

**ASSESSING FACTORS ASSOCIATED WITH STOCK-OUTS OF REPRODUCTIVE
HEALTH COMMODITIES IN SELECTED HEALTH FACILITIES OF WAKISO
DISTRICT, UGANDA**

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**A DISSERTATION SUBMITTED TO THE FACULTY OF PUBLIC HEALTH, NURSING AND
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THE DEGREE OF MASTER OF PUBLIC HEALTH OF UGANDA CHRISTIAN UNIVERSITY**

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DECLARATION

I, Magona Sandra Wanyenze, hereby declare that to the best of my knowledge, this dissertation is my original work and that it has never been submitted to any other institution for any academic award. Where the work of others is used in the study, it has been duly acknowledged.

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APPROVAL

This is to certify that this dissertation was written under my guidance as supervisor and is submitted to the School of Public at Uganda Christian University for approval.

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DEDICATION

This work is dedicated to my Family and Friends who have offered the much needed support to pursue my MPH.

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ACRONYMS AND ABBREVIATIONS

AHSP	Annual Health Sector Performance report
EMHS:	Essential Medicines and Health Supplies
FP	Family Planning
HC	Health Centre
HF _s	Health Facilities
HMIS	Health Management Information System
IUD	Intrauterine device
JMS	Joint Medical Store
LMICs	Low Middle-Income Countries
LMIS	Logistics Management Information System
MOH	Ministry of Health
MTC	Medicines and Therapeutics Committee
NGO	Non-government Organization
NMS	National Medicalstore
RH	Reproductive health
SC	Subcutaneous
SDG	Sustainable Development Goals
SRHC	Sexual and Reproductive Health Commodity
UHC	Universal Health Coverage
UNFPA	United Nations Population Fund
VHT	Village Health Teams
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Reproductive health (RH) commodities: Contraceptives such as oral pills, injectables, implants, IUDs, and condoms

Stock-out: is the complete absence of one or more of the reproductive health commodities for at least one day at the storage or delivery point.

Reproductive health commodities stock-outs: Percentage of that had a stock-out of one or more required reproductive health commodities during a defined period.

Numerator: Number of health facilities dispensing reproductive health commodities that experienced a stock-out of one or more required commodity during a defined period.

Denominator: Total number of health facilities dispensing reproductive health commodities during the same period.

Stock card: is a tool used to monitor the movement of medicines and health supplies within the store, with a separate card maintained for each item. Every transaction, whether receipt or issue, must be promptly recorded on the corresponding stock card to ensure accurate tracking of inventory levels.

ABSTRACT

Background: In Uganda, despite the reduced costs of reproductive health (RH) commodities and increased support from the Ministry of Health and partners such as UNFPA, stock-outs of these commodities remain a persistent challenge. There is a need to understand and document the factors associated with stock-outs and the barriers, facilitators and experiences in reproductive health commodities management.

Objective:

To determine factors influencing stock out levels of reproductive health commodities and explore the barriers, facilitators and experiences of healthcare workers regarding the management of reproductive health commodities in selected health facilities of Wakiso district.

Methods:

A mixed study was employed concurrently in this study. Both quantitative and qualitative data were collected at the same time. Quantitative data was collected from the stockcards while qualitative data was collected using a pre-tested, semi-structured interview guide.

Results:

Stock-out level for RH commodities was 10.1% with HCIV and HCIII's experiencing the highest percentage. Injectables contraceptives Medroxyprogesterone acetate 104mg/0.65mL, SC and Medroxyprogesterone acetate 150mg/mL being the most affected and Levonorgestrel 30mcg tabs (Microlut) the least affected. Training in supply chain management remained significantly associated with reduced stockouts, as facilities with trained staff were less likely to face stockouts (aPR = 0.77; 95% CI: 0.599-0.985, $p = 0.038$). Delays in delivery also showed a strong association, with facilities that experienced delivery delays being less likely to face stockouts (aPR=0.54; 95% CI: 0.433-0.668, $p < 0.001$). In addition, support supervision was significantly associated with increased stockouts (aPR=1.54; 95% CI: 1.083-2.192, $p = 0.016$).

Qualitative findings provided factors associated to the depicted stockout levels, such as limited supply chain training, limitations in support supervision, delays in supply deliveries from National Medical Stores, and inadequate budget for commodities. Quantitative findings provided barriers such as limited storage space, inadequate funds for redistribution logistics, facilitators such as functional stock monitoring systems, collaboration and support from Village Health Teams, support from development partners and non-government organizations and lastly experiences on how they coped such as redistribution, and submitting emergency orders.

Conclusion:

This study examined the level of stockouts, the factors linked to them, and the challenges in managing reproductive health (RH) commodities in Wakiso District. The results showed a relatively low stockout rate of 10.1%, with higher levels at HC IVs and HC IIIs, especially for injectable contraceptives and 3-year implants due to high demand. Factors such as training in supply chain management, delivery delays, and support supervision were associated with stockouts, showing the complexity of the supply system. Interviews also revealed challenges like poor record-keeping, difficulties in redistributing stock, and limited resources, as well as ways facilities cope with shortages. Overall, the study provides useful information to help improve the supply system and reduce stockouts of RH commodities in Wakiso District.

Keywords: RH, Stock-outs, Supply chain management

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter covered the Background to the study, Statement of the problem, Purpose of the study, Research objectives, Research questions, Scope of the study, the Significance of the study and the Conceptual model.

1.1 Background of the study

Reproductive health is a fundamental pillar of global health and development, influencing not only individual well-being but also societal progress and economic stability. 'It encompasses complete physical, mental, and social well-being concerning the reproductive system, rather than merely the absence of disease.' (WHO, 2015). A key aspect of reproductive health is the ability to have a safe and fulfilling sexual life, along with the freedom to decide if, when, and how often to reproduce (UNFPA, 2018). Ensuring universal access to reproductive health (RH) services and commodities is crucial for safeguarding the health and rights of individuals, particularly women of reproductive age, while also contributing to broader public health and development goals (Wootton, 2018).

One of the key components of reproductive health is the availability of contraceptives. These commodities are reducing unintended pregnancies which contributes to achieving universal health coverage (UHC) and improved reproductive health outcomes. However, persistent stock-outs of RH commodities remain a significant barrier to service delivery, particularly in low- and middle-income countries (LMICs), including Uganda (Ooms et al., 2020).

In Uganda, despite the strong policy commitments to improving reproductive health through contraceptives provision, stock-outs continue to disrupt service delivery, negatively affecting individual health outcomes and national health indicators (Kamuyango et al., 2024). These shortages limit access to critical health

interventions, contributing to increased rates of unintended pregnancies, unsafe abortions, and reproduction complications. Moreover, stock-outs hinder the country's progress toward achieving Sustainable Development Goal 3 (SDG 3), which aims at ensuring healthy lives and promote well-being for all at all ages (Ministry of Health, 2023a). Addressing the underlying causes of stock-outs and strengthening supply chain management systems is therefore essential for enhancing reproductive health service delivery and improving health outcomes in Uganda.

Studies have shown that inconsistent availability of contraceptives in health facilities has led to missed opportunities for care, and unintended pregnancies. While national health policies emphasize supply chain efficiency and equitable distribution of RH commodities, challenges such as logistical bottlenecks, funding gaps, and weak inventory management systems remain largely unresolved.

Wakiso District, one of Uganda's most populous and rapidly urbanizing regions, presents a unique case for studying RH commodities' stock-outs. The district's diverse population, ranging from urban to peri-urban and rural communities, interacts with a health infrastructure that varies significantly in capacity and resource allocation. While some health facilities benefit from stronger supply chain networks, others face severe distribution challenges, delays in procurement, and inadequate storage conditions. This imbalance in RH commodity availability makes Wakiso District a microcosm for understanding the systemic inefficiencies affecting reproductive health service delivery across Uganda.

Although previous research has highlighted the occurrence of RH commodity stock-outs, there is limited understanding of the specific factors driving these shortages at the district level. The extent to which supply chain inefficiencies, financial constraints, healthcare worker capacity, and policy implementation gaps contribute to stock-outs in Wakiso remains unclear. This study seeks to bridge that knowledge gap by investigating the key factors associated with RH commodity stock-outs in selected health facilities within Wakiso District. Understanding these challenges is crucial for strengthening supply chain systems, ensuring reliable access to RH commodities, and ultimately improving reproductive health outcomes in Uganda.

The persistent stock-outs of reproductive health(RH) commodities in Wakiso District underscore a critical disconnect between Uganda’s policy commitments and the operational realities of health service delivery. Despite investments in health system strengthening, challenges such as inefficient supply chain management, inadequate resource allocation, and facility-level preparedness gaps continue to hinder efforts to ensure consistent availability of RH commodities (Lugada et al., 2022). These inefficiencies compromise reproductive health service delivery, increasing the risk of unintended pregnancies, maternal complications, and preventable infections.

This study sought to bridge this gap by identifying the specific factors contributing to RH commodity stock-outs in Wakiso District. Through a systematic assessment of supply chain processes, financial constraints, healthcare worker capacity, and facility-level management practices, the research provides evidence-based insights into the root causes of stock-outs. By generating data-driven recommendations, this study informs targeted interventions to enhance procurement efficiency, strengthen inventory management, and improve coordination between stakeholders. Ultimately, these findings contribute to aligning policy frameworks with on-the-ground realities, ensuring that reproductive health services in Wakiso District are better equipped to meet demand and improve health outcomes.

This study aimed at assessing the factors contributing to stock-outs of reproductive health (RH) commodities in selected health facilities in Wakiso District, Uganda. Despite national efforts to improve reproductive health services, frequent shortages of essential RH commodities continue to disrupt service delivery and compromise health outcomes. Understanding the root causes of these stock-outs is crucial for ensuring a more reliable and efficient supply chain system.

By identifying key bottlenecks in procurement, distribution, inventory management, and facility-level preparedness, this research provides evidence-based insights to

enhance RH commodity availability and accessibility. The study's findings inform targeted interventions aimed at strengthening Uganda's health system, improving reproductive health service delivery, and reducing the negative health impacts of commodity shortages.

Ultimately, this research sought to align national reproductive health policies with practical, on-the-ground realities by providing data-driven recommendations for improving supply chain efficiency, optimizing resource allocation, and reinforcing health facility capacity. The study's findings contribute to both Uganda's national health goals and global reproductive health priorities, ensuring more sustainable and equitable access to RH commodities in Wakiso District and beyond.

1.2 Statement of the Problem

Persistent stock-outs of reproductive health (RH) commodities in Wakiso District pose a significant public health challenge, particularly for women of reproductive age. Wakiso District, one of the most populous and rapidly urbanizing regions in Uganda, experiences frequent shortages of essential RH supplies, including contraceptives of different method mix such as pills, injectables, implants, IUDs and condoms. These stock-outs disrupt the delivery of reproductive health services, leading to increased rates of teenage pregnancies, higher maternal mortality, and preventable reproductive health complications. The unavailability of these critical commodities jeopardizes the continuity of care, leaving many women without access to family planning services, safe childbirth interventions, and infection management.

Reports indicate that majority of the of public health facilities including those in Wakiso District have experienced delays in receiving essential RH supplies, with stock-outs often lasting weeks or even several months (Owiny, 2024). A 2022 Ministry of Health (MoH) report further highlighted that 30% of lower-level health facilities in Wakiso lack proper stock monitoring systems, contributing to inconsistent availability of reproductive health commodities. According to Lugada et al. (2022), these stock-outs are exacerbated by poor adherence to supply plans, inaccuracies in stockcard records, and weak inventory management practices at the facility level.

The impact of these shortages is far reaching. Women of reproductive age bear the

brunt of the crisis, facing increased risks of unintended pregnancies and unsafe abortions. Vulnerable populations, particularly those in rural and underserved areas of Wakiso, suffer the most as they rely heavily on public health facilities for their reproductive health needs. Healthcare workers, too, are affected and forced to turn away patients, improvise with limited resources, and grapple with the frustration of not being able to provide essential services. This undermines public confidence in the healthcare system and worsens health outcomes.

The Ugandan government, through the National Medical Stores (NMS), has implemented several interventions aimed at strengthening supply chain efficiency. These include policy reforms to streamline procurement processes, budgetary allocations for essential medicines, and the introduction of digital health information systems to enhance real-time stock tracking (Ministry of Health, 2023a). Additionally, stock management training programs have been rolled out in selected health facilities, and automated stock monitoring systems have been piloted to improve data accuracy and supply chain transparency. Despite these initiatives, gaps persist. Health facilities still face procurement delays, inadequate funding for RH commodity distribution, and poor coordination between district health teams and the NMS.

This study aimed at assessing the stock-out levels of reproductive health commodities in health facilities across Wakiso District and identified the key factors contributing to these shortages. Specifically, the search investigated procurement delays and funding constraints affecting RH commodity availability, examined health facility adherence to ordering schedules and inventory tracking practices, evaluated the capacity of healthcare personnel in managing RH commodities, and explored the experiences of healthcare workers dealing with stock-outs, including coping strategies and their impact on service delivery.

Through quantitative data analysis and stakeholder consultations, the study generated evidence-based insights to inform targeted interventions for improving RH commodity

distribution and accessibility. Ultimately, the findings support efforts to strengthen supply chain efficiency, enhance stock monitoring mechanisms, and ensure uninterrupted reproductive health service delivery in Wakiso District. By addressing these systemic challenges, the research contributes to reducing maternal health risks and advancing Uganda's progress toward Sustainable Development Goal 3 (SDG 3) ensuring healthy lives and well-being for all.

1.3 Purpose of the study

The study aimed at determining the factors influencing the stockout of reproductive health commodities at health facilities in Wakiso district. It also identified recurrent gaps in the supply of reproductive health commodities and further suggested solutions to avert the gaps.

1.4 Overall goal of the study

The overall goal of the study was to assess the stockout levels of reproductive health commodities in selected health facilities of Wakiso district and to identify factors influencing stock outs of these commodities.

1.5 Specific objectives

1. To determine the stockout levels of reproductive health commodities in selected health facilities of Wakiso district.
2. To determine factors influencing stock out levels of reproductive health commodities in selected health facilities of Wakiso district.
3. To explore the barriers, facilitators and experiences of healthcare workers regarding the management of reproductive health commodities in selected health facilities of Wakiso district

1.6 Research questions

1. What are the stockout levels of reproductive health commodities in selected health facilities of Wakiso district.
2. What are the factors influencing stock out levels of reproductive health commodities in selected health facilities of Wakiso district.

3. What are the barriers, facilitators and experiences of healthcare workers regarding the management of reproductive health commodities in selected health facilities of Wakiso district.

1.7 Hypothesis

H_0 : There is no statistically significant association between health system, central warehouse and district level factors and the stock out of Reproductive Health Commodities in Wakiso district.

H_1 : There is a statistically significant association between health system, central warehouse and district level factors and the stock out of Reproductive Health Commodities in Wakiso district.

1.8 Propositions

In selected health facilities of Wakiso District, stock-outs of reproductive health commodities are influenced by the effectiveness of health facility management practices, the efficiency of central warehouse logistics, and the degree of support provided by district health teams.

1.9 Justification of the study

This study was justified by the need to address the gaps in our understanding of the factors influencing stockouts of reproductive health commodities in Wakiso district the most inhabited district in Uganda. While some research has been conducted on the availability of these commodities, there was limited information on the specific challenges faced by health facilities in Wakiso district. By identifying and analyzing the factors that contribute to stockouts, this study provided valuable insights for policymakers, health facility managers, and supply chain stakeholders. These insights will be crucial in designing targeted interventions to enhance the availability of reproductive health commodities, ultimately improving the quality of reproductive health services, and contributing to the achievement of Uganda's FP-2030 commitments.

1.10 Significance of the study

This study is significant for improving maternal and child health outcomes in Uganda by addressing the critical issue of stockouts of reproductive health commodities in Wakiso district's health facilities. By identifying the factors contributing to these stockouts and exploring the experiences of healthcare workers, the study provides valuable insights for the ministry of health, policymakers, healthworkers, researchers, and patients. The findings guide the design of targeted interventions to enhance the availability and management of reproductive health commodities, ultimately contributing to better access to family planning services, reduced maternal and neonatal mortality, and progress toward national and global reproductive health goals.

1.11 Scope of the study

This study focused on assessing the factors associated (independent variables) with stock-outs of reproductive health commodities (the dependent variable) in selected public and private health facilities in Wakiso District, Uganda, covering the period from December 2024 - July 2025. The study examined key management, logistics, and support functions of supply chain for reproductive health commodities. Data was collected from facility records, interviews, and surveys among health workers and supply chain personnel to understand how these factors relate to the occurrence of stock-outs. The research was geographically limited to Wakiso District and did not extend to health facilities outside this area, and it only focused on reproductive health commodities, to ensure depth and feasibility within the scope of available time and resources.

1.12 Theoretical Framework

This study was anchored in the Strategic Pathway to Reproductive Health Commodity Security (SPARHCS) framework developed by Hare and others (Hare et al.). The SPARHCS framework provides a comprehensive tool for understanding the multiple, interconnected elements that affect the continuous availability of reproductive health supplies, emphasizing not only supply chain logistics but also broader systemic influences such as policy environment, stakeholder coordination, financing, capacity, and service delivery. It highlighted how interactions among key actors including government, private sector, donors, and health system support structures shape the availability and accessibility of

reproductive health commodities. By situating stock-outs within this framework, the study sought to examine how facility-level management, central warehouse logistics, and district health support contributed to the consistent supply of reproductive health commodities in Wakiso District.

1.13 Conceptual Framework

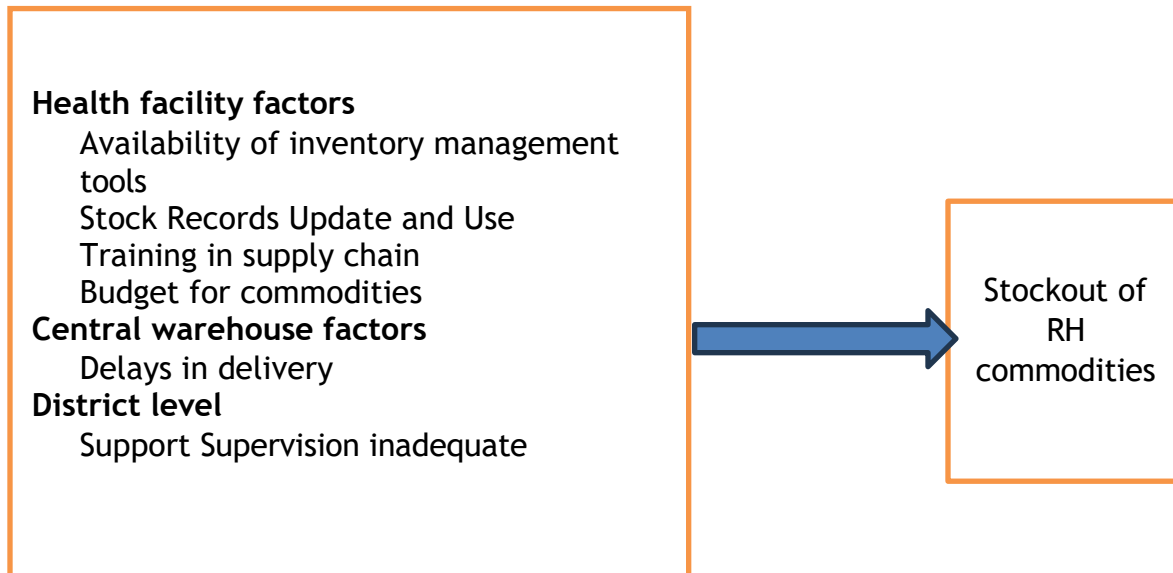


Figure1: A Conceptual Framework showing the Factors Associated with Stock-Outs of Reproductive Health Commodities

The conceptual framework outlines the key independent variables health facility factors (availability of inventory management tools, stock records update and use, training in supply chain, budget for commodities), central warehouse factors (lower order fulfillment rates, delays in delivery), and district health team support (support supervision). These influence the dependent variable, which is the stock-out levels of RH commodities. The framework also considers moderating variables, such as policy interventions and donor support, which may either mitigate or exacerbate stock-outs.

By analyzing these interrelationships, this study provides evidence-based insights to strengthen supply chain efficiency, improve inventory management, and enhance reproductive health service delivery in Wakiso District.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Reproductive health commodities are critical for ensuring the health and well-being of individuals, particularly women of reproductive age. These commodities include family planning methods, maternal health supplies, and other essential items required to support reproductive health services. Despite their importance, many health facilities, especially in low- and middle-income countries (LMICs), struggle with the availability of these commodities, leading to frequent stockouts. Stockouts not only disrupt the continuity of care but also contribute to adverse health outcomes, such as unintended pregnancies which potentially can lead to maternal mortality.

Understanding the extent of stockout levels and the factors influencing these shortages is crucial for developing effective strategies to improve reproductive health services. This literature review explores the existing research on stockout levels of reproductive health commodities in health facilities and examines the key factors contributing to these shortages, drawing insights from studies conducted in various countries, including Uganda, Kenya, and others in Sub-Saharan Africa. By reviewing the current literature, this section aims at providing a comprehensive overview of the challenges related to stock management in reproductive health and to highlight the areas where further research and intervention are needed.

2.2 Stockout Levels of Reproductive Health Commodities in Health Facilities

The consequences of stockouts of RH commodities are far reaching. They limit access to contraceptive methods leading to negative health outcomes such as unsafe abortions due to unintended pregnancies. The economic burden on health systems and the loss of public trust in healthcare services further compound the problem.

Globally, stock outs of reproductive health (RH) commodities remain persistent in many health systems, particularly in low- and middle-income countries (LMICs). For example, in Bangladesh, field-level data revealed severe contraceptive shortages in

2025 for nearly 60 days(Shabuj, 2025).Similarly, the UNFPA East and Southeast Asian countries report indicated that up to 50% of contraceptives were stocked out illustrating supply instability in the region(UNFPA, 2008). Additionally, reports from Latin America and the Caribbean show that despite improvements in Reproductive health services access, stock-outs and implicit rationing still present barriers to clients accessing their preferred contraceptive methods (Fagan et al., 2017).

In Africa, a systematic literature review by Pradhan et al. (2020), reported that 54.76% of health facilities in Sub-Saharan African countries experienced stockouts of essential RH commodities (Pradhan et al., 2020). Furthermore, a multinational facility survey in Kenya, Tanzania, Uganda, and Zambia reported that 23.2-46.9% of public health facilities experienced stock-outs of essential sexual and reproductive health commodities over a six-month period, with average stock-outs lasting 6-12 days per month in the public sector. These findings underscore the regional nature of the problem, where systemic issues in health supply chains contribute to inconsistent access to essential health commodities.

In Uganda, a study conducted by Denis et al. (2017) in 114 health facilities across the private, mission, and public sectorsrevealed disparities in the availability of reproductive and maternal health commodities. The public sector had the highest availability rate at 52%, followed by the mission sector at 36%, and the private sector at 30%. Despite these availability rates,stockouts were a significant problem across all sectors. Public sector facilities reported stockouts lasting between 7 and 21days,the private sector between 2 and 23 days, and the mission sector between 3 and 27 days. (Kibira et al., 2017). These gaps highlight inefficiencies in supply chain management and resource distribution.

In Wakiso District,stock out levels are a growing concern, given the district's large and rapidly expanding population and its critical role as a peri-urban hub for health service delivery for the Kampala Metropolitan Area. For example, according to Moses et al (2021), only 48.6% of health facilities surveyed reported availability of RH commodities. This stock out level presents a critical challenge of RH commodities availability and subsequently RH services delivery in Wakiso and the entire country at large.

In conclusion, the surveyed literature suggests that stock-out levels of reproductive health

commodities in Wakiso District are not only concerning but also insufficiently characterized. Existing studies point to suboptimal availability of RH commodities, and there is insufficient data on stock out levels in Wakiso district highlighting a contextual gap as available studies are more focused on health service delivery and other program commodities in the EMHS basket (Lule et al., 2024). Therefore, determining the stockout levels of reproductive health commodities in selected health facilities of Wakiso district, will contribute to the data availability and provide evidence to guide interventions to minimize stock outs within and beyond Wakiso.

2.3 Factors Influencing Stockout Levels of Reproductive Health Commodities.

The study identified factors at health facility level, central warehouse level and district level influencing the stock out of reproductive health commodities.

Health Facility Factors

Health facility factors include availability of inventory management tools, stock records and use, training supply chain and budget for commodities.

Availability of inventory management tools, stock records update and use:

An efficient health supply chain system requires the availability and use of inventory management tools given that these tools enhance stock visibility, support accurate record-keeping, and enable timely replenishment decisions (Sultana et al., 2025).

A study conducted in Zambia indicated that the effectiveness of inventory management practices is as a result of adherence to inventory policies and the maintenance of accurate stock records which significantly influenced both the occurrence and duration of essential drug stock-outs in health clinics (Leung et al., 2016). The study further indicated that the inadequate monitoring of actual consumption patterns and variability in supplier lead times contributed to stock shortages, even in cases where sufficient supplies were available within the national supply chain system (Leung et al., 2016).

Similarly, a survey conducted in Ethiopian health centers found that facilities with functional inventory management practices such as appropriate use of bin cards, stock

cards, and timely reporting had improved availability of essential medicines, whereas poor record completeness and outdated stock information were associated with chronic and longer stockout rates and durations respectively (Kefale & Shebo, 2019).

On the contrary, a study conducted in Uganda, specifically in Wakiso district, assessing the availability of HIV tracer commodities within the district reported that facilities which utilized the manual version of the stock cards experienced lower availability of HIV tracer commodities with frequent stock outs reported (Lule et al., 2024). This finding reveals contextual gaps in the literature as the only study available assessed HIV commodities and focused on the use of manual stock cards in relation to commodity availability as opposed to non-use. Therefore, the current literature provides no insight into the implications of non-use of stock cards, leaving a critical gap in understanding how the absence of these tools may further exacerbate stock-out challenges.

Training in Supply Chain:

According to the Logistics Handbook, training of healthcare staff in supply chain knowledge and skills is highly recommended as a central pillar in ensuring uninterrupted commodity availability and management (PROJECT, 2011). Additionally, the WHO health system strengthening framework underscores that a competent health workforce is a foundational building block, playing key roles in ensuring the continuous availability of medical products, vaccines, and other health technologies including reproductive health commodities (Steele et al., 2019).

The existing technical guidance indicates that strengthening staff competencies in core logistics functions such as quantification, forecasting, ordering, and data use significantly improves the performance of supply chain systems and reduces the incidence of stock-outs (PROJECT, 2011). For example, in a systematic review conducted by Olaniran et al., (2022), in LMICs, revealed deficiencies in the health workforce capacity particularly with gaps reported in the lack of formal training and supply chain competencies. The study associated these deficiencies with recurrent stock-outs of essential medicines at both facility and community levels and hence poor service delivery (Olaniran et al., 2022).

In the Ugandan context, a national health supply chain performance assessment conducted in 2020, highlighted that inadequate training of staff in supply chain functions contributed to stockouts of essential medicines and health supplies. This was attributed to the inability to correctly forecast and submit commodity orders on time(Lugada et al., 2022).

Whereas, the above studies highlight staff incompetence in core supply chain functions as contributors to stock-outs, other sources of literature suggest to the contrary, pointing to multifactorial and systemic challenges. For example, a study by Karimi (2020), Indicates that stock outs were because of structural and distributionrelated supply chain barriers, rather than by deficiencies in training(Karimi, 2020). Similarly, in Uganda, the consistent stock outs have also been attributed to the limited use of electronic management systems, delayed deliveries, and understaffing of key positions in the supply chain roles(FRANCIS, 2022). Therefore, these findings collectively suggest that commodity availability is due to a combination of interconnected systemlevel factors as opposed to individual competencies. As a mitigation, the current study focused on addressing the critical gaps in the literature to clearly identify and measure the specific effect of staff training on RH commodity availability, independentof the broader supply chain challenges.

Budget for commodities:

Globally, health commodity financing critically shapes access to and availability of essential medicines such as reproductive health commodities(Yenet et al., 2023). Stock out of reproductive health commodities as a result of budget constraints disproportionately affects low- and middle-income countries compared to the high-income countries, where stronger financial capacity, diversified funding sources, and more resilient health supply chains help buffer essential commodities against financing shocks(Kibira, 2021).

Largely, majority of the parts in the African region, experience chronic underfinancing, fragmented budgets, and high out-of-pocket payments for health services which ultimately result into forecasting, procurement, and distribution,

challenges(Kirigia et al., 2006).In regions such as East and Southern Africa, research shows that stock-outs of sexual and reproductive health commodities are widespread across public and private sectors, reflecting systemic financing and supply challenges that restrict consistent availability despite recognized needs(Agbo, 2024; Ooms et al., 2020).

In Uganda, domestic budget allocations for reproductive health commodities have historically been low, relative to the need, with public sector financingheavily dependent on donor funding(Ministry of Health, 2023b).Although,increased budget allocations from the Government of Uganda have been registered in the recent years, only a small portion of the national budget is earmarked specifically for family planning commodities. This leaves significant gaps that contribute to periodic stock-outs of key supplies (such as contraceptives) when external funding declines(Nakkazi, 2025).

This national financing fragility is evident in Uganda’s RMNCAH stock status reports showing critical shortfalls linked to funding gaps in reproductive health commodity procurement and distribution, underscoring how limited budgetary space at central and sub-national levels remains a central driver of commodity stock-outs in districts like Wakiso(Nakkazi, 2025).

Central Warehouse Factors

Delays in commodities’ delivery:

Delays in delivering reproductive health (RH) commodities from central warehouses to peripheral facilities are repeatedly implicated in stock-outs across low- and middle-income countries. No wonder, evidence from a systemic review which focussed on LMICs indicated that last-mile distribution barriers and long lead timeswere the cardinal drivers of shortages, even when sufficient levels of commodities had been reported at the central warehouse(Olaniran et al., 2022).

Similarly, a parallel Ugandan assessment, revealed unresolved system bottlenecks due to delivery gaps, delayed shipments, and order-delivery discrepancies which further underpin delayed delivery(Lugada et al., 2022).

However, despite these indications, critical gaps persist as few studies empirically focus on RH commodities. Additionally, locally available literature in Uganda does not quantify the contribution of delivery timeliness as a causal link for lead-time variability and stock-out duration in the health facilities assessed. Therefore, a focused empirical study one that pairs warehouse to facility delivery metrics with RH tracer-commodity stock status remains essential to determine the extent to which improving delivery schedules and adherence can measurably reduce RH stockouts in Wakiso district.

District factors

Support Supervision:

The World Health Organization and related pharmaceutical supply transformation initiatives emphasize regular supervision as part of strengthening human resource capacity and improving logistics systems (Banti, 2025).

A multi-country study conducted in the sub-Saharan Africa demonstrated that regular and problem-solving oriented supervision as opposed to infrequent or purely administrative oversight is associated with better commodity management practices, improved reporting quality, and more responsive restocking, which collectively help mitigate stockouts at peripheral service points (Ladwar et al., 2021). The study further emphasized that supervision approaches which incorporated structured assessment tools and continuous follow-up led to measurable improvements in supply chain practices, thereby mitigating stock-outs of essential commodities.

Moreover, in more decentralized governments such as in Uganda, continuous supervisions conducted by the district health teams through the SPARS intervention have significantly impacted not only the management of commodities but also their availability thereby reducing stock out levels in facilities (Trap et al., 2018). For example, a longitudinal study conducted in Uganda over a one year period, revealed that health facilities that received more than two visits throughout the one-year period reported improved stock management practices, quality and timely ordering and reporting, as well as appropriate use of commodities (Trap et al., 2018). These metrics reported as improvements strongly highlight the central role of district health

management teams in enhancing supply chain performance. Conversely, additional literature suggests that inadequate or irregular supervision because of limited district funding, weak guidelines, and insufficient supervisory capacity leads to lapses in record-keeping, delayed ordering, and poor adherence to supply chain protocols (Zindi & Sibanda, 2022). These gaps translate into higher risks of stock-outs for reproductive health commodities.

Whereas, Uganda has data on both regular and irregular supervisions and their implications on the commodity availability, these studies have marked contextual gaps in two key areas, time gaps and geographical gaps. For example, the studies available were conducted nearly 7 years back and as such, those findings may not reflect current trends or practices in health facilities. Additionally, the studies referenced did not include Wakiso district reflecting differing geographical, political, economic, and social settings.

2.4 Barriers, Facilitators, and Experiences of Management of Reproductive Health Commodities in Health Facilities.

The management of reproductive health commodities in health facilities plays a crucial role in ensuring the availability of essential products that promote sexual and reproductive health. However, several barriers and facilitators influence the efficiency of this management. Health workers' experiences highlight the complexities and challenges involved in maintaining adequate stock levels and delivering comprehensive reproductive health services.

Barriers to the Management of Reproductive Health Commodities

One of the primary barriers is the inadequate financing and budgetary constraints faced by health facilities, particularly in low- and middle-income countries (LMICs). Facilities often receive limited funding for the procurement and transportation of reproductive health commodities, leading to stockouts (Pradhan et al., 2020). Delayed disbursement of funds further exacerbates this challenge, affecting the timely replenishment of stocks (MoFPED, 2020).

Public health facilities frequently struggle with delayed deliveries from national

suppliers, such as the National Medical Stores (NMS) in Uganda, due to logistical inefficiencies and communication gaps (Owiny, 2024). These delays disrupt service delivery and force health workers to refer clients elsewhere.

Limited data management and inventory tracking systems also hinder the effective management of reproductive health commodities. In many health facilities, manual systems for tracking orders, balances, and dispensing records are still prevalent, increasing the risk of errors and inaccuracies (Lugada et al., 2022). As a result, facility managers may lack accurate information on stock levels, leading to over- or under-ordering.

Additionally, insufficient staff training and poor stock management practices negatively impact the handling of reproductive health commodities. Health workers may not receive adequate training on inventory management, forecasting demand, or maintaining accurate stock records. This knowledge gap contributes to inefficiencies in commodity management and increases the likelihood of stockouts (Kibira et al., 2017).

Facilitators of Effective Management

Despite these challenges, several facilitators contribute to the effective management of reproductive health commodities. One key facilitator is support from development partners and non-governmental organizations (NGOs), which often provide technical assistance, funding, and capacity-building programs. These interventions help strengthen supply chain systems and improve the availability of reproductive health commodities (UNFPA, 2018).

Government commitment and policy frameworks also play an important role. The Ministry of Health in Uganda has prioritized reproductive health, with policies aimed at improving commodity security and strengthening the health system (Ministry of Health, 2021). The establishment of guidelines for supply chain management and the integration of reproductive health services into the national health strategy are positive steps toward better management practices.

Health worker innovation and adaptive strategies have also facilitated improvements

in commodity management. In the face of stockouts, health facilities conduct intra or inter-district redistribution of affected commodities to ensure continuity of RH services.

Digital health interventions and automated inventory systems are emerging facilitators that can significantly improve data management and stock tracking. Reports indicate that health facilities implementing the electronic logistics management information systems (eLMIS) report better visibility of stock levels and improved ordering processes (Jakira et al., 2025).

Experiences of Health Facility Managers and Staff

Stock out of RH commodities in health facilities impact not only patient care but also health workers. Whereas, these effects are largely negative, there have also been positive experiences registered. For example, in some of the facilities with reported stock outs, there has been establishment and strengthening of the Medicines and Therapeutics Committees (MTCs) that regularly review stock levels, forecast demand, and coordinate orders (Munedzimwe, 2018). These subcommittees are instrumental in reducing stockout rates and improving service delivery.

Additionally, due to stock outs, facilities have improved on collaboration through information sharing on stock availability and implementing good supply chain practices such as redistribution.

On the other hand, persistent stockouts lead to incomplete health service delivery and as such cause frustration among the healthcare providers as well as loss trust in the healthcare system by patients (Ndzamela & Burton, 2020).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter covered the following key aspects such as research design, research approach, study population, sample size and selection, data collection procedures, sources of data, operationalization and measurements of variables, reliability and validity, data analysis, ethical considerations and limitations of the study discussed below.

3.1 Research Design

The study was a mixed methods retrospective cross-sectional study. Quantitative methods of data collection, data was extracted from health facility stock management tools to assess the prevalence of stock-outs over the past 6months. Qualitative methods of data collection involved key informant interviews with a semi-structured interview guide to understand factors associated with the stock-outs(Taherdoost, 2021).

3.2 Area of Study

The study was conducted in Wakiso District, situated in the central region of Uganda and bordering the capitalcity,Kampala.Wakiso has 571 health facilities (42public,58 Private-not-for-profit and 471 Private for profit) as per the Ministry of Health facility masterlist.Wakiso is the most populous district in the country and is characterized by rapid urbanization, high population density,and a mixofurban, peri-urban, and rural communities with a population of approximately 3.4 million living in approximately 918,040 households. Wakiso district was selected due to its large and diverse population and mix of public and private health facilities, making it representative of both urban and peri-urban service delivery challenges.

In a high-demand setting like Wakiso, stockouts can quickly affect service continuity, particularly for fast-moving RH commodities. There are no studies specific to the stock outs of reproductive health commodities and the influencing factors in high population districts such as Wakiso thus highlighting the importance of studying district-specific factors.

This study's uniqueness was in providing district-specific, facility-level evidence on factors influencing RH commodity stockouts in Wakiso. By combining quantitative and qualitative data, it identified both the prevalence of stockouts and the underlying reasons, including unexpected patterns such as lower stockouts during delivery delays. These findings offer new, actionable insights for improving supply chain performance at the district level.

3.3 Sources of Information

Information for this mixed-methods retrospective cross-sectional study was obtained from both primary and secondary sources to comprehensively assess stock-outs of reproductive health commodities and the factors associated with them. Primary data were collected directly from health facilities through extraction of routine stock management records and tools such as stock cards to quantify the prevalence and patterns of stock-outs over the six-month period (31, December 2024 - 1, July 2025). Additionally, qualitative primary data were gathered from health workers involved in supply chain and reproductive health commodity management using semi-structured key informant interviews, which provided insights into contextual and operational factors underlying stock-out occurrence.

3.4 Study Population

The study included health facilities (stockcards at medicine stores), and health workers involved in supply chain management of RH commodities at facilities i.e. facility in-charges, pharmacists, dispensers, RH officers, nurses and store managers in selected facilities.

3.5 Eligibility Criteria

3.5.1 Inclusion Criteria

Operational health facilities operating within a standardized ministry of health supply chain procedures and documentation with accessible inventory records for reproductive health commodities for the past 6 months to provide sufficient data for stock-out assessments.

3.5.2 Exclusion Criteria

Health facilities that do not operate within a standardized, government managed supply chain and do not receive RH commodities through the National Medical Stores. Lower-

level health facilities having limited involvement in comprehensive reproductive health service provision.

3.6 Sample Size

3.6.1 Quantitative Component

The sample size was determined using the census data. This method is used because of the small target population considered in this study. Therefore, all the 42 public health facilities in Wakiso district were considered for this study and all the 99 health care providers found to be managing reproductive health commodities at the health facilities were considered for the sample. The key informants were selected based on the criteria of availability and subject matter knowledge (Safarnejad et al., 2018). Key informants were individuals with a deep understanding of medicines management from selected facilities (Kumar, 1989).

3.6.2 Qualitative Component

The Census approach was adopted to select all 42 health facilities in the Wakiso district, considered for this study. In this approach, all the 99 health care providers were selected. The sample size of 99 key informants was guided by data saturation rather than statistical calculation. Multiple respondents per facility were purposively selected to capture diverse perspectives. Interviews continued until no new information was emerging, at which point saturation was achieved.

All 42 selected health facilities participated, therefore, there was no registered non-response. Participation was voluntary, and respondents could decline or withdraw at any time without consequence. No outright refusals were recorded.

Table 1: Health Facility Details

Health Facility ID	Health Facility, Level of Care
HF-1	HC3
HF-2	HC3
HF-3	HC3
HF-4	HC4
HF-5	General Hospital
HF-6	HC3
HF-7	General Hospital

HF-8	HC3
HF-9	HC3
HF-10	HC4
HF-11	HC3
HF-12	HC4
HF-13	HC3
HF-14	HC3
HF-15	HC3
HF-16	HC3
HF-17	HC3
HF-18	HC3
HF-19	HC3
HF-20	HC3
HF-21	HC3
HF-22	HC4
HF-23	HC4
HF-24	HC3
HF-25	HC3
HF-26	HC3
HF-27	HC3
HF-28	HC3
HF-29	HC3
HF-30	HC3
HF-31	HC3
HF-32	HC4
HF-33	HC3
HF-34	HC3
HF-35	HC4
HF-36	Regional Referral Hospital
HF-37	HC3
HF-38	HC4
HF-39	HC3
HF-40	HC3
HF-41	HC3
HF-42	HC4

3.7 Study variables

Dependent

Stockout of reproductive health commodities recorded in days, this was defined as having no stock of reproductive health commodities available in selected health facilities. For the qualitative interviews, the outcomes/themes of the study were barriers, facilitators and experiences.

Independent Variables

Factors associated with the RH commodities stock outs and unit of measure were the facilities. These were themes from the key informant interviews Delays in delivery, low order fulfillment, availability and use of inventory management tools, support supervision limitations, and budget limitation.

Table 2: Methods Matrix

Objectives	Data Sources	Methodology	Analysis
To determine the stockout levels of reproductive health commodities in selected health facilities of Wakiso district	Stock Card	Stockouts were determined from the stock cards from the visited facilities.	Descriptive statistical analysis was used to determine the frequency, average, and percentage values of RH commodities stockouts. Results were presented using texts, tables, and graphs.
To determine the factors associated with the stock-outs of RH commodities among health facilities in the Wakiso Uganda	Stock Card, Informants Health Workers	Structured Questionnaire	Univariate, bivariate and multivariate analyses were used to determine factors associated with stockouts of RH commodities.

To explore the barriers, facilitators and experiences of healthcare workers regarding the management of reproductive health commodities in selected health facilities of Wakiso District	Informants Health Workers	Key Informant Interviews	Thematic content analysis
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3.8 Data Collection Instruments.

For the Quantitative Component

The questionnaire was designed to collect quantitative data on the stockout levels of reproductive health commodities and the various factors influencing these stockouts. To avoid information bias, the questionnaire was pre-tested in a few health facilities in Kira and standardized to ensure consistency in the questions asked. Interviewers received thorough training on how to administer the questionnaire uniformly and objectively, ensuring that responses are collected in a consistent manner. Additionally, respondents were assured of anonymity and confidentiality to encourage honest and accurate responses.

For the Qualitative Component

Key Informant Interviews. The key informant's guide was used during key informant interviews. A recorder was used to record the interviews. Consent was sought including requesting participants for permission to record interviews. The information of interest was factors associated with RH commodities stockouts, barriers, facilitators and experiences. A semi-structured interview guide was constructed for use in conducting interviews with interviewees. The interview questions were open-ended and broadly aimed at facilitating the understanding of factors associated with RH stock-outs in Wakiso. The interview guide started with general questions about health facility demographics, then open-ended questions to elicit information relating to factors associated with RH commodities stock-outs, and face-to-face interviews were conducted in English (Zakumumpa et al., 2019).

3.9 Document Reviews

Document reviews involved examining records and logs related to stock management, order fulfillment, and inventory levels at the health facilities. These documents included stock cards, order forms, delivery notes, and dispensing logs. To avoid information bias, multiple documents were reviewed and cross-verified to ensure accuracy and completeness of the data. A standardized form was used for data extraction to maintain consistency and minimize errors. Information obtained from documents was cross-checked with data from questionnaires and interviews to validate findings, enhancing the reliability of the data collected.

3.10 Checklist

A checklist was used to systematically assess the availability and condition of reproductive health commodities in the health facilities, involving physical verification of stock levels and storage conditions. The checklist was detailed and comprehensive to ensure all relevant aspects are covered. Observers using the checklist were trained to perform assessments consistently and objectively. Where possible, multiple observers independently used the checklist and compared results to ensure reliability, thereby minimizing the potential for information bias and increasing the accuracy of the assessment.

3.11 Data Quality Control

The study-maintained quality all throughout. The questionnaires were pretested and data gathered was used to test for validity and reliability before commencement of data collection. Random spot checks were done to ensure research assistants conduct interviews correctly.

The principal investigator was involved throughout the entire data collection process to ensure the research protocol is followed. Participants were encouraged to respond to all the interview questions administered. The research assistants ensured all questions were responded to before the participant left the interview area.

3.12 Data processing and Analysis

3.12.1 Data management Computer Packages to use.

Microsoft Excel 2019 and STATA software version 14.2 were used for data management

and analysis.

3.13 Data Entry

3.13.1 Quantitative Data

Data collected on stock outs recorded in days from different facilities including their details were entered into an excel sheet, cleaned then exported into STATA 14.2 for analysis. Data was password protected to ensure there was no unauthorized access. Collected data was backed up using a flash disk to avoid loss of data.

3.14 Data Cleaning

Data was cleaned as follows; removal of extra spaces, selecting and treating all blank cells, converting numbers stored as text into numbers, removing duplicates, highlighting errors, changing the text into the proper case, running a spell check, and deleting all formatting.

3.15 Data Coding

The data was coded in Microsoft excel using the XLSTAT/Preparing data/code command.

3.16 Data Analysis

Days out of stock from the stockcards were used to determine the stockout prevalence. Days of out of stock from the stock cards after being checked for completeness and consistency, the collected data was entered into Microsoft Excel 2019 and exported to STATA software for statistical analysis. Stockout days were aggregated for the whole year of the study period (31, Dec 2024 to 1, July 2025). Descriptive statistical analysis was used to determine the frequency, average, and percentage values of RH commodities stockouts (Gils et al., 2018). Finally, results were presented using texts, tables, and graphs. Furthermore, stratified binary logistic regression analysis was done, and stratification was by health facility. The qualitative data analysis approach was broadly informed by (Miles, 1994).

Qualitative data was analyzed in four major stages;

a) Data familiarization: As a first step, the audio-recorded interviews were transcribed into text transcripts, then followed by multiple readings of the interview transcripts for

purposes of data familiarization

b) Generating a coding framework an initial coding scheme was devised based on multiple readings of interview transcripts. Another round of reading was done, and an analysis of the transcripts based on the generated coding scheme. Additional codes were generated for data not captured by the initial coding scheme

c) Data abstraction into thematic clusters: The emergent codes are then grouped under thematic categories

d) Interpretation and synthesis: Overall interpretation of the study results were from resolved discrepancies in interpretation. As recommended by Gils et al.(2018), data validation was conducted with some of the participating health facilities to ensure accuracy in the interpretation of interviewee data. The validation feedback and input were informed by the final analyses and Clients' in-depth interview records were reviewed, and notes are taken to keep track of the findings that are emerging.

3.14 Ethical Considerations

A written authorization was obtained from the Uganda Christian University Research and Ethics Committee (UCU-REC) with approval no. UCUREC-2025-834, which was used for seeking permission from district health leadership and facility administration to engage health facility personnel in the districts and facilities. In addition, unique identification codes were given to the health facilities to ensure the confidentiality of data. Interviewees were asked to provide written informed consent to participate as a respondent before answering the survey questionnaire which was manually recorded in the electronic database. The investigator explained the purpose, objectives, risks, and benefits of the study, and how data was collected. Participation was strictly on a voluntary basis, even those who would have initially accepted to participate were free to withdraw at any stage during the study without any consequences. During data presentation, only aggregated figures, not individual information, was presented to maintain confidentiality.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter presents the results of the stockouts levels of reproductive health commodities, factors influencing stock out levels of reproductive health commodities and barriers, facilitators, experiences of the management of reproductive health commodities in selected health facilities in the Wakiso, Uganda.

4.1 Quantitative Results

4.1.1 Level of Stockouts of Reproductive Health Commodities in Selected Health Facilities in Wakiso District, Uganda

Stock out is when a health facility runs out of a particular commodity and is unable to provide it to clients when needed. Stock cards/records for each reproductive health commodity were obtained from all the 42 health facilities (30 HCIIIs, 9 HCIVs and 3 hospitals) and checked for stock out days.

Rate of stock out which was analyzed using Poisson regression. Poisson regression was used to model the association between facility-level factors and the prevalence of stockouts because the outcome variable (stockout of RH commodities) is a count-like event that occurs over a fixed observation period and is relatively common in the study population. Unlike logistic regression, which estimates odds ratios and can overestimate the association when outcomes are frequent, Poisson regression with robust variance provides adjusted prevalence ratios (aPR), offering a more interpretable measure of the magnitude of association for cross-sectional data.

The overall stock-out rate of reproductive health commodities in all health facilities was 10.1% with the highest stocked out commodities being injectables Medroxyprogesterone acetate 104mg./0.65mL, SC and Medroxyprogesterone acetate 150mg/ml, IM at 21.3% and 19.1% respectively with least stockout being Levonorgestrel 30 mcg tabs pills at 3.9% as seen in table 3 below.

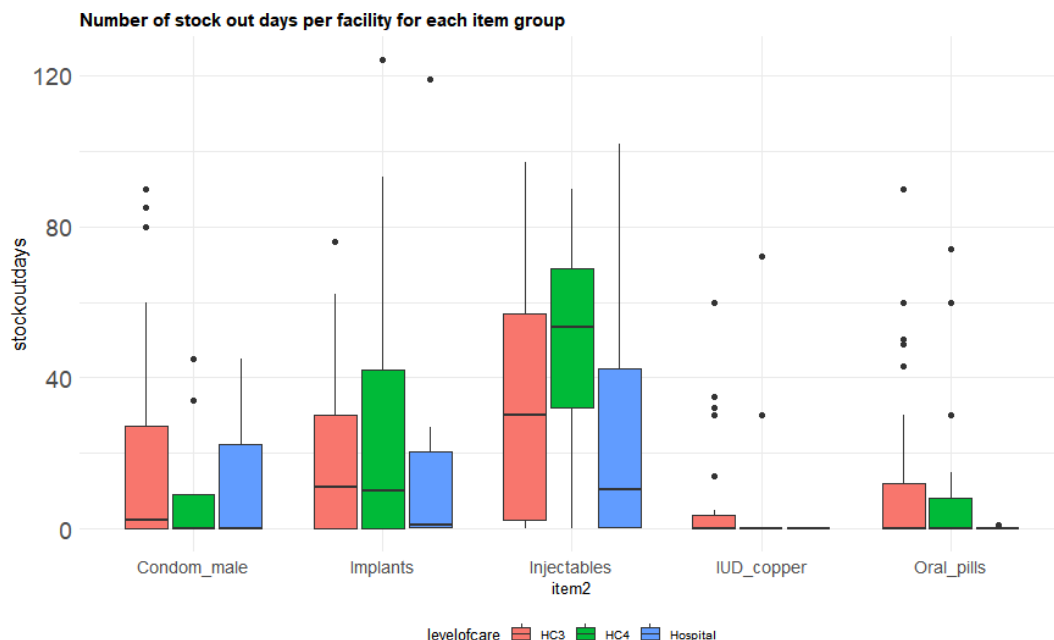
Table 3: Level of Stock

	Mean	% Stock out
Overall commodities stockout	0.101	10.1
	Mean stock out (SD)	
Injectable Medroxyprogesterone Acetate 104mg/0.65mL, SC	0.213 (0.171)	21.3
Injectable Medroxyprogesterone Acetate 150mg/1ml, IM	0.191 (0.165)	19.1
Oral Pill Levonorgestrel 30mcg tabs (Microlut)	0.039 (0.098)	3.9
Oral pill Levonogestrel 0.15mg/ Ethinylestradiol 0.03mg	0.061 (0.106)	6.1
Orall pill Levonorgestrel 0.7mcg tablets (Emergency pills)	0.052 (0.116)	5.2
5-year Implant	0.094 (0.155)	9.4
3-year Implant	0.125 (0.141)	12.5
Copper T IUD	0.045 (0.096)	4.5
Male condoms	0.086 (0.138)	8.6

4.1.2 Stock out days per facility per commodity group.

The overall mean stock out days per facility level of care was 18 days in the period of the study (December 2024-June 2025). HC IVs registered the highest number of stockout days (22days) followed by HC IIIs (18days) and lastly hospitals (13days). The average stock out days reported for commodities were highest for injectables (56days) and least for copper IUDs (3days) across the different facility levels of care.

Figure 2: Stockout Days per Facility per Commodity Group



4.1.3 Mean stockout rate of reproductive health commodities by level of facility.

Overall HCIVs had the highest mean stockout for reproductive health commodities (0.121), followed by HCIIIs (0.097) and least mean stockouts was found in hospitals (0.076). Injectable Medroxyprogesterone acetate 104mg/0.65mL, SC mean stock out was highest in HCIVs (0.309) and least in hospitals (0.130). Injectable Medroxyprogesterone Acetate 150mg/1ml, IM mean stock out was highest in HCIVs (0.212) and least in HCIIIs (0.185). 3-year Implant mean stockout was highest in HCIVs (0.219) were high and least in hospitals (0.052). 5-year Implant mean stock out was highest in hospitals (0.222) and least in HCIIIs (0.081). Male condoms mean stock out was highest in HCIIIs (0.095) and least in HC IVs (0.054). Levonogestrel 0.15mg/ Ethinylestradio l0.03mg and Copper T IUD mean stockouts were highest in HCIVs (0.111) and (0.063) respectively. Microlut mean stock out was highest in HCIIIs (0.049). There were no stockouts of Microlut, Emergency pills and Copper T IUD.

Table 4: Mean stockout rate of reproductive health by level of facility

	Health Facility level		
	HC III (n=30)	HC IV (n=9)	Hospital (n=3)
Mean stockout	0.097	0.121	0.076
	Mean stockout (SD)		

Injectable Medroxyprogesterone Acetate 104mg/0.65mL, SC	0.193 (0.176)	0.309 (0.136)	0.130(0.140)
Injectable Medroxyprogesterone Acetate 150mg/1ml, IM	0.185 (0.152)	0.212 (0.167)	0.191 (0.326)
Oral Pill Levonorgestrel 30mcg tabs (Microlut)	0.049 (0.114)	0.017 (0.034)	0
Oral pill Levonogestrel 0.15mg/ Ethinylestradiol 0.03mg	0.052 (0.087)	0.111 (0.159)	0.002(0.003)
Orall pill Levonorgestrel 0.7mcg tablets (Emergency pills)	0.071 (0.133)	0.008 (0.024)	0
5-year Implant	0.081 (0.117)	0.096 (0.176)	0.222 (0.380)
3-year Implant	0.105 (0.101)	0.219 (0.224)	0.052 (0.085)
Copper T IUD	0.044(0.086)	0.063 (0.138)	0
Male condoms	0.095 (0.150)	0.054 (0.096)	0.083 (0.144)

4.2 Factors Influencing Stockout Levels of Reproductive Health Commodities in Selected Health Facilities in Wakiso District, Uganda

Table 5: Proportions of the Responses

Variable	N (%) n=42
Availability of inventory management tools	
No	37(88.10)
Yes	5 (11.90)
Stock Records Update and Use	
No	25(59.52)
Yes	17(40.48)
Training in Supply Chain	
No	22(52.38)
Yes	20(47.62)
Budget for commodities	
No	38(90.48)
Yes	4 (9.52)

Delays in Delivery	
Yes	24(57.14)
No	18(42.86)
Support Supervision	
No	33(78.57)
Yes	9 (21.43)
Facilitytype	
HC3	30(71.43)
HC4	9 (21.43)
Hospital	3 (7.14)

4.3 Bivariate

Bivariate analysis revealed that several health system factors were associated with stockouts of reproductive health commodities. Availability of inventory management tools was significantly linked to increased stockout prevalence (PR=1.23; 95%CI:1.035-1.459, $p = 0.019$). Training in supply chain management showed a protective effect, with facilities that had trained staff being less likely to experience stockouts(PR=0.67; 95% CI:0.553-0.811, $p<0.001$). Delays in delivery were strongly associated with higher prevalence of stockouts (PR=0.54; 95%CI:0.452-0.638, $p<0.001$). Support supervision ($p=0.070$) showed some effect on likeliness to experience stockouts if not done.

Table 6: Bivariate

Variable	PR (95%CI)	p-value
Availability of inventory management tools		
No	1.00	
Yes	1.23(1.035-1.459)	0.019
Stock Records Update and Use		
No	1.00	
Yes	1.002(0.848-1.185)	0.978
Training in Supply Chain		

No	1.00	
Yes	0.67(0.553-0.811)	0.00
Budget for commodities		
Yes	1.00	
No	0.85(0.636-1.137)	0.274
Delays in Delivery		
No	1.00	
Yes	0.54(0.452-0.638)	0.000
Support Supervision		
No	1.00	
Yes	1.30(0.979-1.719)	0.070

4.4 Multivariate

Multivariate analysis showed that training in supply chain management, delivery delays, and support supervision were significantly associated with stockouts of RH commodities in Wakiso district. Facilities with trained staff had a 23% lower prevalence of stockouts (aPR = 0.77, 95% CI: 0.599-0.985, $p = 0.038$). Similarly, facilities that reported delivery delays had a 46% lower prevalence of stockouts (aPR = 0.54, 95% CI: 0.433-0.668, $p < 0.001$). In contrast, facilities receiving support supervision had a 54% higher prevalence of stockouts (aPR = 1.54, 95% CI: 1.083-2.192, $p = 0.016$). Availability of inventory management tools was not significantly associated with stockouts ($p = 0.183$).

Table 7: Multivariate

Variable	aPR(95%CI)	P-value
Availability of inventory management tools		
No	1.00	
Yes	1.034 (0.984-1.087)	0.183
Training in Supply Chain		
No	1.00	
Yes	0.77(0.599-0.985)	0.038
Delays in Delivery		
No	1.00	

Yes	0.54(0.433-0.668)	0.000
Support Supervision		
No	1.00	
Yes	1.54(1.083-2.192)	0.016

4.5 Qualitative Results

4.5.1 Barriers, facilitators and experiences of health care workers regarding the management of reproductive health commodities in selected health facilities of Wakiso district.3

Table 8: Respondents' Category

Respondents' Category(n=99)	Number	Percentage
Nurses	12	12.1%
Pharmacist	3	3.0%
RH Officer	3	3.0%
Dispenser	39	39.4%
Stores manager	9	9.1%
Facility in-charges	33	33.3%

Having explored the factors influencing stock out levels of reproductive health commodities in selected health facilities in Wakiso District, Uganda, key informants were asked which barriers, facilitators and experiences they have encountered regarding management of reproductive health commodities.

Barriers

Inadequate storage space and poor infrastructure.

Limited storage space at facilities led to difficulties in managing stock, especially when bulky supplies arrived. This resulted in commodity deterioration, and poor storage practices.

“Our store is very small; sometimes we can’t take in all the supplies we need, so We end up managing with limited space, which is not ideal for sensitive

commodities” (Dispenser HF-27)

Limited human resource

There were limited number of staff available who were trained in commodity stock management. Staff transfers of those trained in commodity inventory management left knowledge gaps in facilities where the personnel transferred were the only ones with the required skills.

“.... Because many staff are frequently transferred, we end up with limited human resources, and sometimes a person has to multitask like handling their clinical duties and at the same time working in the stores to manage commodities” (Facility in-charge HF-22).

Limited funds available for commodities and redistribution logistics

Health facilities procurement planned for RH commodities during the annual procurement planning exercise for health commodities but had a limited budget thus affecting their ability to plan for as much as required.

“.....We plan for reproductive health commodities during the procurement planning exercise but because the budget is limited, we cannot plan for much. The good thing is that for contraceptives, it is free for us because the donors provide but also when the donors do not give enough money for them, the stock is limited so sometimes we stockout and we are told the warehouse stock is little or finished.....” (Stores manager HF-36)

Redistribution was not explored fully due to lack of funds for transportation of commodities whenever required.

“When we are overstocked, we redistribute stock to other facilities but sometimes when there is no transport, that stock stays there in the store. Sometimes IPs or district people help to move the stock but also them they tell us sometimes that they are looking for transport money to be able to collect the stock and redistribute it”

Facilitators

Functional Stock Monitoring Systems

Respondents reported to use of tools like stock cards, registers, or electronic systems

(eLMIS) facilitates to place timely orders and track of commodities.

“ .. Our facility uses stock cards and the online system, which helps us know what we Have and when to reorder before running out... (Stores managerHF-41)

Collaboration and Support from Village Health Teams

VillageHealthTeams(VHTs)werementionedtohavehelpedreportoncommunity demand, track client use, and link clients to the facility, supporting supply planning.

“...VHTs inform us when there’s high demand in the community, so we can prepare and avoid shortages” (Facility In-charge HF-17)

Support from development partners and NGOs

FacilitiesmentionedreceivingtechnicalsupportorfundingfromNGOstomaintain adequate stock levels of reproductive health commodities.

“.... With the training and mentoring from the NGO, we are now able to forecast and Manage stock more accurately...” (DispenserHF-10)

Health worker innovation and adaptive strategies

Facilities indicated using redistribution from nearby facilities or substituting similar commodities to maintain service continuity. This was associated with a modest reduction in service interruptions.

“.... When a commodity runs out, we borrow from the neighboring facility to avoid interrupting services...” (Nurse- HF-24).

Digital health inventory systems

FacilitieswithelectronicLMIShadsignificantlyhigherreportingcompletenessand timely reordering, leading to fewer stockouts.

“ Since we started using the eLMIS, we can see stock levels in real time and avoid Running out unexpectedly. ..” (DispenserHF-7)

Supportive Supervision from District/Regional Teams

Regularvisitsfromsupervisorswereindicatedtohelpensureproperstockmanagement, identify gaps, and provided guidance on logistics and reporting.

“.. Whenever the district team visits, they check our stock records, advise us on what to reorder, and train us on better ways to manage commodities...”(Stores Manager HF-6)

Availability of Trained Staff

Having trained staff in inventory management and logistics was mentioned to improve accuracy in ordering, recording, and monitoring stock.

“... Because we have at least one person trained in commodity management, we can track supplies properly and avoid unnecessary stockouts ” (Facility In-charge HF-33)

Experiences

Improvising to meet client needs during shortages.

Health workers sometimes borrowed commodities from nearby facilities or advised clients to use alternative methods when the preferred commodity is unavailable.

“... In some cases, when we are out of stock, we borrow from a neighboring facility or encourage clients to try another method temporarily, just so they don't go without services” (Nurse HF-39).

Engaging Community Volunteers

Some facilities noted that they used Village Health Teams (VHTs) to follow up on stock use and community demand.

“... We sometimes rely on VHTs to help us track client needs and link them back to the facility when stock is available” (RH Officer HF-12)

Emergency Orders

There are times when some commodities are stocked out or understocked in the whole district. Facilities were made to place Emergency orders to NMS to avert the stockout.

“... Whenever we run out of a commodity, we submit an emergency request through our district health officer, and they help escalate it to NMS so the supplies reach us quickly... ” (Facility In-charge HF10)

4.6 Dissemination Plan

The findings of this study will be disseminated to UCU, Waksio district health team, and at the national level in the reproductive health technical working group. Additionally, findings will be presented at relevant workshops and conferences as well as prepare a manuscript for publication in reputable peer-reviewed journals.

CHAPTER FIVE

DISCUSSION OF RESULTS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a discussion of the findings, in relation to the previous literature as well as providing conclusion based on the objectives. It also suggests recommendations based on the findings and identifies the gap that the researcher needs to find out in the stipulated area for further study.

5.0.1 Stock-Out Levels of Reproductive Health Commodities in Wakiso District

Globally, stock-outs of reproductive health (RH) commodities remain a significant challenge, particularly in low- and middle-income countries. A multi-country study assessing availability, affordability, and stock-outs of essential sexual and reproductive health commodities in Uganda, Kenya, Tanzania, and Zambia found that stock-outs were prevalent across all sectors (Ooms et al., 2020). The Ministry of Health Annual Health Sector Performance report FY2023/24 (Ministry of Health, 2023a) indicates that the overall availability of supplies for a basket of 41 commodities and health supplies at central level warehouses reduced from 82% in FY2022/23 to 70% in FY2023/24. Non-availability of commodities has a negative impact on quality of services and utilization. These findings underscore the widespread nature of RH commodity shortages, which can impede access to essential services and adversely affect public health outcomes.

At the national level, Uganda has strengthened monitoring of RH commodities through the Health Management Information System (HMIS) 105 Section 6, which now tracks 50 tracer commodities and not only 41 tracer commodities. (Ministry of Health, 2024). However, the Annual Health Sector Performance report FY2023/24 (Ministry of Health, 2023a) indicates an overall average commodity availability of 64% across approximately 4,200 reporting health facilities, with essential medicines and health supplies (EMHS) at 58%, reproductive, maternal, newborn, child, and adolescent health (RMNCAH) commodities at 67%, and laboratory commodities at 79%. These figures highlight ongoing challenges in ensuring consistent availability of RH commodities nationwide.

Focusing on Wakiso District, this study found a prevalence of stock-outs of RH

commodities at 10.1%, with injectable contraceptives Medroxyprogesterone acetate 104mg/0.65mL, SC (21.3%) and Medroxyprogesterone acetate 150mg/mL, IM (19.1%) being the most affected. These rates are consistent with other Ugandan studies, where injectables and implants experience higher stock-out rates compared to oral contraceptives and IUDs (Health Action International, 2019). Such disparities may be attributed to factors such as high demand, procurement practices, and supply chain inefficiencies.

While national data from the electronic Logistic Management Information Systems (eLMIS) provide valuable insights, they often face challenges such as incomplete reporting and limited infrastructure at lower-level health facilities (Lugada et al., 2022). By utilizing stock cards from 42 health facilities in Wakiso District, this study offers a more granular assessment of stock-outdays and commodity-specific shortages, complementing national data and highlighting areas requiring targeted interventions.

The high stock-out rates observed, especially for injectable contraceptives, have direct implications for service delivery and client choice. Stock-outs can lead to contraceptive discontinuation, reduced uptake of family planning services, and increased risk of unintended pregnancies (Grindlay et al., 2016). Strengthening supply chain systems, improving forecasting and procurement processes, and enhancing data reporting mechanisms are critical to ensure consistent availability of RH commodities at facility level and to achieve better reproductive health outcomes (Ministry of Health, 2021; Lugada et al., 2022).

5.0.2 Factors Influencing Stock-Out Levels of Reproductive Health Commodities in Wakiso District

The factors associated with stockouts of reproductive health (RH) commodities across the 42 health facilities sampled reflected challenges at facility, district, and national level. Stock card reviews were undertaken across all levels of care HCIII, HCIV, and hospitals and interviews were conducted with facility staff involved in supply chain management, including RH officers, facility in-charges, pharmacists, and dispensers.

This study identifies several health system factors associated with stockouts of reproductive health (RH) commodities in selected health facilities of Wakiso District. The findings highlight the multiple contributing factors to stockouts, influenced by training, delivery systems, inventory management, supervision, and financial planning.

Facilities with trained staff had a 23% lower prevalence of stockouts (aPR = 0.77, 95% CI: 0.599-0.985, $p = 0.038$) thus identified as a key protective factor against stockouts of reproductive health (RH) commodities. Facilities with trained personnel were significantly less likely to experience stockouts. In contrast, lack of technical knowledge and skills in areas such as demand forecasting, stock card use, and order tracking undermines effective stock control. These findings are consistent with Kefale & Shebo (2019), who observed that weak capacity among frontline workers contributes to poor inventory practices and higher risks of commodity shortages (Kefale & Shebo, 2019). The protective effect of training can be explained through several mechanisms. Trained staff are better equipped to anticipate demand and quantify requirements accurately, thereby minimizing both overstocking and understocking. In addition, they are more proficient in updating and interpreting stock records, preparing timely reports, and recognizing early warning signs of potential stockouts.

Facilities that reported delivery delays had a 46% lower prevalence of stockouts (aPR = 0.54, 95% CI: 0.433-0.668, $p < 0.001$) which may suggest the presence of coping mechanisms such as redistribution, buffer stocking at facility level and availability of slow moving commodities at the facilities. This finding is contrary to existing study by Mukasa et al (2020), who documented inconsistencies in supply from warehouses as a major contributor to stock-outs in reproductive health programs in Uganda (Mukasa et al., 2017). The association between delivery delays and stockouts can be understood through several mechanisms. Delays disrupt the supply chain cycle, preventing timely replenishment of commodities, even when forecasting and ordering are done correctly. Late deliveries create gaps between stock consumption and resupply, which increases the risk of stockouts during periods of high demand. This can also undermine facility staff's ability to plan effectively, as they must compensate for uncertainty by either overstocking or rationing available supplies. Timely delivery is particularly crucial in

low-resource settings where health facilities often rely on a centralized supply chain and may not have the capacity to procure commodities independently. Evidence from Uganda and other East African countries shows that improving transport logistics, optimizing delivery schedules, and implementing last-mile delivery tracking systems can significantly reduce stockout occurrences.

Support supervision emerged as a significant factor associated with stockouts of reproductive health (RH) commodities in Wakiso District. Interestingly, facilities that reported receiving support supervision were more likely to experience stockouts (adjusted PR = 1.54; 95% CI: 1.083-2.192), which contrasts with evidence from other contexts where supportive supervision is typically protective. For instance, studies in Uganda have shown that regular, high-quality supervision enhances staff accountability, reinforces proper use of inventory management tools, and improves reporting, ultimately reducing stockouts (Ladwar et al., 2021). The observed association in Wakiso may reflect the reactive nature of supervision: facilities experiencing stockouts or other challenges may be targeted for supervision, rather than supervision being a proactive intervention to prevent problems. In such cases, supervision may coincide with existing deficiencies, creating a statistical association with stockouts even if the visits are intended to improve performance.

The availability of inventory management tools, such as stock cards, bin cards, and electronic logistics management systems, was associated with stockouts in Wakiso District. While tools are intended to facilitate efficient tracking, ordering, and monitoring of reproductive health (RH) commodities, their mere presence does not guarantee improved stock management. This finding aligns with studies from Tanzania, where facilities equipped with electronic logistics management information systems (LMIS) still experienced stock imbalances when tools were not actively or correctly used (Milulu et al., 2024). Several mechanisms may explain this counter intuitive association. First, health facility staff may lack adequate training or supervision to use these tools effectively, which can result in inaccurate stock records, delayed orders, or misinterpretation of data. Inventory tools require regular updating and integration with procurement and delivery schedules; without this, they cannot prevent stockouts.

Evidence from Uganda and other sub-Saharan countries emphasizes that the impact of inventory tools depends heavily on staff capacity and oversight. Tools function optimally when combined with trained personnel, timely reporting, and supportive supervision, rather than being treated as standalone solutions (Milulu et al., 2024). Thus, the observed association in Wakiso likely reflects gaps in utilization, rather than flaws inherent to the tools themselves.

The practice of updating and using stock records, such as stock cards or bin cards, was not significantly associated with stockouts in Wakiso District. While maintaining accurate and up-to-date stock records is widely recognized as a core component of effective inventory management, this finding suggests that record-keeping alone may not be sufficient to prevent stockouts.

Studies in Uganda and other sub-Saharan African countries have highlighted that stock records are only effective when they are actively used to inform timely ordering and decision-making. In some facilities, records may be updated for compliance purposes without being analyzed or acted upon, limiting their practical impact on commodity availability. Additionally, even with accurate records, other systemic factors such as delays in deliveries, insufficient training, and weak supervisory oversight can result in stockouts. The lack of significant association in Wakiso underscores the importance of integrating stock record management with other supply chain functions. Proper utilization involves not only updating records but also using them to forecast demand, schedule timely orders, identify potential shortages, and communicate stock levels to higher supply chain levels. Facilities that adopt this proactive approach are better positioned to prevent stockouts, whereas those that merely maintain records without application may continue to experience shortages.

The presence of a dedicated budget for reproductive health (RH) commodities was not significantly associated with stockouts in Wakiso District. While one might expect that having funds earmarked for commodities would directly prevent stockouts, the lack of association suggests that other factors such as delivery delays, staff capacity, and supply chain management practices may play a more immediate role in determining commodity availability. Evidence from Uganda indicates that although national for RH

supplies have increased overtime, stockouts remain prevalent due to delayed fund disbursement, procurement bottlenecks, and inefficient distribution systems. This highlights that having a budget is necessary but not sufficient; funds must be efficiently utilized, timely disbursed, and paired with effective procurement and logistics systems to ensure uninterrupted commodity supply.

Moreover, budgeting alone does not address operational challenges such as inaccurate forecasting, insufficient storage, or staff untrained in inventory management. Studies from other East African contexts have emphasized that budget allocation must be accompanied by capacity building, supervision, and robust supply chain processes to have a tangible impact on reducing stockouts (Tumlinson et al., 2023). Facilities that reported active DHT involvement demonstrated more structured inventory practices and stronger capacity to handle stock-out incidents.

5.0.3 Barriers, Facilitators, and Experiences of Healthcare Workers in Managing Reproductive Health Commodities.

The barriers, facilitators and experiences of healthcare workers regarding the management of reproductive health commodities were explored and these included limited human resource trained in supply chain as the most common barrier and inadequate storage space limiting the ability of staff to order the bulk required. These findings are consistent with the observations of Pradha et al. (2020) and Kibira et al. (2017), who reported similar barriers in other Ugandan districts and highlighted the need for continued professional development and systemic reforms (Kibira et al., 2017; Pradhan et al., 2020). Despite the challenges, the study also identified facilitators that help mitigate the impact of stock-outs. Facilitators mentioned were redistribution, support supervision and functional stock monitoring systems as the most to minimize RH commodities handling challenges, followed by collaboration and support from Village Health Teams, innovation and adaptive strategies, and support from development partners and NGOs.

Various experiences such as engaging VHTs, referring patients to other facilities, substituting for unavailable commodity options, and placing emergency orders through the district or directly to the NMS for the high-level facilities were identified as

experiences health workers go through when managing RH commodities.

5.1 Limitations of the Study

A key limitation of this study was that central warehouse and district-level stakeholders were not included in the study, yet they play a critical role in forecasting, procurement, and distribution. Their exclusion limits the depth of system-level insights and may have resulted in limited understanding of upstream factors influencing stockouts thus the recommendation to broaden the scope of stakeholder inclusion.

5.2 Conclusion

This study aimed to assess the prevalence of stockouts, identify factors associated with stockouts, and explore barriers and facilitators in RH commodity management in Wakiso district.

The first objective to determine the prevalence of stockouts found an overall stockout level of 10.1%, with the highest rates at HCIVs and HCIIIs. Injectable contraceptives and 3-year implants were the most affected commodities due to high demand and rapid consumption.

The second objective to identify factors associated with stockouts revealed that training in supply chain management, delivery delays, and support supervision were significantly linked to stockout patterns. Notably, trained staff and facilities experiencing delivery delays had lower stockouts, while facilities receiving support supervision reported higher stockouts, reflecting system-level dynamics.

The third objective to explore barriers, facilitators, and experiences in RH commodity management showed that key informants reported multiple challenges, including record-keeping gaps, stock redistribution issues, and resource constraints, as well as strategies used to cope with stockouts.

Overall, the study provides district-specific evidence that can guide targeted interventions to strengthen supply chain performance and reduce stockouts of reproductive health commodities in Wakiso.

5.3 Recommendations

Researchers to expand scope of future research in which future studies could involve

central warehouse and district-level stakeholders as well as cover more districts to provide a more district-specific comprehensive understanding of reproductive health commodity stock-outs in Uganda.

The government of Uganda, Ministry of Health to continuously strengthen financial planning for RH commodities by ensuring timely release of funds, alignment of budgets with demand-driven procurement, and integration of financial planning with supply chain management interventions.

At sub-national level, provision of continuous training and mentorship for health workers on health commodities' logistics management, including prompt use of existing eLMIS, forecasting, ordering, and stock monitoring to improve commodity availability.

Central warehouses such as NMS to enhance delivery reliability through decentralized logistics. This can be done through the establishment of regional distribution hubs to reduce lead times and improve last-mile distribution at district level.

APPENDICES

Appendix 1: Key Informant Interview Guide

Study: Factors Associated with Stock-outs of Reproductive Health Commodities in Selected Health Facilities of Wakiso District, Uganda.

Introduction	
I am Magona Sandra Wanyenze a student of MPH, at Uganda Christian University undertaking a data collection study on my field study “Assessing factors associated with Stock-Outs of Reproductive Health (RH) Commodities in Selected Health Facilities of Wakiso District, Uganda”. All your responses and your personal information will be kept confidential. It is voluntary to participate, and You may say no to any question you’d like. Would it be OK to participate?	
Health Facility General Info	
Facility Code/Name	
Does the facility provide RH services?	Yes/No
Stockout Levels of RH Commodities	
Review of stock cards (To determine the stockout levels of Reproductive Health Commodities among selected health facilities of the Wakiso, Uganda)	

Reproductive Health Commodity	Basic Unit	Days Out of Stock
Injectable Medroxyprogesterone Acetate 104mg/0.65mL, SC	1 injectable	

Injectable Medroxyprogesterone Acetate150mg/1ml, IM	1 injectable	
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Reproductive Health Commodity	Basic Unit	Days Out of Stock
OralPillLevonorgestrel30mcg tabs (Microlut)	1 cycle	
OralPillLevonogestrel0.15mg/ Ethinylestradiol0.03m	1 cycle	
Levonorgestrel0.7mcgtablets (Emergency pills)	1 cycle	
5-yearImplant	1implant	
3-yearImplant	1implant	
Copper-TIUD	1 piece	
Male Condoms	1 piece	

Variable	Question	Coding Category	Response
Availability of inventory management tools	Does the health facility have inventory management tools?	Yes=1 No=0	
Stock Records Update and Use	Does the health facility routinely update and use stock record inventory management tools?	Yes=1 No=0	

Training in Supply Chain	Have the facility staff	Yes=1 No=0	
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Variable	Question	Coding Category	Response
	received training in supply chain management?		
Budget for commodities	Does the health facility have a budget allocation for reproductive health commodities?	Yes=1 No=0	
Delays in Delivery	Does the health facility experience delays in delivery of commodities?	Yes=1 No=0	
Support Supervision	Does the health facility receive support supervision from the district health team?	Yes=1 No=0	

Questions to guide discussion.

(To determine factors influencing stock out levels of reproductive health commodities in selected health facilities of Wakiso district.

To explore the barriers, facilitators and experiences of healthcare workers regarding the management of reproductive health commodities in selected health facilities of Wakiso district.)

1. Respondents Position (Tick one)

Facility in-charge

Store officer

Pharmacist/Dispenser

Nurse/Midwife

RH Officer

2. May you briefly describe your roles and responsibilities at this hospital/health facility? Prompts: Ordering and reporting, stock, and stores management Dispensing and Administrator

3. Who is responsible for supply chain management at the facility?

Prompt: Ordering and reporting Prompts: Facility In-charge alone, RH in charge alone, Stores manager alone, as a team (Who makes the team and exact role)

4. What challenges do you face in managing RH commodities?

5. Can you describe a recent experience where stock-outs affected service delivery in your facility?

6. What are the causes of delays in delivery of RH commodities?

7. Is there anything else you want to add or that we have not talked about regarding RH commodities stock-outs?

*Note: Additional follow-up questions were asked, as appropriate, with each participant.

THANK YOU FOR PARTICIPATING

Appendix 2: The Research Work plan and Timeline

ACTIVITIES	11 months										
	Apr 25	May 25	Jun 25	Jul 25	Aug 2	Sep 25	Oct 25	Nov 25	Dec 25	Jan 26	Feb 26
1. Research proposal writing and research instrument development											
2. Proposal submission and correction											
3. Data collection, data input, data analysis and writing of the draft report											
4. Compilation and submission of dissertation											

Appendix 3: Research Budget

	Activity	Unit	Unit Cost (Ugx)	Amount (Ugx)	Justification
1	STATIONERYAND EQUIPMENT				
	Paper, Pens, pencils and note books and internet bundles		100,000	100,000	For data recording
	Printing costs for questionnaires	300 questionnaires	500	150,000	For data collection
	Final report printing and Binding	5 copies	30,000	150,000	Copies for submission
	Sub-total			400,000	
	DATA COLLECTION				
	Training Research Assistants (RAs)	02RAsx2days	15,000	60,000	Support in data collection
	Costs for data collection (Lunch,20,000),(transport-20,000) and (Facilitation-20,000)	02 RAs x 5 Working days	50,000	500,000	For data collection
	Cost of conducting Interviews	2days	50,000	100,000	To collect quality data
	Sub-total			660,000	
	DATA ANALYSIS				
	Data entry/Transfer to SPSS	01	30,000	30,000	For data management
	Data Analyst hire	01	300,000	300,000	Required to produce output from The analysis
	Sub-total			330,000	
	OTHER COSTS				

	Transport costs at the field	5days	30,000	150,000	Facilitate coordination of data collection
	Meals at the field	5 days x 2 Month	30,000	300,000	To boost Energy levels
	Sub-total			450,000	
	GRANDTOTAL			1,840,000	

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