Average Response	2	8.6	20.5	16.6	2.3		
Percentage of Response	7%	30%	14%	21%	28%		
Coefficient of Correlation (r)	0.628						
Coefficient of Determination (r ²)	39.4%						

effective implementation of PPP to the availability of essential medicines as it was represented by the coefficient of correlation of 0.3761 and variability of 14.1%. Additionally, a correlation of 0.3796 and variability of 14.4% shows a weak positive relationship between

adequate monitoring to availability of essential medicine while the correlation of 0.810 and variability of 65.6% depicts strong positive relationship between provision of feedback to availability of essential medicines.

4.5 Summary of the Findings: Testing the Composite Hypothesis

$$H_0: [PPP_g \wedge PPP_a \wedge PPP_i] \rightarrow AE_M$$

There is a strong positive relationship PPP guidelines, PPP awareness and PPP implementations to availability of essential medicines in health facilities in Ubungo Municipal Council with coefficient of correlation of 0.5523 when all the independent variables are combined together as shown on table 4.10 and variability of 30.5%. The three conventional variables (PPP guidelines, PPP awareness and PPP implementation) when all worked together will ensure availability of essential medicines in health facilities.

Table 4. 20: Statistical Results and Correlation Matrix for Combined Variables

H ₀ : [PPP _g ∧ PPP _a ∧ PPP _i] → AE _M	1	2	3	4	5	r	r ²
PPP guideline	2	8.6	20.5	16.6	2.3	0.506	25.6%
PPP awareness	0.6	4.8	21.4	20	3.3	0.498	24.8%
PPP implementation	1.3	9.5	21	16.1	2.1	0.628	39.4%
Total Response	4.9	30.4	84.9	91	39		
Average Response	0.98	6.08	16.98	18.2	7.8		
Percentage of Response	2%	12%	34%	36%	16%		
Coefficient of Correlation (r)	0.5523						
Coefficient of Determination (r ²)	30.5%						

Source: Field data, 2023

CHAPTER FIVE

DISCUSSIONS AND CONCLUSIONS

5.1 Study design

This was an exploratory cross-sectional study among health workers in the health facilities. Consent health workers were given the structured questionnaires. The structured questionnaire and interviews were used to gather information from the staff at the dispensing, and store to determine the role that PPP plays on availability of essential medicines in health facilities in Ubungo Municipal Council.

5.2 Specific Results

The coefficient analysis of factors that were used to determine the role of PPP guidelines and the availability of essential medicine in health facilities at Ubungo Municipal Council, all variables are combined and shows that there is strong positive correlation of 0.598 with variability of 24.8%.

The coefficient analysis of factors that were used to assess the influence of PPP awareness and the availability of essential medicine in health facilities at Ubungo Municipal Council, all variables are combined and shows that there is strong positive correlation of 0.567 with variability of 25.6%.

The coefficient analysis of factors that were used to determine the role of PPP guidelines and the availability of essential medicine in health facilities at Ubungo Municipal Council, all variables are combined and shows that there is strong positive correlation of 0.628 with variability of 39.4%.

5.3 Conclusions

The study found a strong positive relationship PPP guideline, PPP awareness and PPP implementations to availability of essential medicines in health facilities in Ubungo Municipal Council with coefficient of correlation of 0.5523 when all the independent variables are combined together as shown on table 4.10 and variability of 30.5%. Therefore, it can be concluded that, three conventional variables (PPP guidelines, PPP awareness and PPP implementation) when all worked together will ensure availability of essential medicines in health facilities.

5.4 Policy and Programmatic recommendations

Basing on the results of the study. the following are recommended;

- i. The government should develop and implement clear guidelines that outline the roles and responsibilities of all stakeholders involved in PPPs to provide essential medicines. This will ensure that PPPs are properly structured and effectively managed.
- ii. The government should allocate more fund to procure essential medicines in the public health facilities. An adequate supply of essential medicines in the health facilities, reducing the burden on the private sector and increasing sector and increase the sustainability of PPPs.
- iii. The government should actively promote public-private partnerships for the provision of essential medicines. This can be done by creating a favorable policy environment that encourages private sector investment in the provision of essential medicines, and by providing incent private sector partners.
- iv. The government should strengthen the supply chain management system for essential medicines to ensure that there is an uninterrupted supply of essential medicines to the

health facilities. This will require the development of robust logistics systems, including warehousing and distribution networks, as well as the adoption of appropriate technology to track and monitor essential medicines.

- v. The government should ensure that essential medicines supplied through PPPs meet quality standards and are subject to rigorous quality control and assurance measures. This will require the establishment of effective regulatory systems, including regular inspections and testing of essential medicines, as well as the development of clear quality control standards.
- vi. The government should invest in building the capacity of public sector officials and private sector partners to effectively manage and sustain PPPs for the provision of essential medicines. This can be done through training programs, mentorship and coaching, and the provision of technical assistance.
- vii. The government should establish a monitoring and evaluation system to track the performance of PPPs in the provision of essential medicines. This will help to identify areas for improvement and ensure that PPPs are meeting their objectives.

5.5 Study limitations and implications for future research

5.5.1 Study limitations

The study had the following limitations;

- i. Limited geographical scope in an essence that the study had a limited geographic area, which could affect the generalizability of the findings to other regions or countries.
- ii. Reliance on self-reporting through which the study on relied self-reported data from health facility staff, which could subject to bias and may not accurately reflect the actual availability of essential medicines.

- iii. External factors, such as supply chain disruptions, essential medicines' availability and confound the study's results the study.
- iv. The study was limited in terms of its timeframe, and it may not capture longer-term effects of PPP on the availability of el medicines.

5.5.2 Implications for Future Research

Future research should focus on the following;

- i. Future research could use a larger sample size to increase the generalizability of the results.
- ii. Longitudinal studies could be conducted to in more extended to assess the effects of PPP on availability of essential medicines over a longer period.
- iii. Comparative studies could be conducted to compare the effectiveness of PPP with other interventions aimed at improving access to essential medicines.
- iv. Intervention studies could be conducted to determine the most effective PPP strategies for improving the availability of essential medicines in health facilities.
- v. Future research could evaluate specific PPP models or partnerships to identify the most effective approaches for improving the availability of essential medicines.
- vi. Future research could explore external factors that may affect the availability of essential medicines, such as supply chain disruptions or political instability, to better understand their impact on PPP interventions.
- vii. Future research could evaluate the long-term effects of PPP interventions on the availability of essential medicines to determine their sustainability and potential for scalability.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

Dear respondents,

My name is Hezron Aggrey Msongole, a student of University of Rwanda conducting a study on Public-Private Partnership in the Availability of Essential Medicines in The Health Facilities at Ubungo Municipal Council.

The sole intent of this study is academic. The requirements for the Master of Science in Health Supply Chain Management have been met. The success of this study will be greatly influenced by your willingness to cooperate by giving accurate and factual responses. Any information you provide to me will be held in the strictest confidence.

I appreciate your participation in advance.

Yours faithfully,

Hezron A Msongole

APPENDIX II: QUESTIONNAIRES GUIDING QUESTIONS

PART 1: PERSONAL INFORMATION

Put a tick against the right option for questions with multiple answers.

PART I: Preliminary information

Gender of the respondents (tick where appropriate)

Male	
Female	

Educational background

Level of education	Tick(v) where appropriate
Non-school education	
Primary education	
Secondary education	
University/college education	

Kindly indicate how long you have been working with Ubungo health facility

Below 1 year	
1-2 years	
3-4 years	
5-6 years	
Over 6 years	

PART II: PPP GUIDELINES AND THE AVAILABILITY OF ESSENTIAL MEDICINES

Kindly show the extent to which you agree with regard to the role of establishment of PPP guidelines on the availability of essential medicines at Ubungo Municipal Council. Tick appropriate box using the scale of 1-5, where 1- strongly agree, 2-agree, 3-undecided, 4-disagree and 5-strongly disagree.

Effect of PPP guidelines	1	2	3	4	5
The PPP guidelines for the purchase of essential medicines are well articulated in the health facilities at Ubungo Municipal Council.					
PPP guidelines for the purchase of essential medicines are relevant to the requirements of health facilities at Ubungo Municipal Council.					
PPP guidelines for the distribution of essential medicines are well established in health facilities at Ubungo Municipal Council					
PPP guidelines for the distribution of essential medicines ensure the availability of essential medicines in health facilities at Ubungo Municipal Council.					
PPP guidelines for the storage of essential medicines are well established in health facilities at Ubungo Municipal Council.					
PPP guidelines for the storage of essential medicines provide enough supply of essential medicines in health facilities at Ubungo Municipal Council.					
Others....					

Please provide any additional comment on the choice of your answer you provided above and give reason(s) if any.....

.....

.....

Provide your suggestion(s) with regard to the effects of PPP guidelines on the availability of essential medicines at Ubungo Municipal Council.

.....

.....

.....

PART III: AWARENESS OF PPP

Please indicate the extent to which you agree with the following statements with regards to the influence of PPP awareness on the availability of essential medicines at Ubungo Municipal Council by checking the appropriate box provided. Tick appropriate box using the scale of 1-5, where 1- strongly agree, 2-agree, 3-undecided, 4-disagree and 5-strongly disagree.

Awareness of PPP	1	2	3	4	5
The government has conducted adequate training of PPPs for the supply of essential medicines in health facilities at Ubungo Municipal Council.					
The employees are well informed about the PPP for the supply of essential medicines in health facilities at Ubungo Municipal Council.					
There is adequate dissemination of information with regard to PPP regarding the availability of essential medicines in health facilities at Ubungo Municipal Council.					
The management ensures there is maximum transparency with regard to PPP for the availability of essential medicines in health facilities at Ubungo Municipal Council.					

Please, provide your comment(s) on the choice of your answers above, give reasons if any.

.....

Provide your suggestion(s) with regard to the influence of PPP awareness on the supply of essential medicines in health facilities at Ubungo.

.....

PART IV: PPP IMPLEMENTATION

Please indicate the extent to which you agree with the following statements with regard to the effect of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council. Tick appropriate box using the scale of 1-5, where 1- strongly agree, 2-agree, 3-undecided, 4-disagree and 5-strongly disagree.

Effect of PPP implementation	1	2	3	4	5
There is an effective PPP implementation plan to ensure the availability of essential medicines in health facilities at Ubungo Municipal Council.					
The monitoring system for the PPP implementation process is adequate to ensure the availability of essential medicines in health facilities at Ubungo Municipal Council.					
Employees are provided with feedback on the follow-up of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council.					
The government provides regular review of the PPP implementation process on the availability of essential medicines in health facilities at Ubungo Municipal					

Council.					
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Please comment on the choice of your answer above, give reason(s) if any

.....

Kindly provide your suggestions with regard to the effect of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council.

PART V: PPP AND AVAILABILITY OF ESSENTIAL MEDICINES

Please indicate the extent to which you agree with the following statements with regard to the availability of essential medicines in health facilities at Ubungo Municipal Council. Tick appropriate box using the scale of 1-5, where 1- strongly agree, 2-agree, 3-undecided, 4-disagree and 5-strongly disagree.

Impact of PPP on availability of essential medicines	1	2	3	4	5
PPP guidelines have a significant influence on the availability of essential medicines at the right cost in health facilities at Ubungo Municipal Council.					
Awareness of PPP has influenced the timely availability of essential medicines in health facilities at Ubungo Municipal Council.					
Implementation of PPP has a significant effect on the availability of essential medicines of the right quality in health facilities at Ubungo Municipal Council.					
PPP monitoring has a significant influence on the availability of the right quantity of essential medicines in health facilities at Ubungo Municipal Council.					
Others...					

Please comment on the choice of your answer above, give reason(s) if any

.....

Kindly provide your suggestions with regard to the impact of PPP on the availability of essential medicines in health facilities at Ubungo Municipal Council

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APPENDIX III: INTERVIEW GUIDING QUESTIONS

- i. To what extent has PPP guideline influenced the availability of essential medicines in health facilities at Ubungo Municipal Council?
- ii. How PPP awareness contribute to the availability of essential medicines in health facilities at Ubungo Municipal Council.
- iii. What are the effects of PPP implementation on the availability of essential medicines in health facilities at Ubungo Municipal Council?