AFRICA UNIVERSITY

(A United Methodist Related-Institution)

MANAGING THE HARARE CBD INFORMAL PHARMACEUTICAL MARKET IN ZIMBABWE

BY

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A DISSERTATION PROPOSAL SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE EXECUTIVE MASTER OF BUSINESS ADMINISTRATION

2025

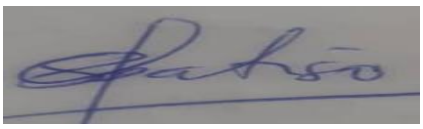
Abstract

The main purpose of this study was to explore the factors that promote the informal pharmaceutical market in Zimbabwe in terms of sources, distribution, and impact on public health, providing valuable insights that can help stakeholders and policymakers proffer policy interventions that foster health delivery and public health outcomes. The informal pharmaceutical market in Zimbabwe has gained prominence in recent years, particularly in urban centres like Harare's Central Business District (CBD). This market often operates outside the regulatory framework, leading to concerns about the quality and safety of pharmaceutical products. The rise in unregulated access to prescription drugs has been linked to documented cases of anti-microbial resistance within the Zimbabwean population. This trend has also driven legitimate pharmaceutical businesses out of the market and exposing the public to potentially unsafe medications sold on the streets. The study adopted an explanatory sequential mixed-methods design. The population for the study was 100 participants which comprised consumers of informal pharmaceuticals, informal medicine vendors, regulatory authorities, and registered distributors. Questionnaires and interviews were used as the main data collection tools. Quantitative data from the study was presented mainly through graphs and tables and analysed using descriptive statistics, frequencies and percentages. Data obtained through interviews was presented and analysed using thematic analysis. The findings from the study conclude that most of the informal vendors get their medicines from Indians in Harare town, Mbare Musika and from countries like South Africa, Zambia and Mozambique. Based on the research findings, it can further be concluded that informal medicine vendors sell directly to consumers in sachets at bus ranks, car boots and corner positions and through runners on commission basis. Furthermore, the products being sold in Harare seem to have no negative effects as sellers and customers believe that the drugs are good to customers unless if abused. However, the most needed interventions are public awareness campaigns, educating people on the dangers of taking illicit drugs, tightening of screening at porous border posts and national health insurance introduction as a national policy.

Key Words: Informal pharmaceutical market, Harare CBD

Declaration Page

I declare that this dissertation is my original work except where sources have been cited and acknowledged. The work has never been submitted, nor will it ever be submitted to another university for the award of a degree.



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Acknowledgements

I would like to first thank the Almighty for giving me health and strength during the writing of this project. My deepest gratitude also goes to my inspiring and extraordinary supervisor for his guidance and patience in carrying out this research. He spared his precious time to meticulously go through every chapter of this document and then shaped my critical thinking. He always guided me in all challenging and complex aspects I encountered. A special thank you also goes to my wife for her moral support.

List of Acronyms and Abbreviations

CBD	Central Business District
WHO	World Health Organization
UHC	Universal Health Coverage
LMIs	Low- and Middle-Income Countries
SDGs	Sustainable Development Goals
PCD	Pharmaceutical and Chemical Distributors

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CHAPTER 1 INTRODUCTION

1.1 Introduction

Nearly 2 billion people globally have no access to essential medicines, resulting in greater pain and suffering, prolonged illness, needless disabilities and preventable deaths (World Health Organization, 2017). Essential medicines are a vital component of the Sustainable Development Goals (SDGs) to ensure access to safe, effective, quality and affordable essential medicines and vaccines for all (United Nations, 2019). Essential medicines are also central to the goal of achieving Universal Health Coverage (UHC), which ensures that all people have access to health services, including essential medicines, without risking financial hardship (World Health Organization, 2019). Access to affordable, quality-assured essential medicines is crucial to reducing the financial burden of care and improving population health worldwide. However, the emergency of unregulated medicines and informal pharmaceutical services threatens medicine affordability and quality universal health access, particularly in low-and-middle income countries (Nichter, 2021).

Zimbabwe, like other low- and middle-income countries (LMICs) within Africa, is witnessing major changes in healthcare delivery, because of various global forces that determine how health commodities reach the intended users. Yadav et al (2012) reports that in most LMICs, the healthcare delivery and distribution systems are fragmented to an extent that the integrity of the medicines supply chain is increasingly under threat due to proliferation of poor-quality medicines onto the market, and Zimbabwe is no exception.The informal pharmaceutical market in Zimbabwe has gained prominence in recent years, particularly in urban centres like Harare's Central Business District (CBD). This market often operates outside the regulatory framework, leading to concerns about the quality and safety of pharmaceutical products. The lack of

regulation in medicine pricing drives inflated prices in the community pharmacy sector, which contributes to the growth of the informal market as individuals seek more affordable options (Sambira, 2018). Factors such as economic instability, limited access to formal healthcare services, and high prices of legitimate medications contribute to the growth of this informal sector (UNAIDS, 2014). As a result, many individuals turn to unregulated sources for their medicinal needs, raising significant public health concerns, including the risk of counterfeit medications and inadequate professional guidance (Sambira, 2018).

With the sprouting of unregulated outlets on the streets of Zimbabwe, common questions that are raised include: (i) what is the Medicines Control Authority of Zimbabwe (MCAZ) doing about these street vendors? and (ii) is the law against unregulated markets and proliferation of substandard and falsified (SF) medicines being actively enforced? This study aims to explore the factors that promote the informal pharmaceutical market in Zimbabwe regarding sources, distribution, and its impact on public health. By investigating these issues, the study seeks to provide valuable insights that can help stakeholders and policymakers develop effective interventions to improve health delivery and public health outcomes.

This chapter introduces the study by presenting the research background, statement of the problem, the justification of the study, the research objectives, research questions, and significance of the study, the study limitations and delimitations. It aims to explore the factors that promote the informal pharmaceutical market in Zimbabwe in terms of sources, distribution, and impact on public health, providing valuable insights that can help stakeholders and policymakers proffer policy interventions that foster health delivery and public health outcomes.

1.2 Background to the Study

Over the recent decades, the global market for medicines has been growing. The success of this market is linked to multiple parameters, including the increased production of medicines, the ensuing commodification of health and its derivatives, and the increased tendency for people to self-medicate (Nichter, 2021). These elements have generated a process of 'pharmaceuticalisation', that is, greater circulation of medicines, and their autonomous use outside the supervision of health professionals (Ushie, Ugal, Ingwu, 2016).

In Sub-Saharan Africa (SSA), the main channel for retail distribution is through medicine providers, who operate in the public or private sector. The public system faces multiple challenges, particularly in terms of securing an adequate supply of appropriate medicines (Wafula, Miriti, Goodman, 2021). This situation ends up pushing people to buy in the private sector, where the supply sources are more diversified and do not have to follow public market regulations (Smith,2019). The private sector includes both formal and informal medicine providers and can potentially become problematic in terms of regulation, the quality of additional services offered (e.g. advice, testing and referral) and patient safety (Goodman, Kachur & Abdulla, 2017). Medicine providers are common in both urban and rural settings, and in recent decades, increasing numbers operate without regulation (Wafula & Goodman, 2020).

WHO has identified substandard and falsified medical products as a major health challenge with an estimated 10% of the medicines sold in low- and middle-income countries are substandard and falsified (WHO, 2018). However, substandard and falsified medical products and the types of markets through which they are distributed are yet to be comprehensively understood. In 2012, the World Health Assembly passed

resolution WHA65.19, in which it decided to establish a Member State Mechanism for international collaboration among Member States from a public health perspective to address substandard and falsified medical products (at that time known as substandard/spurious/falsely labelled/falsified/counterfeit medical products) (WHO,2012). The resolution was passed against a backdrop of increasing concern about such products and the health and socioeconomic harms they cause.

The informal market has come to be a vital cog in the Zimbabwean economy, especially in light of the increased business closures that characterised the two decades from the year 2000 to 2020 (Gonzalez, Chikanda & Mavhunga, 2021). This growth in the informal sector has spanned all categories of the economy and the health and pharmaceutical sector has not been spared. The declining socio-economic environment, characterised by high unemployment, inflation and a dilapidated health delivery system has seen an increased number of people engaging the informal vendors who invariably operate outside the regulatory environment (Bate,Tren & Mureverwi,2020).

The informal pharmaceutical market is conspicuous by its wide-ranging array of medication, ranging from over-the – counter and prescription drugs lying in the streets of major cities and towns in Zimbabwe. There is no evidence as to whether the drugs being sold in the streets are genuine or counterfeit which raise fears on their potential effect on public health. Research indicate that the booming informal pharmaceutical sector in Zimbabwe was being driven by the fact the poor majority cannot access the formal health delivery systems (Gonzalez, Chikanda & Mavhunga, 2021). According to the Association of Healthcare Funders of Zimbabwe (2021), most Zimbabweans face significant challenges in accessing basic health care, with 93% unable to afford

health insurance. For many, the only option is purchasing antibiotics from informal medicine stalls, often without prescriptions or proper guidance.

Given the fact that nobody is aware of the sources or channels that supply these medicines, the influx of the drugs is unregulated; a feature that has resulted in abundance of prescription medicines at the disposal of the general public. Over and above the potential counterfeiters, there is also a growing concern about microbial resistance as a public health challenges (Mok, Chikanda & Mureverwi, 2020). Individuals are just buying prescriptive drugs from the streets whenever they are faced with an ailment without enlisting the services of a doctor or a nurse. This careless practice has led to many of them developing drug resistance, which is commonly known as antimicrobial resistance. Antimicrobial resistance is among the biggest health crises of the modern era. Bacteria that have evolved to resist the drugs designed to eliminate them kill more than 5 million people per year, according to the World Health Organization (2022). By 2050, more people will die from AMR than from cancer, according to the Fleming Initiative, a London-based AMR research organization.

A study published in The Lancet showed that nearly all children under age 5 who die due to antibiotic resistance live in what the World Bank defines as low- and middle-income countries, based on gross national income per capita. Children in sub-Saharan Africa are especially at risk as they are 58 times more likely to die of antibiotic resistance than those in high-income countries. Among the dozen or so antibiotic-resistant bacteria that WHO lists as “priority pathogens” is the one that causes tuberculosis. That is a particular problem in Africa, where half a million people die every year from the illness, more than 30% of all global TB deaths.

The Medicines Control Authority of Zimbabwe (2021) has found that active ingredients were not present in many of the drugs sold informally or even through formal prescriptions. These medicines can cause harm by worsening the condition and may even result in death.

Global medical guidelines are clear about when antibiotics should and should not be used. They cannot cure viral illnesses like the flu or common cold. Broad-spectrum antibiotics cannot be prescribed as a first-line treatment, and in most cases antibiotics shouldn't be prescribed for long periods of time (Karamagi, Kanyesigye & Muwanga, 2020). And yet, inappropriate prescriptions are prevalent globally. AMR in cases of UTI are alarmingly high in Nepal. A 2021 study shows that 84% of UTI cases there showed resistance to at least one antibiotic, while 54% are multidrug resistant (WHO, 2021). The National Agricultural Technology Institute in Argentina has also noted that if things continue as they are now, infectious diseases associated with resistant microorganisms are going to become the leading cause of mortality.

1.2.1. The informal pharmaceutical sector in Harare CBD

Harare is the administrative capital and commercial centre of Zimbabwe. Being the capital city, there is a dense concentration of community pharmacies within Harare. Using the Pharmacists Council of Zimbabwe register (2019), the number of registered community pharmacies stands at one hundred and sixty-seven. Harare is also home to various pharmaceutical wholesalers with the major ones among them being Pharmaceutical & Chemical Distributors (PCD), New Avakash, Sky Pharmaceuticals, Greenwood Wholesalers and Pulse Pharmaceuticals.

Almost every day in the evening in Harare, the streets become alive with inviting calls from vendors in a frantic effort to sell various wares and products, and worryingly, there has been an increase in the sales of unregistered pharmaceutical products. These

unlicensed medicine vendors are strategically located in areas witnessing high volumes of commuters, ready to capitalize on their inquisitive nature (Mavhunga et al., 2021). An assortment of skin-lightening creams, steroidal products, sex-enhancing products, oral contraceptives, pain killers, various herbals remedies and other products are often on display at very negotiable prices (Chikanda, 2020). Further inquiries for off-the-shelf products such as antibiotics and opioid analgesics are often met with some degree of apprehension; however, a theatrical display of desperation reveals a significant stock of pharmaceuticals which would otherwise be for sale and supplied by regulated premises and professionals such as licensed pharmacies, hospitals, clinics and dispensing surgeries manned by pharmacists and doctors (Karamagi, Kanyesigye & Muwanga, 2020). This rising phenomenon of unregulated outlets such as street stalls, peddlers and backpack dealers is significantly affecting the integrity of the medicines supply chain.

The distribution of informal pharmaceuticals in Harare often occurs through unregulated channels, complicating efforts to monitor drug quality and safety. This lack of oversight can have dire consequences for public health, including the proliferation of substandard medications, drug resistance, and adverse health outcomes. Understanding the intricacies of this market is essential for developing effective public health strategies and regulatory frameworks that can ensure access to safe and effective medications for all Zimbabweans. This study aims to elucidate these dynamics, contributing to the broader discourse on health system strengthening in Zimbabwe.

1.3 Statement of the Problem

Zimbabwe's health system has long struggled with funding challenges, leading to a significant prevalence of informal and unregulated pharmaceutical businesses offering

over the counter and prescription drugs (Levy & Sidel, 2009). The Medicines Control Authority of Zimbabwe (MCAZ) (2021) has reported that over 50% of the pharmaceutical products sold in informal markets are unregistered or counterfeit, posing significant risks to public health. The World Health Organization (WHO) has noted that inadequate funding and resource allocation in Zimbabwe's healthcare system have resulted in a reliance on informal vendors for essential medications (Mavhunga et al., 2021). This situation has resulted in many individuals turning to these informal vendors, as public health facilities remain underfunded and private clinics are often cost-prohibitive. According to a study by the Zimbabwe National Statistics Agency, approximately 60% of the population relies on informal sources for healthcare due to the high costs associated with formal healthcare services (Chikanda, 2020).

The economic crisis has further exacerbated this issue, driving legitimate pharmaceutical businesses out of the market and exposing the public to potentially unsafe medications sold on the streets. Research indicates that the economic downturn has led to a 40% decrease in the number of registered pharmacies, pushing consumers towards unregulated vendors who may sell counterfeit or substandard drugs (Mavhunga et al., 2021). The lack of regulation and oversight in this informal sector poses a considerable public health risk, as the quality and safety of medicines cannot be assured. A report by the Medicines Control Authority of Zimbabwe highlighted that over 30% of medicines sold in informal markets are counterfeit or expired (Chikanda, 2020).

Furthermore, the rise in unregulated access to prescription drugs has been linked to documented cases of anti-microbial resistance within the Zimbabwean population. In Zimbabwe in 2019, there were 3,900 deaths attributable to AMR and 15,800 deaths

associated with anti-microbial resistance (World Health Organization, 2022). The Zimbabwe Ministry of Health has reported a notable increase in antibiotic resistance, with a drug resistance index score of 66%, indicating a high risk of antimicrobial resistant pathogens in the country. This increase in antibiotic resistance shows that improper use of antibiotics from informal vendors contributes significantly to this public health crisis (Mavhunga et al., 2021). The proliferation of informal pharmaceutical businesses not only jeopardizes individual health but also undermines broader public health initiatives. The lack of proper medication management and oversight has been shown to hinder vaccination efforts and other public health campaigns, as individuals may prioritize informal sources over government health programs (Chikanda, 2020).

This critical situation necessitates urgent research and effective management strategies, alongside policy interventions, to address the implications of the informal pharmaceutical market on public health in Zimbabwe. The problem lies in the urgent need to understand the dynamics of this informal market and its impact on health outcomes, as well as to develop strategies that can effectively regulate and manage this sector to protect public health.

1.4 Objectives of the Study

The objectives of the study are to:

1.4.1 Identify the sources of informal pharmaceutical medicines in Harare CBD, Zimbabwe.

1.4.2. Map the key distribution channels of informal pharmaceutical medicines within Harare CBD, Zimbabwe.

1.4.3. Assess the perceived impact of the informal pharmaceutical market on public health outcomes within Harare CBD, Zimbabwe.

1.4.4. Develop recommendations aimed at eradicating the informal pharmaceutical market in Harare CBD.

1.5 Research Questions

1.5.1. What are the primary sources of informal pharmaceutical medicines within Harare CBD Zimbabwe?

1.5.2. What are the distribution channels of informal pharmaceutical medicines within Harare CBD, Zimbabwe?

1.5.3. What is the perceived impact of the informal pharmaceutical market on public health in Harare CBD, Zimbabwe?

1.5.4. What recommendations can be implemented to eradicate the informal pharmaceutical market in Harare, CBD Harare?

1.6. Significance of the study

This study will enhance the researcher's understanding of the informal pharmaceutical market, equipping them with valuable insights into the complexities of healthcare systems in Zimbabwe. It will also develop critical analytical and research skills that are essential for effective management decision-making. The findings can serve as a foundation for future research or initiatives in pharmaceutical management, contributing to the researcher's academic and professional growth.

The study will contribute to Africa University's reputation as a leading institution in research related to healthcare and public policy. By addressing a significant issue in Zimbabwe, the research enhances the university's commitment to community

engagement and social responsibility. The findings can inform curriculum development, fostering a robust academic environment that prepares students to tackle real-world challenges in public health and pharmaceutical management.

The study provides empirical evidence and insights that can inform policy decisions regarding the regulation of the informal pharmaceutical market. By understanding the sources, quality, distribution, and public health impacts of informal medicines, policymakers can develop targeted interventions that improve healthcare outcomes. The research can guide the formulation of policies that promote safe and effective pharmaceutical practices, ultimately enhancing public health standards in Zimbabwe.

1.7. Delimitation

Delimitation is understood as the boundaries set by the researcher that determine the extent of the study, including the specific variables, populations, and contexts that will be examined (Creswell, 2018). The study will be geographically confined to the Harare Central Business District (CBD) and surrounding areas within Zimbabwe. It would be conducted from March 2025 to September 2025; a timeline prescribed by Africa University where the researcher is a student. This focus allows for an in-depth analysis of the informal pharmaceutical market in an urban context, while findings may not be generalizable to rural settings or other regions of Zimbabwe. It will concentrate specifically on informal pharmaceutical medicines, excluding formal pharmaceutical markets and healthcare systems. Additionally, the study will focus on the sources, quality, distribution, and public health impacts of these informal medicines. Other aspects of healthcare, such as the regulation of formal pharmaceutical practices or broader healthcare policies, will not be covered. Furthermore, the study will examine data and trends from 2020 to the present date. This time frame allows for the analysis of recent developments in the informal pharmaceutical market, particularly

considering the economic and public health challenges faced during this period. Historical data before 2020 will not be included, which may limit the understanding of long-term trends.

1.8. Limitations of study

Limitations refer to the inherent constraints in a research study, including issues related to sample representation, data collection methods, and possible biases in interpretation that may affect the reliability and validity of the results (Yin2020).

The study focuses exclusively on the Harare Central Business District, which may limit the applicability of the findings to other regions in Zimbabwe or different urban settings. To address this limitation, the study will acknowledge the context-specific findings and suggest further research in other geographical areas to enhance understanding of the informal pharmaceutical market across Zimbabwe.

The informal nature of the pharmaceutical market may result in challenges related to data reliability and the availability of accurate information. Participants may be reluctant to provide information due to the illegal or unregulated nature of their activities. To mitigate this, the study will employ multiple data collection methods, such as surveys, interviews, and observations, to triangulate data and enhance overall reliability.

The study is limited to the period from 2020 to the present, which may not capture long-term trends or historical context that could influence the current state of the informal pharmaceutical market. The study will include a review of existing literature and secondary data to provide context and background that enrich the analysis, even if primary data collection is limited to the specified time frame.

CHAPTER 2 REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter delves into a comprehensive exploration of the existing body of knowledge relevant to the study at hand, focusing on various key aspects that underpin the understanding of the informal pharmaceutical market. This chapter is structured to unveil the theoretical foundations, conceptual frameworks, and influential factors that shape the study.

2.2. Theoretical Framework

Theoretical frameworks are well-defined paradigms or models that steer scientific research in a specific discipline. They offer a foundation of principles and assumptions that influence how researchers examine and understand phenomena in that field (Miles, Huberman & Saldana, 2018). This study will be informed by the Demand-side theory, Structural theory and Quality Management theory.

2.2.1. Demand-Side Theory

The demand-side theory posits that consumer behaviour significantly influences the demand for informal pharmaceutical medicines (Cohen & Mendez, 2016). Demand-side theory, also known as demand-side economics is used to describe the position that economic growth and full employment are most effectively created by high demand for products and services (McEachern, 2009). According to demand-side theory, output is determined by effective demand where high consumer spending leads to business expansion, resulting in greater employment opportunities (Bennett et al., 2014). Higher levels of employment create a multiplier effect that further stimulates aggregate demand, leading to greater economic growth.

This theory suggests that various factors, such as affordability, accessibility, and perceived effectiveness, drive individuals to seek out informal medicines rather than relying on formal pharmaceutical channels (Cohen & Mendez, 2016). Affordability is a critical determinant, as many consumers in low- and middle-income countries may find formal medicines prohibitively expensive due to high retail prices, insurance co-pays, or lack of coverage. Accessibility also plays a vital role; in many regions, especially rural areas, formal healthcare facilities may be distant or under-resourced, prompting consumers to turn to local informal sources for their pharmaceutical needs (Rogers, 2016).

Another essential aspect of the demand-side theory is the perceived effectiveness of informal medicines. Consumers often rely on their past experiences, anecdotal evidence, or community recommendations when evaluating the efficacy of informal pharmaceuticals (Bennett et al., 2014). This means that trust in informal sources can be influenced by cultural beliefs and social networks, affecting how individuals assess the quality and effectiveness of available medicines. The theory thus highlights the significant interplay between individual perceptions and social dynamics in shaping consumer demand for informal pharmaceuticals.

While the demand-side theory provides valuable insights into consumer behaviour, it has its strengths and weaknesses. One of its strengths is its focus on the consumer's perspective, which can lead to a better understanding of the motivations behind the use of informal medicines (Keynes, 2019). This consumer-centric approach can help policymakers and healthcare providers design interventions that resonate with community needs. However, a notable weakness is that the theory may oversimplify the complexity of healthcare decision-making by attributing demand primarily to individual choices without adequately considering broader systemic factors, such as

regulatory environments, supply chain issues, and economic conditions (Rogers, 2016).

In the context of the current study, the theory can inform several objectives. For example, examining the sources of informal pharmaceutical medicines can reveal how affordability and accessibility influence consumer choices. Assessing the quality of medicines available relates directly to how consumers perceive effectiveness and safety. Additionally, evaluating the distribution networks can provide insights into how geographic and infrastructural factors affect consumer access to these informal sources. By linking the impact of the informal pharmaceutical market on public health outcomes to consumer demand, the study can elucidate how these medicines contribute to or detract from overall health. Furthermore, suggesting policy interventions can be grounded in understanding consumer behaviour and addressing the underlying factors driving demand for informal pharmaceuticals. By applying the demand-side theory, the study can better capture the complexities of consumer behaviour in this critical area of public health.

2.2.2. Structural Theory

This theory emphasizes that social determinants such as poverty, inequality, and the weaknesses of healthcare systems create an environment where informal markets can thrive (Wang et al., 2017). Structural theory is an approach to economics that emphasises the importance of taking into account structural features (typically) when undertaking economic analysis (Hunt, 2016). Dutt and Ros (2003) argue that structuralist economists try to identify specific rigidities, lags as well as other characteristics of the structure of developing countries in order to assess the way economies adjust and their responsiveness to development policies. A normal assumption within this approach is that the price mechanism fails as an equilibrating

mechanism, to deliver steady growth, to produce a desired income distribution (Taylor, 2004). Structural theory posits that broader systemic factors significantly influence the persistence of informal pharmaceutical medicines. Poverty often limits access to formal healthcare services, compelling individuals to seek affordable alternatives, including informal medicines (Wang et al., 2017). Moreover, systemic inequality can lead to disparities in healthcare access, where marginalized populations resort to informal sources due to exclusion from mainstream healthcare systems (Hunt, 2016).

Another key component of structural theory is the notion that weak healthcare systems exacerbate the reliance on informal pharmaceuticals. In many low- and middle-income countries, inadequacies such as insufficient healthcare infrastructure, lack of trained healthcare professionals, and limited access to essential medicines create a vacuum that informal suppliers exploit (Marmot et al., 2012). These structural deficiencies hinder effective regulation and enforcement, allowing informal markets to flourish unchecked. The theory underscores that addressing the persistence of informal pharmaceuticals requires a comprehensive understanding of the structural issues at play, rather than solely focusing on individual consumer choices or supplier motivations (Hunt, 2016).

While structural theory offers valuable insights, it has strengths and weaknesses. One strength is its holistic approach, which recognizes that health outcomes are deeply intertwined with social and economic contexts (Marmot et al., 2012). This perspective can guide policymakers to implement multifaceted strategies that address the root causes of informal pharmaceutical markets. However, a notable weakness is that the theory may sometimes overlook the agency of individuals within these structures, reducing complex health behaviours to mere responses to systemic conditions (Sen,

1999). This could lead to an underestimation of the role of personal choice and community agency in navigating health options.

In the context of this study, structural theory provides a critical framework for understanding the persistence of informal medicines. For instance, examining the sources of informal pharmaceutical medicines can reveal how poverty and inequality drive individuals to seek alternatives. Assessing the quality of medicines available can highlight the implications of weak healthcare systems on the safety and efficacy of these products. Additionally, investigating the distribution networks can uncover how structural factors influence access across urban and rural settings. Evaluating the impact of the informal pharmaceutical market on public health outcomes aligns with the theory's emphasis on systemic issues, while suggesting policy interventions can focus on strengthening healthcare systems and addressing social inequalities. By applying structural theory, the study can provide a comprehensive understanding of the informal pharmaceutical landscape in Zimbabwe and its connection to broader societal factors.

2.2.3. Quality Management Theory

Quality Management Theory is grounded in several key principles that guide organizations in their pursuit of quality improvement. These principles include a strong focus on customer satisfaction, continuous improvement, and employee involvement (Sila & Ebrahimpour, 2020). Organizations are encouraged to understand customer needs and expectations, which helps in aligning their processes to meet these demands effectively. Continuous improvement is emphasized to enhance processes, products, and services over time, fostering an environment where all employees are engaged in quality initiatives (Deming, 2020). Additionally, the theory advocates for a systematic

approach to management, where data-driven decision-making and effective communication are integral to achieving quality objectives (Oakland, 2020).

The strengths of Quality Management Theory lie in its comprehensive approach to enhancing organizational performance and customer satisfaction (Deming, 2020). By fostering a culture of continuous improvement and involving all employees in quality initiatives, organizations can achieve significant reductions in waste and defects, leading to cost savings and increased customer loyalty (Oakland, 2020). However, there are also weaknesses associated with this theory. Implementing a quality management system can require substantial financial investment and time, which may be challenging for smaller organizations (Deming, 2020). Additionally, resistance to change from employees accustomed to existing processes can hinder the successful adoption of quality management practices (Sila & Ebrahimpour, 2020).

In the context of assessing the quality of medicines available in the informal pharmaceutical market of Harare CBD, Quality Management Theory is particularly relevant. The principles of this theory can guide the evaluation of how informal vendors manage the quality of their products, ensuring that they meet customer expectations and regulatory standards. By applying the concepts of continuous improvement and customer focus, the study can identify gaps in quality assurance practices within the informal market and propose strategies for enhancing the quality of medicines offered to consumers. This alignment with quality management principles will not only contribute to better health outcomes but also foster greater trust in the informal pharmaceutical sector.

2.3. Sources of Informal Pharmaceutical Medicines

Literature indicates that informal pharmaceutical markets often emerge from the need to provide accessible medication in settings where formal healthcare options are lacking. Studies have identified various sources of informal pharmaceuticals, including local vendors, community pharmacies, and unregulated suppliers (Bate et al., 2020). In western countries, where the medicine market is controlled both by the state and by the pharmaceutical sector, medicines are distributed along established lines (Borba et al., 2020). Over-the-counter medicines are sold at drugstores or at the chemist's while prescription drugs are available only at drugstores, on submission of a prescription (Bate et al., 2020). This system does not work in countries with a weak state control. The formal markets in Third World countries are subject to a strong tendency towards liberalization and privatization and the poorest are less and less able to afford that privatized health care and that is a stimulus for the informal pharmaceutical market (Nsarhaza, 2017). It can also be observed that both chemical and traditional products in Third World countries are distributed through alternative channels. Next to the limited number of formal points of sale, in particular the public and private medical centres and the drugstores that have a licence, there is also the informal circuit of general food stores, of market vendors and of sales representatives selling traditional and chemical medicines (Bate et al., 2020). It often happens that chemical medicines that should be distributed or administered free of charge or at a lower price by medical centres, find their way to the informal market (Van Der Geest, Reynolds & Hardon, 2018).

While informal pharmaceuticals are encountered in various parts of the world, specific countries and regions are more commonly associated with the production and distribution of illicit pharmaceuticals as represented in the figure below.

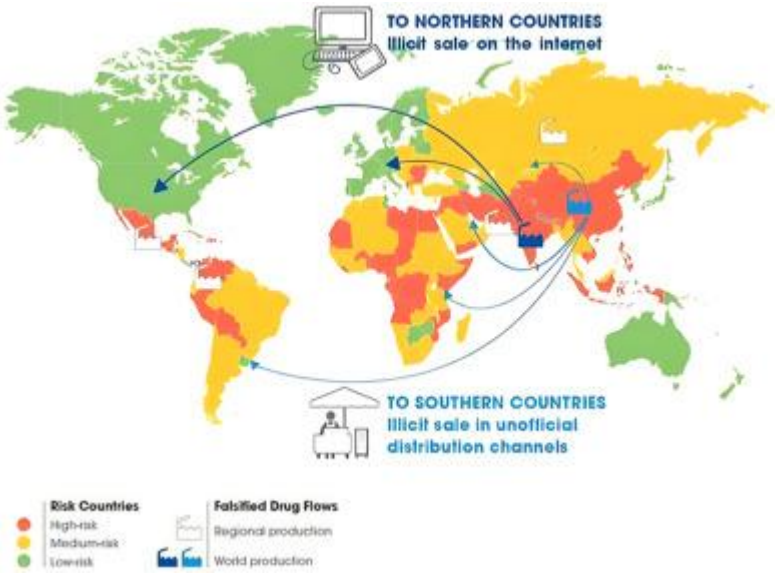

Figure 2.1 Global distribution of falsified medicines

Source:https://healthpolicy-watch.news/fight-the-fakes-campaign-raises-awareness-of-falsified-substandard-medicines

The majority (54 %) of informal, falsified and counterfeit drugs reported worldwide in 2006 were manufactured in India. (Cartwright & Barić, 2013). A more recent study puts that number at 75 % (Verma, Kumar & Philip, 2014). Illicit manufacturers within India predominantly produce substandard or counterfeit versions of generic medications, which can then enter the global pharmaceutical supply chain (Shukla & Sangal, 2009). A study of falsified medicines in Myanmar found that 75.8 % of the medicines being sold in pharmacies in Mandalay were of Indian origin, and 20.5 % were found to be either substandard or falsified (Chen & Hochberg, 2014). India's complex pharmaceutical landscape, with its mixture of highly reputable manufacturers and unregulated production units, makes it a challenging environment to monitor and regulate (Shah et al., 2015). The high cost of medicines, limited access to medical care, and a lack of knowledge amongst the general population were highlighted as key factors influencing the sale of falsified and counterfeit medicines in India (Khan & Khar, 2015).

Although not major producers of medications, Southeast Asia, including countries such as Myanmar and Cambodia, has been identified as major sources of informal, falsified and counterfeit drugs. The problem is not specific to any one nation but crosses borders, encompassing regional areas, with the Mekong of particular concern (Sakuda et al.,2020) International travellers to Southeast Asia face unique challenges and risks related to falsified and counterfeit antimalarials and antibiotics, particularly when journeying to malaria-endemic regions (Dondorp,2014). Weak pharmaceutical regulations, porous borders, limited access to healthcare services contribute to the proliferation of counterfeit medications in this region with the potential to increase drug-resistant malaria (Lamy,2017).

The Sub-Saharan African region has been affected by a high incidence of infectious diseases, which has led to a significant demand for antimalarial, antibiotics, and antiretroviral. As a result, falsified and counterfeit versions of these medications have proliferated (Atukunda & Anne, 2015). Countries such as Nigeria, the Democratic Republic of the Congo (DRC), Tanzania, and Uganda have reported numerous cases of counterfeit pharmaceuticals (Beargie et al, 2019). A study between 2009 and 2015 of over 336,000 antimalarial drugs in 49,500 medical outlets in eight African nations found, on average, that only 24 % of artemisinin-based combination therapy (ACT) drugs were quality-assured while 25 % were non-quality-assured (Otte et al., 2015). It was determined that the non-quality-assured drugs were predominantly available in private sector outlets and were infrequent (<10 %) within public sector settings. However, notable exceptions included the Democratic Republic of the Congo (DRC), where 39 % of non-quality-assured drugs were found in the public sector, and Zambia, where 85 % of such drugs were present in public sector settings.

The relatively high proportion of non-quality-assured drugs in Zambia's public sector can be attributed to challenges in drug procurement and supply chain management, despite the presence of international donors. This situation contrasts with other contexts where low public sector availability of non-quality-assured drugs is more common, due to international aid and procurement processes that generally adhere to global quality-assurance standards (Newton, Hanson, Goodman, 2017). Most falsified and counterfeit drugs in sub-Saharan Africa are imported from Asian countries, mainly India and China (Fatokun, 2016). Several factors contribute to this problem in sub-Saharan Africa, including inadequate healthcare infrastructure, regulatory challenges, limited access to quality medicines, and the high cost of genuine medicines, all of which make it easier for counterfeit drugs to infiltrate the market (Ekoh et al., 2022).

In Benin, importation of those drugs is informal, existing within the framework of unregistered trade and cross-border exchanges between West African countries of various goods in a complicated mix of formal and informal transactions (Egg and Herrera, 1998, Galtier and Tassou, 1998). Pharmaceuticals from Nigeria enter the country using the “acquits” system (LARES/IRAM, 1996). This system is not specific to drugs. It allows truckers to cross borders with legal global customs clearance (one price per trucker). Consequently, trade of specific goods, such as pharmaceuticals, can escape customs statistics. This system is in regular use by vendors who usually spend one day traveling to Nigeria on public transportation. Once there, he entrusts his purchased goods to a warehouse manager in Lagos who is paid to deal with formalities (stocking, transport, customs clearance, etc.) and to transport goods by truck to Cotonou. Vendors pay to retrieve the shipment a few days later and bring it to Dantokpá.

Products bought in Ghana follow the same supply channels: the transporter is often the driver of a rented taxi and is responsible for crossing borders (Ghana-Togo and Togo-Benin), using his experience and connections to negotiate passage. Transporting goods from Ghana is not as easy as from Nigeria since crossing two borders is more expensive and complicated. Also, this route was established more recently. Pharmaceuticals from Nigeria have been distributed in Benin's informal market since the 1970s. Surprisingly, a 1996 study does not refer to the Ghanaian market (Mensah, 1996). "Drugs from Nigeria and Ghana" are sometimes brought through river or sea routes to completely avoid customs checkpoints.

In the Congo, the medicines market has been formally regulated, but owing to a lack of money, corruption, pursuit of profit and lack of technical expertise, this legal framework has remained dead letter (Nsarhaza, 2018). Cameroon law forbids the selling of chemical medicines outside officially recognized drugstores with qualified personnel (Van Der Geest, 1988). In actual practice, however, these rules are empty rhetoric. Prescription drugs are available without prescription on the informal market, in food stores, or they can be obtained from street vendors and door-to-door salesmen. In Sri Lanka, Wolffers found that medicines are also distributed by traditional healers (Wolffers, 1988). Medicines are sold by the piece, without any accompanying information leaflet. Bledsoe and Goubaud provide a similar account of the informal pharmaceutical market following ethnographic research in Sierra Leone. Vendors travel from one village to the next, calling out Medicines for aches and pains and like western doctors, they too listen to people's complaints and then they recommend a certain medicine (Siringi, 2014). The problem is that those vendors did not receive any medical training. They are only interested in selling their products. According to this research, it often happens that medicines are sold to treat diseases other than the

official indications (Bledsoe & Goubaud, 2015). In Kinshasa medicines are sold in stalls along the road and the vendors are men of about 25 years old, most of whom only went to primary school and who combine their jobs as vendors with a number of other jobs (Pai et al., 2018). When the police turn up, they grab their things and flee. The vendors outline that the sale of medicines is a way to survive and they sell medicines and not something else because pharmaceuticals are easily available and only require a minor investment (Oxfam, 2021).

Both medicine markets, the formal and the informal market, exist in symbiosis and preserve each other. Van Der Geest gives the example of patients taking medicines from the informal market to public medical centres where they want to receive care, because they know that most of the time there are no medicines available in those centres (as they find their way to the informal market). Since there may be long queues in public medical centres, you often find a vendor of painkillers next to the entrance of the building. We also find that the formal market provisions the informal pharmaceuticals market (Nsarhaza, 2017). Traders of the informal markets buy their stocks from officially recognized drugstores and from the personnel of medical centres. During his research in Cameroon, Van Der Geest found that the products that were sold in the informal market actually came from the formal market. In Kenya, AIDS cocktails intended for hospitals that participated in an anti-AIDS programme were found at the informal market, at a price that was three times higher than the price patients had to pay for those cocktails in hospitals (Van Der Geest, 1988). Also in Senegal, programmes for access to antiretroviral treatments led to an increase in the uncontrolled distribution of those medicines (Guillaume, 2018). The formal market sponges on the informal market, as it were.

2.4. Distribution Networks

Research has explored the distribution patterns of informal pharmaceuticals, highlighting the complexity of supply chains that connect vendors to consumers. Distribution networks vary significantly between urban and rural settings, often influenced by population density, infrastructure, and socio-economic factors (Petersen et al., 2021).

2.4.1. The Internet

The Internet is providing an increasingly viable option for distributing pharmaceutical products, both legitimate and counterfeit to domestic and international consumers (Legit Script, 2016). The ability of sellers to hide their identity and misrepresent their products is particularly attractive to counterfeiters, providing criminals with a relatively easy point of entry into even the best regulated markets (WHO, 2017). There are two distinct areas to purchase counterfeit pharmaceuticals online; the dark web and the freely accessible surface web. The pharmaceuticals marketed on the surface web are mainly substance, for which legal controls differ between jurisdictions (Koenraadt and van de Ven, 2018). A 2016 study estimated the number of online pharmacies to be in the order of 30 000 to 35 000 in 2015, with an additional 600 launching every month (LegitScript, 2016). These pharmacies are serving a growing number of consumers. Surveys carried out in the United States, for example, show that the number of people buying medicines online more than quadrupled in less than a decade, rising to between 19 and 26 million people (WHO, 2017). Based on a survey conducted in the Netherlands, (Koenraadt and van de Ven, 2018) estimate that approximately 10% of the Dutch population buys or has bought medicines online. Painkillers dominate the list of the most popular purchases (31.8%), followed by weight-loss pharmaceuticals (27%), sedatives and tranquillisers (14.2%) and sexual enhancers

(14%). Financial motives, convenience and discretion were cited as the main motives for buying pharmaceuticals online (Koenraadt and van de Ven, 2018).

A report prepared by the National Association of Boards of Pharmacy (NABP) summarises research carried out during 2019 which identified more than 11 500 online pharmacies that could not be recommended by the association (NABP, 2019). Nearly a third of these pharmacies offered or facilitated the sale of opioids or other. Many of the online pharmacies did not list an address; these pharmacies were most likely to be selling counterfeit products.

The involvement of criminal organisations in illicit pharmacies has been demonstrated on a number of occasions (Guerra and Mackey, 2017). In 2007, US federal law enforcement charged 18 members of the Affpower organisation for operating an online pharmaceutical distribution network involving domestic and foreign entities. The organisation included 1) merchant websites for the purchase of drugs; 2) affiliated websites that marketed and promoted sales; 3) a network of physicians who issued prescriptions for the pharmaceuticals; (4) a network of pharmacies that dispensed the drugs; and (5) credit card processors to process the sales (OECD/EUIPO, 2018). Affpower's administrative headquarters and customer service department were located in Costa Rica while servers that hosted merchant websites were located in Cyprus. The owner and operator of Affpower resided in the United States but had bank accounts in Panama, Cyprus and Costa Rica, which were used to further the illegal activity (Health Systems Global, 2019). Affpower used a credit card processor in Israel and bank accounts and an accounting firm in Cyprus. The company recruited licensed physicians throughout the United States and Puerto Rico to review and approve orders for prescriptions illegally. The global operation generated over 1 million prescription orders in two years, generating more than USD 126 million. Similar operations were

carried out by the Bansal organisation, which sold more than 11 million prescription pills to more than 60 000 purchasers in the United States, grossing at least USD 8 million in just over a year (Mills, 2017).

While North America generally has robust regulatory frameworks and strong healthcare systems, there are still considerations for travellers, the ease of online purchasing in North America can expose travellers to falsified and counterfeit drugs (Mackey et al., 2015). Travellers in North America relying on such sources may inadvertently encounter falsified or counterfeit antimalarials and antibiotics (White, 2021). The internet and transnational criminal networks play a pivotal role in the distribution of adulterated and low-quality drugs, often sold illegally and without the need for prescriptions (Fittler, Bősze & Botz, 2013). These criminal networks often operate across borders, making it challenging to pinpoint a single geographical location as the source of the problem. The internet has facilitated the sale of counterfeit drugs to a global audience, bypassing traditional supply chains and regulatory oversight (Ofori-Parku, 2022).

Almost 25 % of U.S. adults purchased prescription medicines online in 2017, with 20 % of purchases made via websites without any link to local healthcare professionals. It was also found that 96 % of online pharmacies operating in the U.S. did so without any regulatory oversight or adherence to pharmaceutical standards (Fittler et al., 2018). Despite the risks, individuals use online pharmacies for reasons such as convenience and lower cost compared to drugs sourced from licensed sellers (Ofori-Parku, 2022). Many countries currently lack legislation regulating the operation of online pharmacies (Lee, et al., 2017). The most common locations of online pharmacies appear to be the U.S., Canada and the U.K (Long et al., 2022). Of 44 sites selling Viagra® online in the U.K. in 2010, only 56.8 % provided an email address and 47.7

% supplied a postal address (Gallagher & Chapman, 2010). The high proportion of online pharmacies without a physical address or contact email makes it difficult to ascertain the location and legitimacy of the online pharmacy, adding to the complexity of the issue and making it easier for fraudulent operators to avoid detection and regulation (Long et al., 2022).

One of the reasons for the wide expansion of the illegal supply chain is not necessarily related to the population's purchasing power and/or quality of life, but rather to easy access and privacy. In this context, the internet is an important means for distributing falsified medicines, since it is directly linked to the consumer and takes advantage of an individual's need to obtain pharmacological treatment, especially elderly and disabled people (Dégardin, Roggo, Margot, 2013).

In addition to being a fast, free and easy way of communication between consumers and distributors, the internet is also a channel that is difficult for regulatory and surveillance authorities to control and track. In general, this happens because legislation does not foresee situations that involve the sale and purchase of fake or poor-quality medicines, which makes preventive measures more complex. Also, unlike the legal supply chain, the commercialized medicines in this illegal chain are those that are in high demand for treating diseases (such as antiinfectious agents, antibiotics, etc.). Furthermore, there are other factors that sometimes cause consumers to feel uncomfortable buying medicines through legal means (e.g., anabolic steroids, agents for erectile dysfunction treatment, etc.). Thus, consumers prefer to use the internet or other illegal channels which provide not only purchasing privacy, but more affordable prices as well (Silveira, 2012).

Following this idea, phosphodiesterase 5 (PDE-5) inhibitors (sildenafil Viagra®, tadalafil (Cialis®) and vardenafil (Levitra®) are the most frequently commercialized

medicines in the illegal supply chain worldwide. Due to the issue of privacy related to these drugs, the internet ends up being the main source of access for consumers. In the US, there is a hypothesis that most selective PDE-5 inhibitors reach consumers by the internet, via duplicitous websites (Jackson et al., 2010). Websites that claim to sell authentic Viagra, end up delivering a fake drug, containing only 30% to 50% of the API shown on the label, 77% of the time (Campbell et al., 2012). According to WHO, antimicrobials come in second place, representing nearly 50% of all counterfeit drugs worldwide, with 78% originating from developing countries (Kelesidis, Falagas, 2015; Pisani, 2017).

2.4.2. Street markets

The illegitimate or illegal supply chain has become a well-structured framework composed of manufacturers, distributors and local sellers, whose main objective is to complicate the legitimate chain, so the traffic of their counterfeit medicines is undetected (Dégardin, Roggo, Margot, 2013). Usually, packaging and medicines are produced in different countries and are then exported with other components to a final destination where they are prepared and distributed. For instance, counterfeit medicine originating in Asia can be packaged by a fake packaging process in Africa and vice versa. Final drugs are sometimes hidden and/ or smuggled and declared as something different in their attached documentation. Mostly, they are exported by air or sea through complex or unusual routes and can easily access legitimate chains at any moment (Silveira, 2012; Pisani, 2017).

Therefore, it is clear that the legitimate supply chain is extremely vulnerable to the activities and flow of counterfeiting most of the time, which makes surveilling and controlling this type of trade difficult tasks (Liang, 2006). Consequently, even hospitals, pharmacies and drugstores are exposed to falsified medicines. Because of

this, it is crucial that those establishments are able to work with efficient systems that can track the supplied batches and manage their quality to ensure that a genuine medicine reaches the consumer.

In some developing countries, street markets are often used to sell medicines. The uncontrolled nature of such sales enables counterfeiters to engage in illicit trade with low risk of detection. In Ghana, for example, drug inspectors found tablets purporting to be antimalarial medicines in a rural dispensary (WHO, 2017). The tablets contained less than 2% of the expected active ingredients. The dispensary had purchased the medicines from a licensed wholesaler, who had, in turn purchased the falsified medicines at a discounted price from a travelling salesman, who was selling the product cheaply from the back of a truck. The wholesaler apparently did not question the legitimacy of the product, which was accepted without any paperwork.

In Brazil erectile dysfunction medications are the main target for falsification, followed by anabolic steroids, prostaglandin inhibitors, cancer and AIDS treatment medicines. Around 69% of the 610 drugs apprehended as counterfeit are selective PDE-5 inhibitors (Viagra® and Cialis®), 26% were anabolic steroids (Durateston®, Hemogenin®, Deca-Durabolin®) and 3.5% were prostaglandin inhibitors (Cytotec®) However, it is assumed that sea, land and airports are the main routes for those medicines to enter the country in the illegal supply chain (Ames, Souza, 2012). Moreover, herbal medicines are also a common target of the counterfeit market in Brazil due to their popularity among the population, which holds cultural beliefs that the more natural a medicine is, the less harm it does. (Hurtado, Lasmar, 2014).

2.4.3. Free Trade Zones

Originally established hundreds of years ago as means to facilitate goods in transit by relieving traders of many customs formalities that would otherwise apply to goods

entering into a country for consumption, free trade zones (FTZs) have evolved and developed into an important tool for attracting foreign investment and promoting economic development and growth, particularly in developing countries (OECD/EUIPO, 2018). The number of zones has expanded rapidly through the years, rising from 79 zones located in 25 economies in 1975 to over 3 500 zones in 130 countries in recent years. For businesses, zones provide numerous benefits; these can include savings in taxes and customs duties; labour and immigration rules that are more flexible than those applicable in the customs territory of host countries; lighter regulation and oversight of corporate activities; fewer restrictions on corporate activities; and opportunities to improve the distribution of goods to diverse markets (Bessias, et al. 2018).

Lightly regulated zones are, however, also attractive to parties engaged in illegal and criminal activities. These zones have facilitated trade in counterfeit products, smuggling and money laundering, often providing bad actors a relatively safe environment for carrying out their illicit activities (Gray, et al. 2017). The problem is aggravated in instances where governments do not police zones adequately; this can occur when zones are deemed to be foreign entities that are outside the scope of domestic policing activities and can be further aggravated when zones are operated by private parties (World Health Organization, 2017). These parties' main interests are likely to be in finding ways to expand zone occupancy and provide profitable services to zone businesses. Even where government authorities are actively involved in overseeing zone activities, there is evidence that co-ordination between these authorities and zone operators, particularly those that are private parties, can be weak, providing further scope for bad actors to exploit zones for their illicit activities (Gray, et al. 2017).

A second case occurred in 2006, in which Pfizer International discovered counterfeit products in the Euro Gulf Trading Co., located in the Jebel Ali Free Trade Zone (ICC, 2013). A complaint was filed, prompting an inspection by the General Inspection Department and the Investigations and Smuggling Control Section of the Dubai Seaports and Customs Authority. At the warehouse, inspectors found quantities of counterfeit goods, including pharmaceuticals, along with equipment used to print false production and expiration dates.

An example of how zones have been used to facilitate trade in counterfeit pharmaceuticals is found in a 2006 case involving a number of countries (ICC, 2013). In May 2006, UK customs agents seized eight pharmaceutical products, seven of which were counterfeit. The products included infringements involving products made by Merck, Novartis, AstraZeneca, Pfizer and Procter & Gamble (Bogdanich, 2007). The shipment was in transit from the Oyster Corporation, established in the Sharjah FTZ, Dubai, to Personal Touch Pharmacy, established in the FTZ of Freeport, Bahamas (ICC, 2013). A search warrant by the Royal Bahamas Police Drug Unit resulted in the seizure of several counterfeit drugs and uncovered a fulfilment centre for Internet drug orders placed with an illegal on-line pharmacy based in Canada.

2.5. Impact of Informal Pharmaceuticals on Public Health Outcomes

The use of informal and in most cases, counterfeit medicines cause several risks and harmful effects to the health of a patient, creating a snowball effect, which ends up causing a greater risk to the health of an entire population (Madhav et al., 2018). The different scenarios involving these risks depend on the composition of each medicine. The first scenario is related to the fact that patients suffer from chronic diseases or are at risk of dying since the medicine used does not contain the correct API or has sub therapeutic concentrations of the API (World Health Organization, 2017).

In the case of counterfeit antimicrobial agents, for example, the lack of correct API levels can promote microbial resistance. Subsequently, the use of a higher potency antimicrobial is required, since the first one was adulterated and had no efficacy (Liang, 2006). Microbial resistance is a serious problem both individually and collectively because colonies of resistant pathogens are established and dissemination is facilitated. Patients who develop resistance to infections due to counterfeit drugs present complications in their own treatment and accumulate these dangerous pathogens (World Health Organization, 2020). When such patients travel to other regions or countries, they can easily expose the local population to the mutant infection, without even being aware of the outcomes (World Health Organization, 2017). Additionally, the incorrect use of a more potent antimicrobial not only exposes the patient to worse adverse effects but can also compromise the medication's efficacy. Oftentimes, a more potent antimicrobial is the last option available for treating a possible microbial resistance, which can generate loss of effectiveness in therapies if used improperly (Nayyar, Breman, Herrington, 2015). Besides, counterfeit antimicrobials also reduce the patient's adherence to their use and leads to treatment failure, increasing a populations' morbidity and mortality (Kelesidis et al., 2007).

A second scenario would be the counterfeit medicine containing a dangerous contaminant, such as bacteria-lactating water, anti-freezing agent or even extremely high levels of API. Such scenario can lead to an increase in toxicity, even if the medicine has a low therapeutic index. In this case, the patient's conditions may worsen and lead to death (Kelesidis & Falagas, 2015). Another possible scenario could occur when counterfeit medicines are composed of different API's, unintentionally exposing patients to drug interactions. This circumstance may lead to toxicity, increase the

probability of other infections, as well as lead to therapeutic failure (Blackstone, Fuhr, Pociask, 2014).

In general, all of the situations described above lead to indiscriminate growth in population morbidity and mortality, which has the greatest impact on a countries' public health. Another extremely relevant impact on public health is a patients' loss of confidence in pharmacological treatments, health systems, including public institutions, and even in health care professionals (Armocida et al., 2020). In this context, the tiniest of doubts or suspicions regarding the efficacy or necessity of a treatment and or quality of a medication lead the population to avoid specific health facilities, reject vaccination and neglect prescribed treatments (Lemos et al., 2020). The aftermath includes patients withholding full treatment or obtaining alternative treatments at unregulated and even illegal establishments, contributing to the spread of this unauthorized service (Newton et al., 2006; World Health Organization, 2017). Regarding patients with infectious diseases, the lack of correct treatment, due to distrust in their effectiveness, leaves patients in infectious states, making them potential vectors of diseases, which presents enormous risks to global public health (Kelesidis, Falagas, 2015).

Furthermore, the increased consumption of counterfeit medicines impacts national and international statistics of drugs' adverse effects, which are essential for controlling safety and effectiveness in post-marketing surveillance (Lemos et al., 2020). PDE-5 inhibitors are an excellent example of this since counterfeit ones, are difficult to identify and monitor for defects and adverse drug reactions that make drug recall necessary because they are produced outside the specifications of any regulatory authority, (Jackson et al., 2010). Another example of such impact is antimalarial agents, which are visually identical to the original ones but are adulterated with starch.

At first, they may not trigger toxicity, but they will not have the desired effectiveness either. Consequently, health systems with gaps in regulatory capacity, including post marketing surveillance and pharmacovigilance, may experience delays or failures in collecting data about the lack of efficacy, unexpected or abnormal efficacies and/or toxicity of counterfeit medicines (World Health Organization, 2017).

A study conducted from 2018 to 2022, investigating the presence of counterfeit prescription drugs in Northern Mexico, particularly in pharmacies catering to English-speaking tourists, revealed that 70 % of pharmacies provided controlled substances without a prescription, and 27.5 % dispensed counterfeit medications (Friedman et al., 2023). The high rate of pharmacies dispensing controlled substances without a prescription suggests a lack of regulatory oversight, which can correlate with a higher risk of counterfeit medications being distributed. Samples labelled as "Adderall" often contained methamphetamine, while those labelled as "Oxycodone" frequently contained fentanyl or heroin (Mackey & Liang, 2011). This highlights the public health risk posed by the availability of counterfeit medications in tourist-oriented pharmacies and emphasises the need for increased surveillance and awareness amongst international travellers due to Mexico's limited infrastructure for drug monitoring.

Informal pharmaceutical products masquerade as genuine medications, potentially deceiving both healthcare professionals and consumers. The consequences of this phenomenon can be significant, ranging from treatment failures and exacerbation of illnesses to development of drug resistance and even loss of life (Mills, 2017. The consequences of these products extend beyond individual harm. They undermine public trust in healthcare systems, exacerbate drug resistance, compromise disease control efforts, and erode confidence in pharmaceutical supply chains (Perehudoff, 2019)

The relationship between informal pharmaceutical markets and public health outcomes has been well documented. Research indicates that reliance on informal sources can lead to adverse health effects, including increased rates of morbidity and mortality from preventable conditions (Gonzalez et al., 2021). In Zimbabwe, the impact of informal pharmaceuticals on disease management and health disparities remains a critical area of concern, particularly as the country grapples with ongoing health challenges. Understanding this impact is vital for developing effective public health strategies.

2.6. International Policy interventions to Combat Informal and Counterfeit Pharmaceuticals

A variety of interventions have been recommended to combat the problem of informal pharmaceutical sales and drug counterfeiting. These include legal actions and regulations on illicit traders, countermeasures using technologies, consumer education and cooperation with enforcement agencies (Gudala et al, 2018). The need to identify effective anticounterfeiting strategies has recently been raised as a main policy concern by policymakers from several low-income and middle-income countries including the Eastern Mediterranean Region (Bigdeli, 2021). As a response, the Center for Systematic Review on Health Policy and Systems Research (SPARK) held a stakeholder meeting in Lebanon on January 2014 with 14 policymakers and stakeholders, including representatives from the Ministry of Public Health, Order of Pharmacy, order of physicians and practicing pharmacists (Hadi, 2020).

Regarding the huge emergence and seriousness of this global problem, the law enforcement in developed countries seeks to adopt measures that outlaw the practice of counterfeiting medicines, while at the same time try to control and minimize its

extent. The Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement, signed in 1994 by the World Trade Organization (WTO) are currently formed by 164 member countries, including Brazil, European countries and the USA (Borba et al., 2020). It legally refers to the counterfeiting of medicines as an intellectual property (IP) violation held by the owners of copyrights, patents and trademarks, being characterized as counterfeit of trademark products (Biguetti, Marrelli & Brotto, 2020)

This international law says that any product, which is a copy or plagiarism of a validated and registered trademark, including packaging and unauthorized manufacturer, infringes on the owner's rights of the trademark and is under the jurisdiction of the importing country's law (Dégardin, Roggo, Margot, 2013; World Trade Organization, 1994). In this case, the agreement presumes that all member countries shall apply penalties to offenders that include imprisonment and or monetary fines consistent to the level and severity of the offense. In cases where falsified medicines are available, the countries must also confiscate and destroy any material that has been used for their implementation (World Trade Organization, 1994).

In the USA, the Prescription Drug Marketing Act (PDM) of 1987, which is still enforced today, was signed by the President on April 22nd 1988. It aims to ensure that all drugs purchased by American consumers are effective and safe, as well as to protect consumers from adulterated, low quality or expired medicines. Such legislation was necessary to increase security in the drug distribution system, preventing the insertion and sale of low-quality or falsified drugs (United States Food and Drug Administration, 2018). In 2013, the Drug Supply Chain Security Act was established by Congress, defining a new electronic system that identifies and traces some prescription drugs as they are distributed around the whole country. This system is able to better protect consumers from potentially dangerous, counterfeited or poor-

quality medicines, as it improves recognition and elimination of those drugs from the supply chain (United States Food and Drug Administration, 2019).

Two main legislations against counterfeit medicines are enforced today in the EU. The first is the Directive 2011/62/EU created by the European Parliament and the Council and applied to all EU countries also recognized as the Counterfeiting Directive (Lemos et al., 2020). This Directive generated a code for medicines used for human purposes that prevents counterfeiting activities from occurring in the legitimate supply chain. The legislation establishes a control of medicine marketing in the EU jurisdiction from the manufacturer to the final consumer, including internet sales (Armocida et al., 2020). Additionally, the Directive determines the penalties that are applied to counterfeiting agents and all those involved in the illegal distribution (The European Parliament and The Council of The European Union, 2011).

The second legislation was also created by the European Council, and is known as the Medicrime convention, signed in 2011, which condemns the counterfeiting of any medical product (Armocida et al., 2020). It was the first restrictive judicial instrument in the criminal law system. The convention obliges all signatories to recognize as crimes: the production and distribution of counterfeit drugs, any involvement in the supply chain, as well as the falsification of documents, their unauthorized supply and any sale inconsistent with the requirements. In addition, it foresees the Internet as a aggravating factor for the sale counterfeit medicines (Council of Europe, 2015).

In the Brazilian national territory, the edition of Law No 9.677 (of July 2nd, 1998) in the Brazilian Criminal Code (BCC), popularly known as the Remedies Law, was the first concrete and specific initiative against medicine counterfeiting, characterizing it as a heinous, second degree crime (Madhav et al., 2018). In the same year, this law was reedited in Law No. 9.695 (of August 20th, 1998), which includes the

counterfeiting of drugs in Article 1, VII-B of Law No 8.072 / 1990 (of heinous crimes) and other measures that were not previously provided by Law No. 9.677. Therefore, the crime of falsifying, corrupting or adulterating a product envisioned for therapeutics or medicinal purposes is punishable by imprisonment from 10 to 15 years, and a fine provided by Law No 9.695 (Guastalegname & Vallone, 2020)

Subsequently, with the emergence of the Brazilian National Health Surveillance Agency (ANVISA) in 1999 (Piovesan, Labra, 2007) it was possible not only to punish the counterfeiting of medicines, but also to optimize the prevention and fight against the crime. This upgrade was consolidated by the establishment of regulations created to control the production and distribution chains of medicines in the country (Hurtado, Lasmar, 2014). An example of ANVISA's actions is provided by Law No. 11.903 (of January 14th, 2009) called the Traceability Law, which specifies production and consumption medicines tracking through detection and storage technologies and data electronic transmission, as well as the coordination of information through a database called the National Medicines Control System (Presidência da República, 2009).

Various studies have examined potential policy interventions aimed at regulating informal pharmaceutical markets. Effective strategies may include enhancing community education, improving access to formal healthcare, and establishing regulatory frameworks to oversee informal vendors (Mok et al., 2020). However, there is a lack of empirical research tailored to the Zimbabwean context that evaluates the effectiveness of these interventions. The literature highlights the need for targeted recommendations that consider the unique socio-economic and cultural factors influencing the informal pharmaceutical landscape in Zimbabwe.

2.7. Strategies to Combat Informal and Counterfeited Pharmaceuticals

The preeminent solution to this crisis is associated with a large regulatory process and strong implementation, together with coordinated actions at all levels and by all members of the legitimate supply chain: from the government's political action to the consumer. Counterfeiting medicine is a solemn matter that requires radical measures to be taken (Yadav, Rawal, 2015). At the political level, some organizations and actions already exist, however many others could be generated to join movements between national and international organizations, governments and specific legislation. At the supply chain level, few technologies have been implemented to monitor, detect or protect genuine products. Other sustainable initiatives could be executed by authorities, as well as consumers.

Recently, other international groups have been complementing the institutional capacity that WHO could not fully provide. The main organization involved is the United Nations Office on Drugs and Crime (UNODC), an organ specialized in creating policies and directing actions to fight all forms of transnational organized crime. Its scope includes preventing and fighting all types of crimes, from illicit drug trafficking to terrorism, and seeks criminal justice worldwide (United Nations Office on Drugs and Crime 2013). All of these elements have direct links to counterfeit medicine markets, which the emerging UNODC involvement has already brought the necessary attention to. However, UNODC might be able to contribute even more to the cause, since it already administers some international treaties against other types of crimes, such as the United Nations Convention Against Transnational Organized Crime (UNTOC). This convention has wide international action, applicability and viable mechanisms that could be extended in the future to include crimes of medicine falsification (Mackey, 2013). Working together with UNODC, the International Police (Interpol) has been a key player in the international fight against counterfeit medicines

because it can mobilize local and specific borders, police, as well as recruit public and private sectors' scientific and financial resources (ex: scientific experts, financial institutions, laboratory facilities, etc.). All those resources are crucial for developing intervention plans that provide support for land-based operations aimed at directly intervening in the legitimate and illegitimate supply chains of counterfeit medicines (Interpol, 2011). In fact, Interpol has been primarily responsible for the world's major counterfeit drug seizures, which started in 2013 with the creation of the Interpol Pharmaceutical Crime Program (IPCP). The program is a comprehensive pharmaceutical initiative against crime that partners with 29 of the world's largest pharmaceutical companies (Interpol, 2013).

The International Medical Products AntiCounterfeiting Taskforce (IMPACT) was created in 2006 by WHO, and includes partnerships with all the main organizations involved in preventing the counterfeiting of medicines and medical products. It brings together international organizations, associations, regulatory authorities and groups of healthcare professionals and patients (World Health Organization, 2010). IMPACT's main objectives are to prevent the production and market of counterfeit medicines, as well as enable all partners to communicate and collaborate with one another, so they can manage monitoring actions to eliminate the adulteration crime.

Five IMPACT's departments were created for prevention purposes. One prepares strategic documents that help member countries to apply or update their laws and a second is currently responsible for influencing countries' regulations by advising national authorities on which improvements should be made to deal with counterfeit medicines more efficiently (Burns, 2016). A third front is dedicated to training individuals in charge of confiscations and to implement collaboration amongst the different countries' authorities and the fourth is in charge of disseminating helpful

information to select technologies that can be used to screen and detect medicines (Virella, 2018). Finally, the last front is responsible for communication, creating models that provide support and alert the public (Delepierre, Gayot & Carpentier, 2012). Composed of 69 non-profit organizations, The Partnership for SafeMedicines (PSM) is a public health association dedicated to propagating the importance of prescription drug safety, as well as to protect consumers from counterfeit or substandard medicines and other unsafe products (Virella, 2018). The group helps consumers, industries and governments recognize and implement significant resolutions that can combat the global counterfeiting crisis. PSM regularly publishes news archives, posts about current topics written by experts, presents drug safety bibliographies, holds press releases and provides an encyclopedia of key counterfeit medicine incidents worldwide (The Partnership for SafeMedicines, 2020).

The WHO's current surveillance system was developed due to breaches in the intrinsic processes of the medicines legal supply chain, which has created global production frameworks and increased interconnectedness of different drug markets (Pisani, 2017). No single country or region has been able to easily collect all the information needed to quickly respond to threats generated by the entry of poor quality and counterfeit medicines. Based on that, an initiative called the Global Surveillance and Monitoring System (GSMS), developed by WHO in the Western Pacific Region, was instituted (Ames & Souza, 2021). It is funded by the FDA with the support of the Bill and Melinda Gates Foundation and promotes training events supported by the European Commission, Asian Development Bank and the US Pharmacopoeia Convention. Also, it works with WHO member states to improve the quality of substandard and counterfeit medicine reports (Pisani, 2017).

The GSMS system works through reports of suspected or validated falsified or substandard medical products made by member states. The reports are uploaded into a protected WHO database for instant comparison against other existing reports and for full data analysis. WHO contacts the reporting member states within a few days for further information or details in the case of any matches in the database, as well as to provide technical support if necessary(Ames & Souza, 2021). When emergencies, such as adverse drug reaction incidents, are reported, the WHO contacts member states in 24 hours to provide any assistance needed, urgent laboratory analyses, and in more complex cases, field experts (World Health Organization, 2020). Additionally, the system aims to ensure that all data collected is analysed and used to influence policy, generate procedures for prevention and protect the public health at global, national and regional levels. The GSMS was piloted in 10 countries between 2012 and 2013, and was launched in Africa in July 2013 (Pisani, 2017). Today, the GSMS has the support of 194 countries working on voluntary committees to expand the system and its effectiveness around the world (World Health Organization, 2020).

Another emerging technology is the Rapid Alert System (RAS). This is a communication network created by WHO and partners that provides intersectional detection and notification of counterfeit medicine occurrences. The system seeks to promptly alert WHO member states and specific authorities to take action (World Health Organization Regional Office for Europe, 2014). However, RAS could be better exploited if consumers could make anonymous reports/complaints about illicit websites and counterfeit products. In this case, the results would be organized and communicated to all members in the system (from manufacturers to the public) to alert them about the risks of those websites and products (Mackey, Liang, 2011). This hypothetical function would be similar to Medwatch and the SafeMeds Email Alert

System, both of which are the FDA's official notification systems (United States Food and Drug Administration, 2020).

In 2014, WHO held a workshop about RAS implementation and training for Substandard/Spurious/ Falsely labeled/Falsified/Counterfeit (SSFFC) medicines. 48 experts from 19 countries in the WHO European Region attended the workshop, including pharmaceutical inspectors, pharmacovigilance departments, quality control laboratories and other correlated departments (The Partnership for SafeMedicines, 2020). Thereafter, RAS was expected to be improved and covered by other stakeholders for refined reporting capacity. For this to happen, it is essential to obtain more assets such as a higher number of specialized laboratories that offer a full range of emergency forensic tests with quality assured, more accurate incident reports containing scale, extent and damage caused by SSFFC medicines, along with better analysis of those reports (United States Food and Drug Administration, 2020). In addition, to optimize RAS, it is important to develop other systems that can examine existing adverse reaction and medication ineffectiveness reports, which could identify any hidden signs of SSFFC medicines at the patient level in global supply chains (World Health Organization Regional Office for Europe, 2014).

Since 2001, the FDA has suggested that pharmaceutical companies use tracking and product authentication technologies as a higher level of safety for their own genuine medicines. In this context, the Radio Frequency Identification (RFID) technology has been directed to the pharmaceutical area to meet their security needs and the technology uses a small radio frequency chip as a very discrete electronic product code, containing essential product information (Gautam, Utreja & Singal, 2009). The implementation of RFID allows stakeholders in the supply chain to track the course of each batch of medicines uniquely and more efficiently. Some states in the US already

require that all medicines be identifiable to patients through RFID chips (Coustasse, Arvidson & Rutsohn, 2020).

Moreover, some countries like Ghana and Nigeria have taken the lead in introducing technology built on mobile devices (cell phones, tablets, etc.) called Message Alert System, which basically gives consumers direct contact with producers, and vice-versa (The Partnership for SafeMedicines news, 2010). All products are given a unique code, then consumers are able to check the product's legitimacy by sending a free SMS containing the code to a specific number, which instantly sends them confirmation as to whether the product is genuine or not (Gautam, Utreja, Singal, 2009; The Partnership for SafeMedicines news, 2010).

Pharmaceutical industries are responsible for generating initiatives alongside governments to implement such technologies and guarantee that genuine and quality assured medicines actually reach the general population. A real example of this intervention is the GPHF-Minilab™, a mobile mini-laboratory used in developing countries, which was created by The Global Pharma Health Fund (GPHF) under the supervision and funding from MERCK Germany (Yadav & Rawal, 2021). This tool quickly analyses the chemical and physical quality of the medication and is able to detect counterfeit ones (The Global Pharma Health Fund, 2020). Some other initiatives to combat falsified medicines have been introduced in particular countries and some can be explored as means to mitigate the problem. For instance, the Nigerian National Agency for Food and Drug Administration and Control has successfully implemented security strategies to fight counterfeit medicines. Such strategies mainly consisted of reforming their own Agency and gathering support from the Port Inspection and Inspection Department to solve interruptions in inspection activities. Thereafter,

studies reported a more than 80% reduction in the presence of falsified medicines in Nigeria from 2001 to 2004 (Chinwendu, 2008).

Regarding the production and distribution of medicines, one action that could be taken is restricting the sales of high-speed compression machines (essential for the production of tablets) to manufacturers registered by the respective Ministry of Health in the manufacturing country, excluding any other unauthentic buyers. Another possible idea would be to establish a prequalification list for health authorities of the importing countries, where manufacturers are invited to send samples of their products for analysis in reliable and authenticated laboratories (Yadav & Rawal, 2021). Manufacturers who pass the tests and agree to provide an Export Certificate and funds for any applicable penalties would be allowed to be registered on the country's official approval list for importation (Wertheimer, Norris, 2009).

Lastly, understanding medicine counterfeiting phenomenon must be global, especially for consumers or patients, who need to be aware of all outcomes and uses in order to avoid consuming those medicines. To this end, governments, authorities and organizations worldwide, along with the media, must create countless campaigns and provide trainings to the entire global population, especially the underprivileged portion (Yadav & Rawal, 2021). The main focus should be the real threats that selling and acquiring counterfeit medicines can cause to human health and to the lives of all individuals (Fantasia, Vooys, 2018). These actions must be simple and easy to comprehend in order to give the population the necessary support, particularly about purchasing medicines on the internet (Blackstone, Fuhr & Pociask, 2014).

2.8. Research Gap

Despite the existing literature on informal pharmaceutical markets, significant gaps remain, particularly concerning the specific dynamics of these markets in Zimbabwe. While studies have identified general trends in informal pharmaceutical sourcing and distribution, there is a lack of comprehensive research that focuses on the unique sources of informal medicines within the Zimbabwean context.

2.9. Chapter Summary

The chapter examined relevant studies and theoretical perspectives related to the study. The review established a theoretical foundation and identified gaps in existing research that can inform the study's investigation. The chapter also presented the theoretical frameworks that provide the theoretical basis for the study. It emphasized the need to integrate Quality Management Theory, Demand-side Theory, and Structural Theory to comprehensively assess the informal pharmaceutical market in Harare CBD.

Furthermore, the chapter highlighted the pressing issue of unregulated access to prescription drugs in Zimbabwe and its correlation with rising cases of antimicrobial resistance. Statistics from the Zimbabwe Ministry of Health indicate a significant increase in antibiotic resistance, largely attributed to the improper use of antibiotics sourced from informal vendors. This critical public health issue necessitates a deeper understanding of the factors influencing the quality and accessibility of medicines, setting the stage for the subsequent exploration of the study's methodology. The next chapter will concentrate on the methodology of the study.

CHAPTER 3 METHODOLOGY

3.1. Introduction

This chapter outlines the research methodology employed to investigate the informal pharmaceutical market in Harare, CBD, Zimbabwe, in terms of sources, distribution, and impact on public health. The chapter covers the population and sampling techniques, data collection instruments, data collection procedures, and data analysis methods used in the study, providing a comprehensive overview of the research design and methodology.

A research design is the plan and strategy for answering a research question or solving a problem using empirical data. It serves as a blueprint, outlining how data will be collected, analysed, and interpreted to produce relevant and trustworthy results. The study will be informed by the following research design:

3.2.1. Explanatory Sequential Mixed-Methods Design

The study will adopt an explanatory sequential mixed-methods design.This is a two phase research approach that begins with a quantitative phase, followed by a qualitative phase. The explanatory sequential mixed-methods design is strategically important for a comprehensive investigation of the informal pharmaceutical market in Harare CBD. This phased approach starts with a quantitative component to establish the market's scale, trends, and key characteristics, addressing the sources and distribution networks. This quantitative data will then guide a more focused qualitative phase. The qualitative phase will involve interviews with key stakeholders. These will gather rich, contextual data to explain the initial statistical findings in greater depth. Qualitative interviews with vendors and consumers can reveal the specific reasons and social networks behind this trend. This integrated approach ensures the study moves

beyond describing the phenomenon to understanding its complexities, human impact, and developing contextually sensitive policy interventions

3.2.1 Population

The target population for this study includes all key stakeholders in the formal and informal pharmaceutical supply chain within the Harare Central Business District (CBD). This population comprises five regulatory authorities, 35 registered distributors or pharmacies (Pharmacists Council of Zimbabwe, 2021), informal medicine vendors, and consumers of informal pharmaceuticals. The 2023 Zimbabwe Informal Economy Monitoring Project (ZIEMP) preliminary report suggests a significantly large informal pharmaceutical economy with more than 30 informal medicine vendors serving not less than 30 consumers daily.

The overall estimated total population (N) for this study is set at 100. This figure is derived by summing the known formal population components (5 Regulatory Authorities + 35 Registered Distributors), totaling $N_{known} = 40$ and adding a pragmatic estimate of 60 to represent the substantial but unquantifiable population of informal medicine vendors and consumers. This pragmatic estimate of N=100 is used as the input for the Krejcie & Morgan (1970) formula, which then statistically justifies the required sample size (n) of 80 participants at a 95% confidence level.

3.2.2. Sample

The sample for the study will be determined by Krecjie & Morgan (1970) sample calculator as represented below:

Table 3.1 Sample determination calculator

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Since the population for our study is 100, using Krecjie & Morgan sample calculator at a 95% confidence level, the sample size of the study is 80 participants. Statistical texts such as Cochran (1977) and Yamane (1967) confirm that when the sampling fraction exceeds 5%, the high degree of coverage significantly reduces sampling error (via the Finite Population Correction factor). Therefore, the sample size of 80 is highly precise and is expected to yield findings that are exceptionally representative of the estimated target population.

3.2.3 Sampling Techniques

The researcher will begin with purposive sampling to select participants from each category based on specific criteria relevant to the research. This will involve identifying consumers who would have purchased informal medicines, informal vendors actively selling these products, healthcare professionals, regulatory authorities, and registered dealers. After completing the initial interviews, the researcher will employ snowball sampling to uncover additional participants, particularly among consumers and vendors, by asking them for referrals to others who have similar experiences or insights. To ensure diversity within the consumer category, I stratified sampling will also be considered, dividing participants into subgroups based on demographics such as age, gender, and socioeconomic status.

3.2.4. Inclusion and Exclusion Criteria

To ensure a relevant and focused study, clear inclusion and exclusion criteria will be used for each participant group. For example, informal pharmaceutical vendors and consumers must be willing to participate, at least 18 years old, and operate or reside in Harare CBD. Registered pharmacists must be operating within the Harare CBD area and willing to participate. Regulatory authorities should be from the pharmaceutical licensing and enforcement sections and willing to participate. On the other hand, individuals unwilling to provide informed consent, those under 18, operating outside Harare CBD or those who are not from the pharmaceutical licensing and enforcement will effectively be excluded from the study. These criteria help ensure that the study population is relevant and that ethical standards are maintained.

3.2.5. Sampling Plan

This study will use a purposive sampling approach combined with snowball sampling to reach hard-to-access populations. The sampling plan includes four main participant

groups: informal pharmaceutical vendors (targeting 25-30), consumers of these medicines (targeting 25- 30), regulatory authorities (targeting 5–10), and registered pharmacists (targeting 10–15). The sample numbers is skewed towards the informal pharmaceutical vendors and consumers groups because the input from these groups directly answer the study's main research questions. Whilst insights from regulatory authorities and registered pharmacies are crucial for developing recommendations to eradicate the informal pharmaceutical sector in Harare CBD, a limited sample shall be taken since the study assumes that the findings should be proffered to regulatory authorities and not vice versa.

3.2.6. Snowball Seed Strategy

The snowball sampling process will begin with carefully selected "seed" participants chosen for their diverse networks. For example, initial seeds may be identified through security guards, authorized vendors (vegetable and refreshments), rather than using the researcher's direct contacts. This approach aims to start the referral chains from different points within the CBZ to avoid a sample that is too narrow or homogeneous, thereby reducing potential bias.

3.2.7. Snowballing and Follow-Up Specific Strategy

Once initial seeds are interviewed, they will be asked to refer 1 to 2 other individuals who fit the study criteria. To protect privacy and minimize coercion, participants will be asked to share the researcher's contact information with potential recruits, rather than providing the recruit's information directly. The referral chains will be tracked to monitor the diversity of the sample and prevent over-sampling from a single group. Small, non-coercive incentives, like $5 airtime voucher, may be offered to thank participants for their time and referrals.

To actively combat bias, the sampling process will be monitored throughout. If referral chains appear to become too concentrated within one social or professional circle, new seed participants will be sought from different networks. Additionally, the study's reliance on multiple participant groups (vendors, consumers, professionals, regulators) provides a form of triangulation. By cross-referencing information from these different perspectives, the findings will be more robust and less likely to be skewed by the biases of any single group.

3.3 Data Collection Instruments

The following are the data collection instruments for the study:

3.3.1 Questionnaires

Questionnaires will be administered to formal pharmaceuticals and regulatory authorities. Surveys or questionnaires will be employed to gather quantitative data on the study. The structured survey questions will be crafted to collect specific information aligned with the study objectives, including purchase frequency, sources and distribution networks of the informal pharmaceutical products. A Likert Scale questionnaire will be utilised to stakeholders involved in the informal pharmaceutical landscape in Zimbabwe. The questionnaires will be distributed electronically via email and physically according to the preferences of the participants. Responses will be collected over a period of two weeks to allow for comprehensive feedback.

In this study, questionnaires based on the Likert scale allow respondents to respond in a degree of agreement instead of forcing them to take a stand on a particular topic (Cohen, 2009). Respondents can easily understand and answer the questions based on the Likert scales and responses are easy to code when accumulating data. Furthermore, it is convenient for constructing and modifying responses, generating appropriate

results for statistical inference with good reliability, and facilitating different data analysis methods for a large quantity of data with little time and effort (Li, 2013).

Despite the Likert scale being considered a convenient scale, researchers have pointed out inherent limitations associated with it and have claimed that the Likert scale is not sufficiently reliable (Chrzan and Skrapits, 1996, Cohen and Markowitz, 2002, Cohen and Neira, 2003, Louviere et al., 1995). One of the issues is that the Likert scale is a non-comparative scaling technique that measures a single trait at a time as a unidimensional tool so that it does not reflect the complexity of human opinions (Bertram, 2007, Joshi et al., 2015). Accordingly, it has been argued that the Likert scale may not be the best scale to measure the importance level among various attributes.

3.3.2 Interviews

Interviews will be conducted on informal pharmaceutical vendors and consumers of informal pharmaceutical medicines. In-depth interviews can offer valuable qualitative insights into why consumers choose the informal medicines, the perceived sources and distribution networks as well as recommendations on how the informal market can be plugged or regularised. By conducting one-on-one interviews with chosen consumers and informal pharmaceutical vendors, we can reveal nuanced perspectives and experiences that might not be captured through quantitative surveys alone. These interviews enable probing questions, follow-ups, and the exploration of the complex factors that influence consumer behaviours (Bryman, 2016).

3.4 Data Collection Procedure

A carefully designed questionnaire will be developed to explore important areas such as motivation to buy medicines from the informal market, perceived sources,

distribution channels as well as perceived public health challenges. This questionnaire will be personally distributed to a representative sample of consumers and pharmaceutical stakeholders in Harare, ensuring that instructions are clear and participants receive the necessary support. The responses collected will be securely stored to protect the confidentiality and anonymity of the participants.

In-depth interviews will be conducted using a semi-structured guide with open-ended questions to gain insights into the study. The interview shall be conducted face-to-face, however, for participants who prefer or require online interviews due to logistical constraints or personal preferences, virtual platforms like video conferencing will be utilised. This hybrid approach ensures inclusivity and convenience, facilitating in-depth discussions and data collection while adapting to the diverse needs of the participants. These interviews will occur in a private and comfortable setting to encourage participants to share their thoughts freely. Recordings and detailed notes will be taken during the interviews, with a strong focus on securing this data in a safe place to ensure participant confidentiality.

Critical data security measures will be implemented throughout the study. Anonymity and confidentiality will be ensured by assigning unique identifiers to survey responses and anonymizing interview data. Informed consent will be obtained from participants before data collection, outlining the study's purpose, data usage, and participant rights. Electronic data will be protected against unauthorized access, and access to collected data will be treated with confidentiality.

3.5 Data Analysis

The data analysis process will be designed to extract meaningful insights from both quantitative survey responses and qualitative interview data related to the informal

pharmaceutical market in Zimbabwe. For quantitative analysis, descriptive statistics will be employed to summarize key variables such as purchasing frequency, types of informal medications used, and vendor preferences.

On the qualitative side, thematic analysis will be applied to identify recurring themes and patterns in the interview data. This will involve coding responses to highlight key concepts and opinions shared by participants, including both consumers and informal vendors. Content analysis will further examine consumer motivations and decision-making processes, complementing the quantitative findings.

By integrating quantitative and qualitative data through triangulation, the study aims to achieve a comprehensive understanding of consumer purchasing patterns and behaviours in the informal pharmaceutical sector. Comparing and contrasting these findings will provide nuanced insights into the preferences and challenges faced by consumers and vendors alike.

When presenting the findings, data visualization techniques such as charts, graphs, and tables will effectively illustrate patterns, trends, and comparisons. Narrative reports will interpret the results of the data analysis, offering explanations, insights, and practical recommendations for policymakers and stakeholders in the informal pharmaceutical market. Both visual and written materials will be prepared to convey key findings, conclusions, and actionable insights clearly and engagingly for decision-makers.

3.6. Ethical Consideration

Ethical considerations are paramount in conducting research involving human participants and sensitive topics, such as pharmaceutical practices and public health. This study will prioritize informed consent, ensuring that all participants are fully

informed about the study's purpose, procedures, potential risks, and benefits before participating. Written consent will be obtained to confirm that participants voluntarily agree to take part in the research. Additionally, the right to withdraw from the study at any time will be clearly communicated, allowing participants to exit without any negative consequences.

Confidentiality will be strictly maintained throughout the study, with identifiable information stored securely and accessible only to the research team. Data will be anonymised in reports and publications to protect the identities of the participating pharmacies. The study will also take care to minimise any potential harm to participants, avoiding actions that could jeopardize the pharmacies' reputations or operations.

3.7. Chapter Summary

This chapter outlines the research methodology employed on managing the Harare CBZ informal pharmaceutical market in Zimbabwe. A mixed-methods approach is utilised, combining quantitative surveys and qualitative interviews to provide a comprehensive understanding of consumer behaviour and perceptions. Purposive sampling will be used in the study. Data will be collected through structured questionnaires and semi-structured interview guides, followed by statistical analysis for quantitative data and thematic analysis for qualitative insights. Ethical considerations, including informed consent and confidentiality, are prioritized throughout the study. This methodology aims to enhance understanding of the complexities in the informal pharmaceuticals market and inform public health policy and consumer safety initiatives.

CHAPTER 4 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The previous chapter dealt with the research methodology. The present chapter deals with data presentation, analysis and discussion. The study aimed to address the following objectives: to identify the sources of pharmaceutical medicines in Harare CBD, to map the distribution channels of informal pharmaceutical medicines within Harare CBD, to assess the perceived impact of the informal pharmaceutical market on public health outcomes within Harare CBD and to develop recommendations aimed at eradicating the informal pharmaceutical market in Harare CBD. The chapter presented the research findings, mainly using graphs and tables. Percentages, descriptive statistics and frequencies were used as the main analysis criteria for questionnaire findings. On the other hand, the thematic analysis was applied for interview responses.

4.2. Data Presentation and Analysis

Questionnaires and interviews were used as the main data collection tools.

4.2.1. Questionnaire Response Rate

The research made use of closed-end questionnaires as one of the main data gathering tools. 5 survey forms were distributed to regulatory authority officials and 5 fully completed forms were recovered. 15 survey forms were distributed to registered distributors of pharmaceuticals and 15 fully completed survey forms were recovered. 30 survey forms were distributed to informal medicine vendors and 30 fully completed survey forms were collected. 30 questionnaires were distributed to consumers of informal pharmaceuticals and 29 fully completed survey forms were collected. This

means a total of eighty (80) questionnaires were distributed and the researcher managed to collect seventy-nine (79) fully completed forms. This gave a response rate of 98.75%. The valid questionnaires were used for the purpose of this research.

4.2.2 Questionnaire Results

4.2.2.1 Regulatory Authority Officers

The first section of the survey form gathered demographic data on the following: gender, age range and education. This section presents the research findings on these demographics for regulatory authority officials.

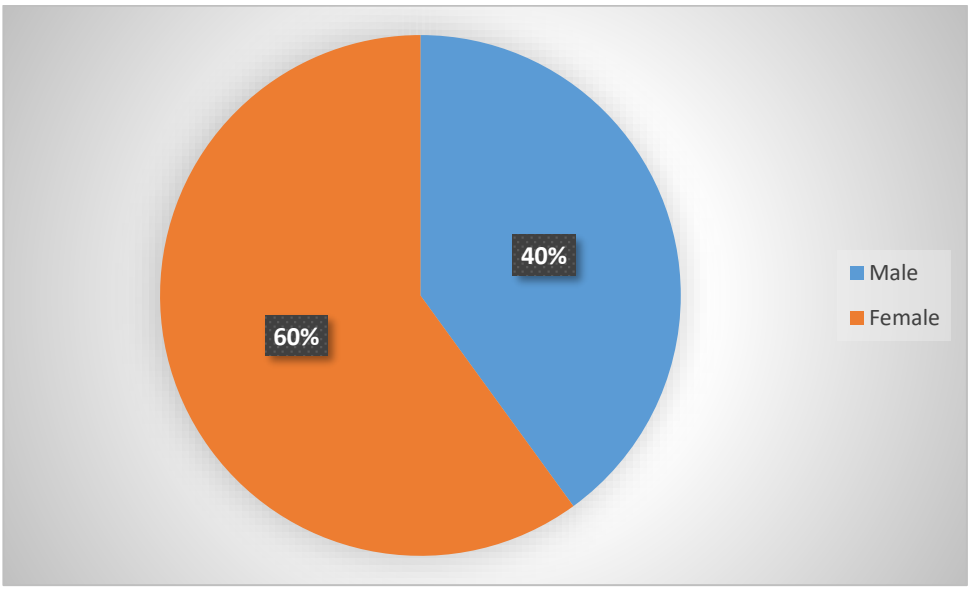

Figure 4.1 Gender for Regulatory Authority Officials

Fig 4.1 above shows that 60% of the regulatory officials were females and 40% were males. This suggests a slightly higher representation of females among regulatory authority officials.

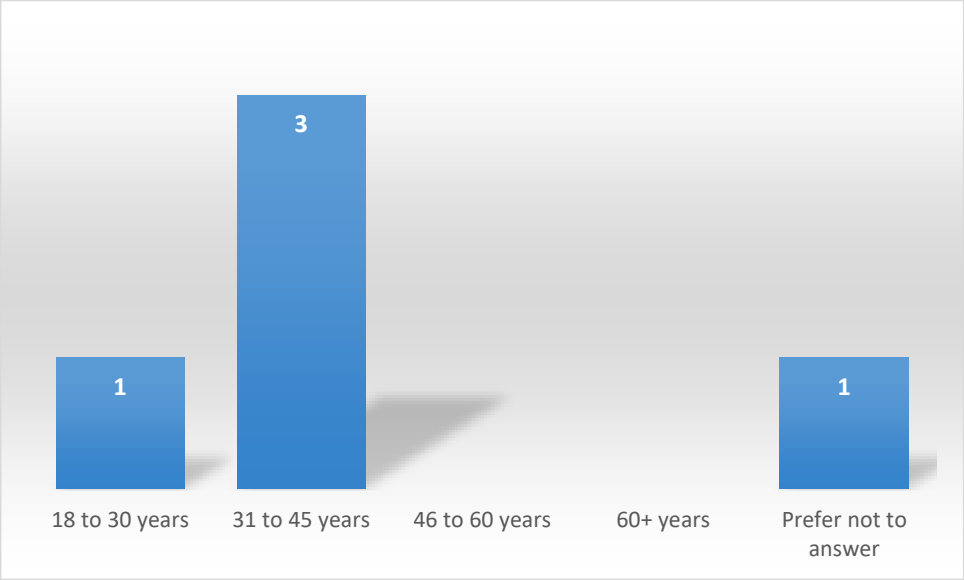

Figure 4.2. Age range

Fig 4.2 above shows that 1 respondent was in the age range of 18 to 30 years, 3 respondents fell within 31 to 45 years age range and 1 respondent preferred not to answer. The findings suggest that most respondents are likely experienced professionals (31 to 45 years). However, the sampler size is small, limiting broad conclusions.

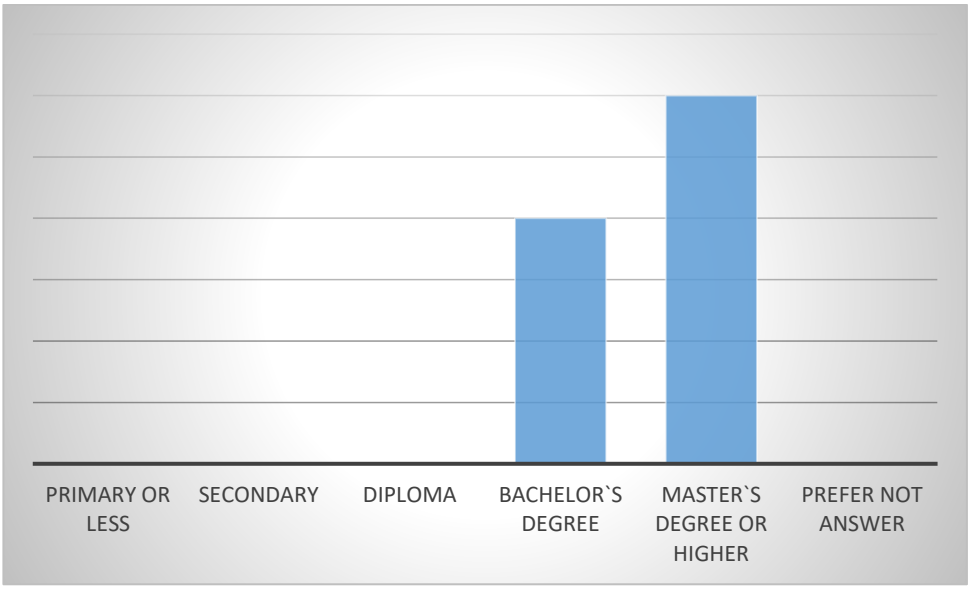

Figure 4.2 Education

Fig 4.2 above presented the research findings on the regulatory authority officials` level of education. The graph shows that 2 respondents hold Bachelor`s degrees and 3

hold Master`s degrees or higher. These findings suggest that regulatory authority officials have a strong educational background since most of them (3 out of 5) have advanced degrees (Master`s or higher).

This section presented research findings from regulatory authority officials. The research findings are presented in tables 4.1 and 4.2.

Table 4.1 Descriptive Statistics for Regulatory Authority Officers (N = 5)

	N	Minimum	Maximum	Mean	Std. Deviation
The informal pharmaceutical market is growing In Harare CBD	5	4.00	5.00	4.6000	.54772
Existing regulations are sufficient, but enforcement is the main challenge	5	3.00	4.00	3.8000	.44721
Informal pharmaceutical vendors primarily operate In specific, well-known locations	5	4.00	5.00	4.4000	.54772
The informal pharmaceutical market significantly contributes to public health risks like antimicrobial resistance	5	5.00	5.00	5.0000	.00000
Using informal medicines often lead to incorrect or delayed diagnosis	5	3.00	4.00	3.6000	.54772
Increased enforcement efforts would effectively eradicate informal market	5	4.00	5.00	4.4000	.54772
Providing more affordable formal healthcare is the most effective intervention	5	4.00	5.00	4.8000	.44721

Valid N (listwise)	5				

Table 4.2 Frequency Table for Regulatory Authority Officers (N = 5)

Statement	**SD**	**D**	**N**	**A**	**SA**
The informal pharmaceutical market is growing In Harare CBD				40%	60%
Existing regulations are sufficient, but enforcement is the main challenge	20%			80%	
Informal pharmaceutical vendors primarily operate In specific, well-known locations				60%	40%
The informal pharmaceutical market significantly contributes to public health risks like antimicrobial resistance					100%
Using informal medicines often lead to incorrect or delayed diagnosis			40%	60%	
Increased enforcement efforts would effectively eradicate informal market				60%	40%
Providing more affordable formal healthcare is the most effective intervention				20%	80%

Table 4.1 and 4.2 above shows descriptive statistics and frequencies (respectively) on the research findings for questionnaire findings from regulatory officers. Data on whether the informal pharmaceutical market is growing in Harare CBD was gathered. The findings show that 40% agreed and 60% strongly agreed. The findings suggest

that a significant majority (100% combined agreement) of the respondents believe that the informal pharmaceutical market is growing in the CBD. The obtained mean of 4.6 and the associated standard deviation of 0.54772 shown on table 4.2 indicates a strong consensus among respondents about the growth of the informal pharmaceutical market.

In response to whether existing regulations are sufficient, but enforcement is the main challenge, 20% strongly disagreed and 80% agreed. The data shows that the overwhelming majority (80%) of respondents believe that existing regulations are sufficient, but the main challenge lies in their enforcement. This suggests that the regulatory framework is perceived as adequate, but its implementation and enforcement are lacking. Table 4.1 also shows that a mean of 3.8 was obtained, indicating that the regulatory framework is perceived as adequate.

Respondents were also asked if informal pharmaceutical vendors primarily operate in specific, well-known locations. In respond, 60% of respondents agreed and 40% strongly agreed. The findings suggest that all respondents (100% combined agreement) believe that informal vendors tend to congregate in specific, well-known locations. This indicates a high level of awareness about the operational patterns of informal vendors. This is also supported by the obtained strong mean of 4.4 as shown on table 4.1.

Data on whether the informal pharmaceutical market significantly contributes to public health risks like antimicrobial resistance was also gathered. The research findings indicate that 100% of respondents strongly agreed. The unanimous agreement among respondents highlights a strong consensus about the significant public health risks associated with the informal pharmaceutical market. This unanimous agreement is also shown by the obtained mean of 5. Which is very strong. The results suggest that

respondents believe the informal market poses a substantial threat to public health, particularly regarding antimicrobial resistance.

The researcher also gathered data on whether using informal medicines often leads to incorrect or delayed diagnosis. In response, 40% expressed neutrality and 60% agreed. The majority (60%) who agreed that using informal medicines can lead to incorrect or delayed diagnosis highlight concerns about the potential health risks. Neutral responses may indicate uncertainty or lack of awareness about the specific risks. The mixed responses, particularly those neutral, might have led to a mean of 3.6 as shown in table 4.1.

Data on whether increased enforcement efforts would effectively eradicate informal market was gathered. The responses obtained show that 60% agreed and 40% strongly agreed. The combined agreement (100%) suggests that all respondents believe increased enforcement efforts would be effective in eradicating the pharmaceutical informal market. This indicates a strong consensus on the potential impact of enforcement efforts. This is also supported by the obtained mean of 4.4.

In response to whether providing more affordable formal healthcare is the most effective intervention, 20% of the respondents agreed and 80% strongly agreed. The overwhelming majority (100% combined agreement) emphasizes the importance of affordable healthcare as a crucial intervention. The strong agreement (80%) underscores the urgency and significance of addressing healthcare affordability. A very strong mean of 4.8 was obtained as shown on table 4.1.

4.2.2.2 Registered Distributors of Pharmaceuticals

The first section of the questionnaire gathered demographic data on the following: gender, age range and education. Presented below are demographic characteristics of registered distributors of pharmaceuticals.

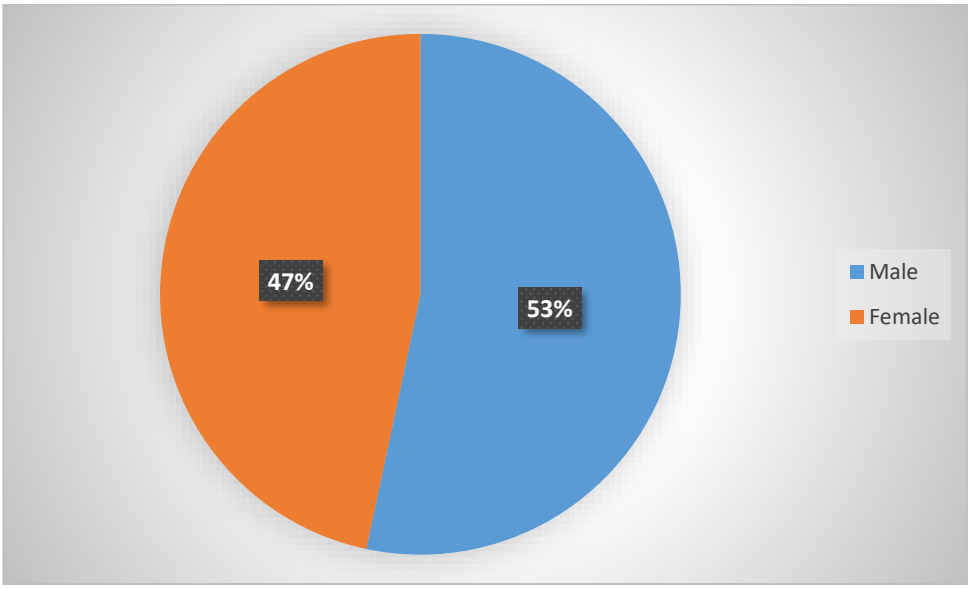

Figure 4.3 Registered Distributors Gender

The results shown on fig 4.3 above show that 53% of registered distributors are male and 47% are females. These findings suggest a relatively balanced gender distribution, with a slight majority of males. The results highlight a positive aspect of workforce diversity in the industry.

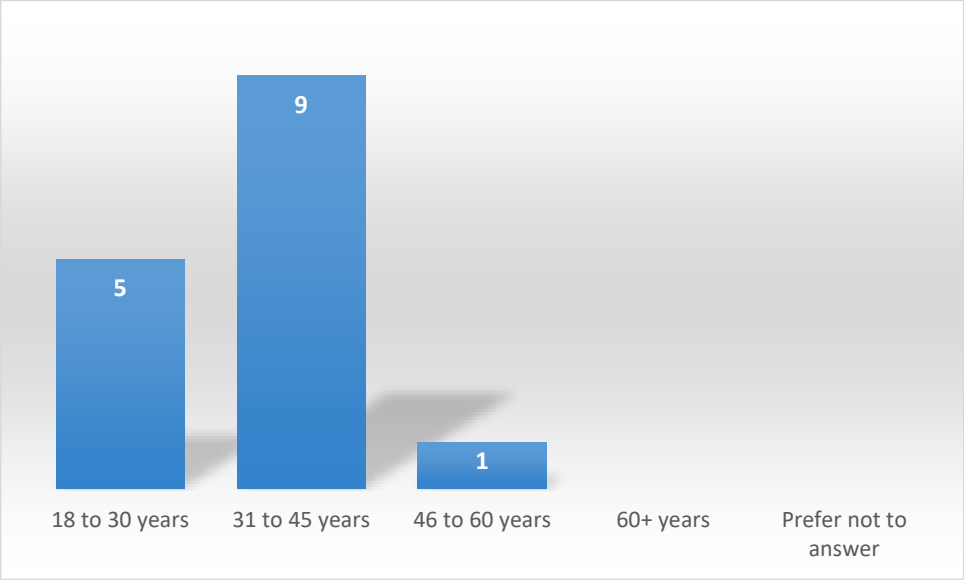

Figure 4.4 Registered Distributors Age Range

Fig 4.4 above shows that 5 respondents are in the 18 to 30 years age range, 9 are in the 31 to 45 years age range and 1 is in the 46 to 60 years age range. The findings suggest that most respondents (60%) are in the 31 to 45 years age range, indicating experience and maturity. The results also show that younger individuals (18 to 30 years) are also represented, bringing fresh perspectives.

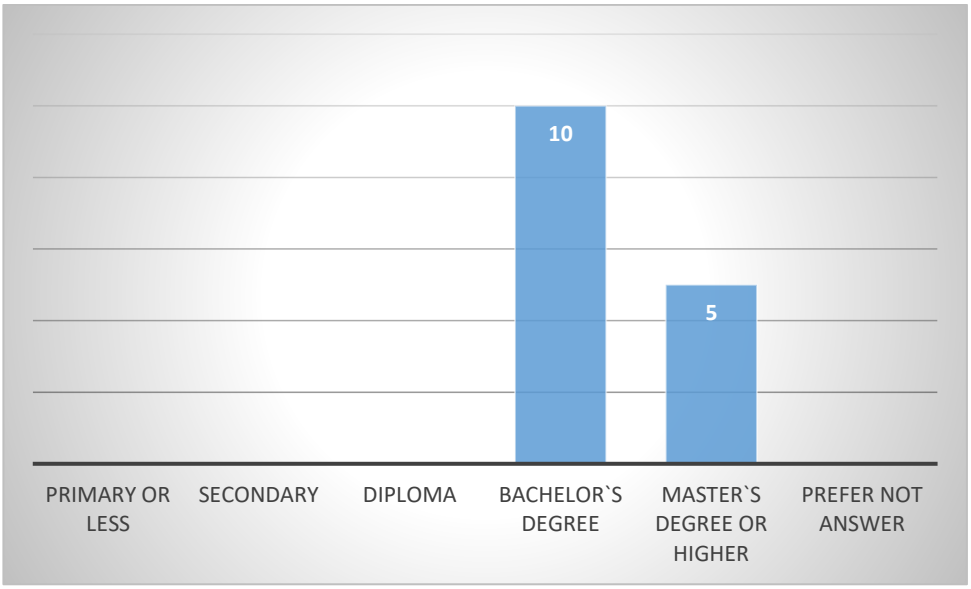

Figure 4.5 Registered Distributors Education

Fig 4.5 above presented the research findings on the education levels of registered distributors of pharmaceuticals. The results show that 10 respondents hold Bachelor`s

degrees and 5 hold Master`s degrees or higher. The findings suggest that all respondents have a strong educational foundation, with a significant proportion (33%) holding advanced degrees. Distributors` educational background contribute to their understanding of pharmaceuticals and regulatory requirements.

To address the main objective of the study, managing the Harare CBD informal pharmaceutical market, the researcher gathered responses from registered distributors of pharmaceuticals.

Table 4.3 Descriptive Statistics for Registered Distributors (N = 15)

	N	Minimum	Maximum	Mean	Std. Deviation
The informal market negatively impacts business	15	4.00	5.00	4.4667	.51640
Improving formal medicine supply chain would significantly reduce informal medicine reliance	15	2.00	5.00	4.2000	.94112
Some informal vendors acquire medicines from legitimate distributors	15	1.00	5.00	4.0667	1.09978
Increased collaboration with regulatory authorities combat the informal market	15	3.00	5.00	4.2667	.88372
Formal medicine pricing makes informal vendors an attractive alternative	15	1.00	4.00	2.4000	.82808
Valid N (listwise)	15				

Table 4.4. Frequencies for Registered Distributors (N = 15)

Statement	**SD**	**D**	**N**	**A**	**SA**

The informal market negatively impacts business				53.3%	46.7%
Improving formal medicine supply chain would significantly reduce informal medicine reliance		6.7%	13.3%	33.3%	46.7%
Some informal vendors acquire medicines from legitimate distributors	6.7%		13.3%	40%	40%
Increased collaboration with regulatory authorities combat the informal market			26.7%	20%	53.3%
Formal medicine pricing makes informal vendors an attractive alternative	13.3%	40%	40%	6.7%	

The table above shows that 53.3% of respondents agreed that the informal market negatively impacts business and 46.7% strongly agreed that the informal market for pharmaceuticals negatively impacts business. The combined agreement (100%) suggests that all respondents believe the informal pharmaceutical market has a negative impact on business. The obtained mean of 4.5 highlights a strong consensus on the adverse effects of the informal market on the pharmaceutical industry.

Data on whether improving formal medicine supply chain would significantly reduce informal medicine reliance was also gathered. In response, 6.7% disagreed, 13.3% expressed neutrality, 33.3% agreed and 46.7% strongly agreed. The results show that the majority (80% combined agreement) believe that improving the formal medicine supply chain would significantly reduce reliance on informal medicines. The obtained mean of 4.2 suggests that strengthening the formal supply chain could be a key strategy in addressing the issue of informal medicine use.

Some informal vendors acquire medicines from legitimate distributors. The data obtained show that 6.7% strongly disagreed, 13.3% were neutral, 40% agreed and 40% strongly agreed. These results show that, the majority (80% combined agreement) believe that some informal vendors acquire medicines from legitimate distributors. This is also supported by the obtained mean of 4. This suggests that the informal market may be linked to the formal supply chain.

The researcher also gathered data on whether increased collaboration with regulatory authorities combat the informal market. The data revealed that 26.7% were neutral, 20% agreed and 53.3% strongly agreed. The majority (73.3% combined agreement) believe that increased collaboration with regulatory authorities would be effective in combating the informal market. In support, table 4.3 above shows that a mean of 4.4 was obtained. This suggests that strengthening partnerships between stakeholders and regulatory bodies could be a key strategy.

In response to whether formal medicine pricing makes informal vendors an attractive alternative, 13.3% strongly disagreed, 40% who disagreed, 40% were neutral and only 6.7% agreed. Thus, the majority (53.3% combined disagreement) believe that formal medicine pricing does not make informal vendors an attractive alternative. The obtained mean of 2.4 also shows that most of the respondents disagreed. However, the neutral responses (40%) suggest uncertainty in the relationship between formal pricing and informal vendors.

4.2.2.3 Informal Medicine Vendor

The following demographic characteristics of informal medicine vendors were gathered: gender, age range and level of education.

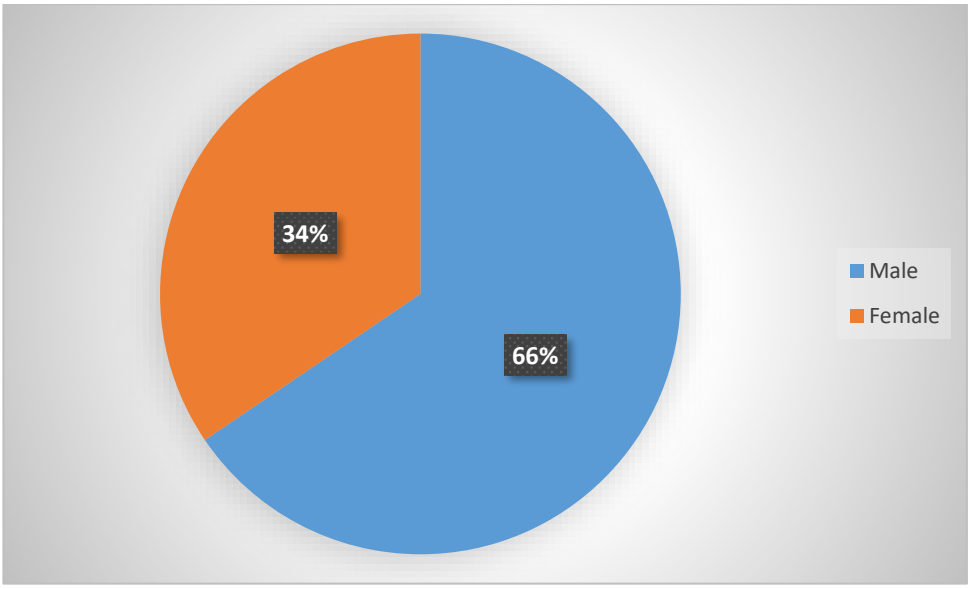

Figure 4.6 Informal Medicine Vendor Gender distribution

Fig 4.6 above shows that 66% of the respondents were males and 34% were females. These results suggest that males dominate the informal medicine vending industry. It is also shown that, females also participate, although in smaller numbers.

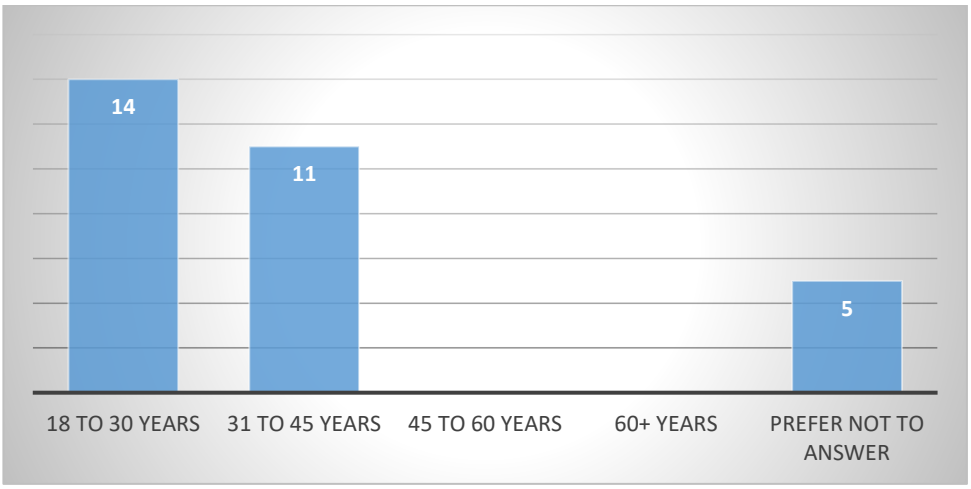

Figure 4.7 Informal Medicine Vendor Age range

The results shown on fig 4.7 show that 14 respondents are in the 18-30 years age range, 11 are in the 31-45-year age range and 5 preferred not to answer. These findings suggest that younger individuals (18-30 years) are well-represented, indicating

potential entrepreneurship. The results also show that older individuals (31-45 years) also participate, bringing experience.

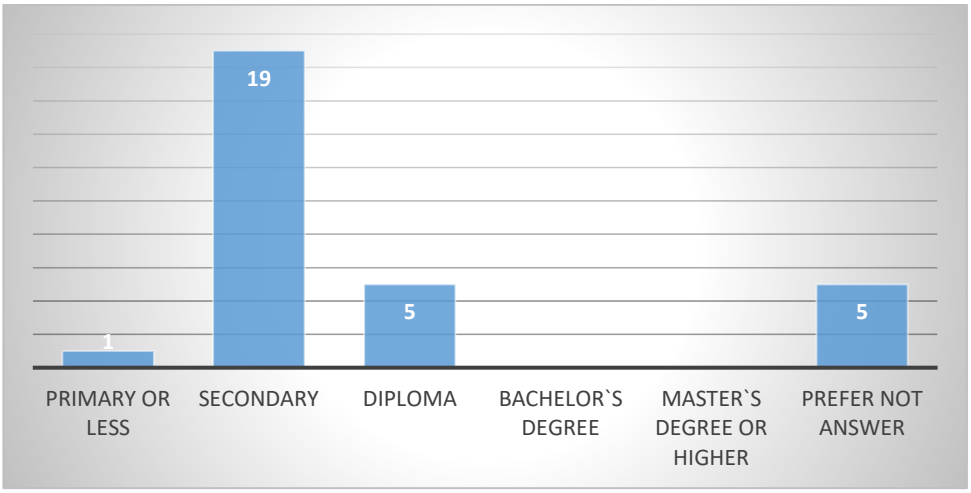

Figure 4.7. Informal Medicine Vendor Education

Fig 4.7 presented the educational attainment for informal medicine vendors. The graph shows that: 1 respondent attained primary education or less, 19 attained secondary education, 5 held diplomas and 5 preferred not to answer. The results suggest that most vendors have at least secondary education. Education level may affect vendors` understanding of products and health information.

To gather more insights on managing the Harare CBD informal pharmaceutical market, the researcher gathered data from informal medicine vendors. This section looked at the research findings from informal medicine vendors.

Table 4.5. Descriptive Statistics for Informal Medicine Vendor (N = 30)

	N	Minimum	Maximum	Mean	Std. Deviation
Informal vendors acquire medicines from individuals bringing them into Zimbabwe	30	3.00	5.00	4.4333	.56832
Unregistered suppliers are my main source of medicines	30	1.00	5.00	4.0333	1.12903
I am confident about the original source of the medicines I sell	30	2.00	5.00	4.0333	.92786
On a typical week I sell conventional medicines	30	4.00	5.00	4.4000	.49827
On a typical week I sell traditional medicines	30	2.00	5.00	4.0000	.45486
Valid N (listwise)	30				

Table 4.6. Frequencies for Informal Medicine Vendor (N = 30)

Statement	**SD**	**D**	**N**	**A**	**SA**
Informal vendors acquire medicines from individuals bringing them into Zimbabwe			6.3%	43.7%	50%
Unregistered suppliers are my main source of medicines	6.3%	6.3%	18.8%	25%	43.8%
I am confident about the original source of the medicines I sell			50%	25%	25%
On a typical week I sell conventional medicines				43.8%	56.2%%
On a typical week I sell traditional medicines		6.3%		87.4%	6.3%

The researcher gathered data on whether informal vendors acquire medicines from individuals bringing them into Zimbabwe. In response, 6.3% of the respondents were neutral, 43.7% agreed and 50% strongly agreed. This shows that the majority (93.7% combined agreement) believed that informal vendors acquire medicines from individuals bringing them into the country. Table 4.6 also shows that a mean of 4.4 was obtained, indicating unanimous support from the respondents. This suggests that informal importation is a significant source of medicines for informal vendors.

Respondents were also asked if unregistered suppliers are their main source of medicines. The data revealed that the responses were distributed as follows: 6.3% strongly disagreed, 6.3% disagreed, 18.8% were neutral, 25% agreed and 43.8% strongly agreed. Table 6 also shows that a mean of 3.9 was obtained, indicating support for the statement.

Respondents were also asked if they are confident about the original source of the medicines they sell. In response, 50% of the respondents expressed neutrality, while 25% agreed and 25% strongly agreed. The combined agreement (50%) suggests that half of the respondents have confidence in the medicines they sell. However, the large proportion of neutral responses (50%) may indicate ambiguity about the source.

Data on whether respondents sell conventional medicines in a typical week. The data revealed that 43.8% agreed and 56.2% strongly agreed. The combined agreement (100%) suggests that all respondents sell conventional medicines, with a significant majority (56.2%) strongly agreeing. This indicates a widespread increase in the sale of conventional medicines. The obtained mean of 4.6 also shows great support.

The researcher also gathered data on whether respondents sell traditional medicines on a typical week. In response, 6.3% disagreed, 87.4% agreed and 6.3% strongly agreed. These results give a combined agreement (93.7%) suggesting that a significant

majority of respondents sell traditional medicines. The obtained mean of 3.9 also indicates a widespread involvement in the sale of traditional medicines.

Data on the quantity of conventional medicines sold per week was also gathered. The findings are shown on fig below:

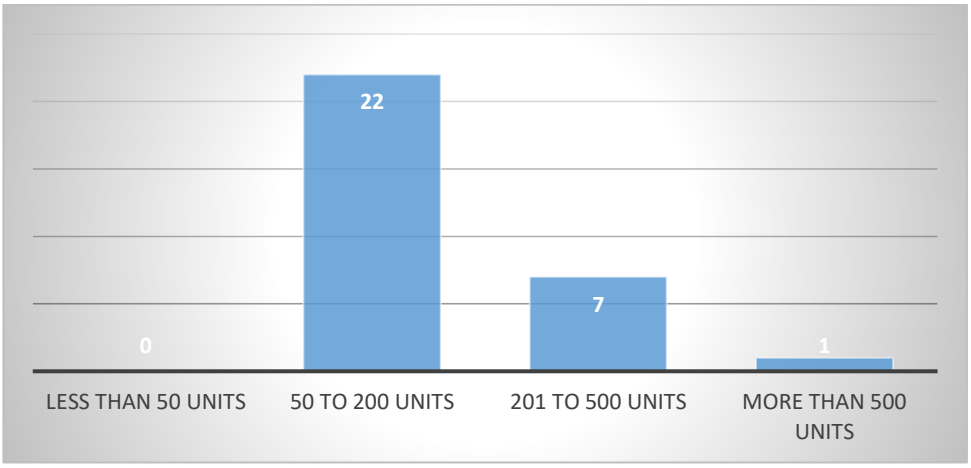

Figure 4.8 Conventional Medicines sold per week

The research results shown on the fig above show that 73.3% of the respondents sells 50 to 200 units per week, 23.3% sells between 201 and 500 units and only 0.03% sells above 500 units.

Data on the quantity of traditional medicines sold per week was also gathered. Fig below shows the research results.

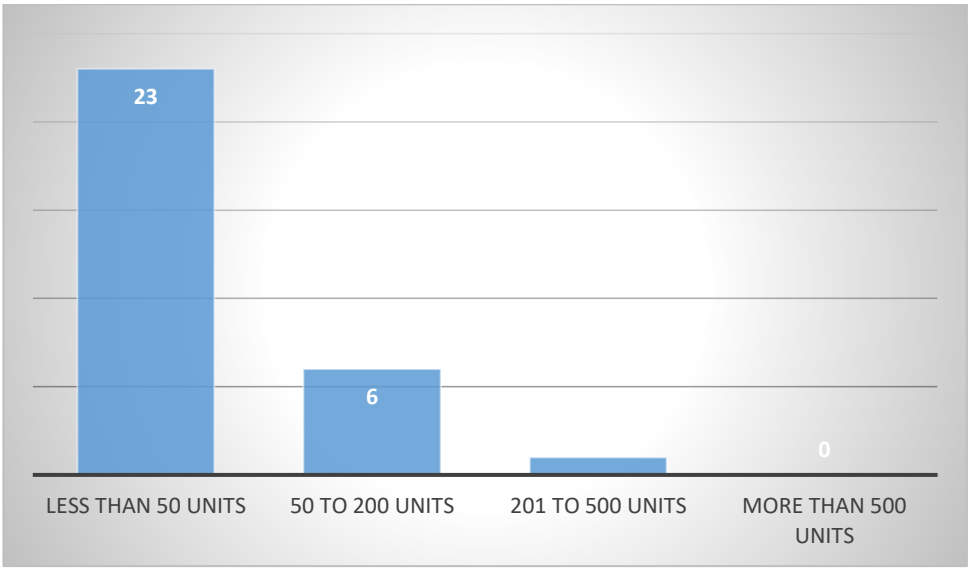

Figure 4.9 Traditional medicines sold per week

The fig above shows that: 76.7% of respondents sell less than 50 units of traditional medicine per week, 20% of the respondents sells between 50 to 200 units of traditional medicine per week and 0.03% sold between 201 to 500 units of traditional medicine per week.

The researcher also gathered data on the types of medicine sold most. Fig below shows the research findings:

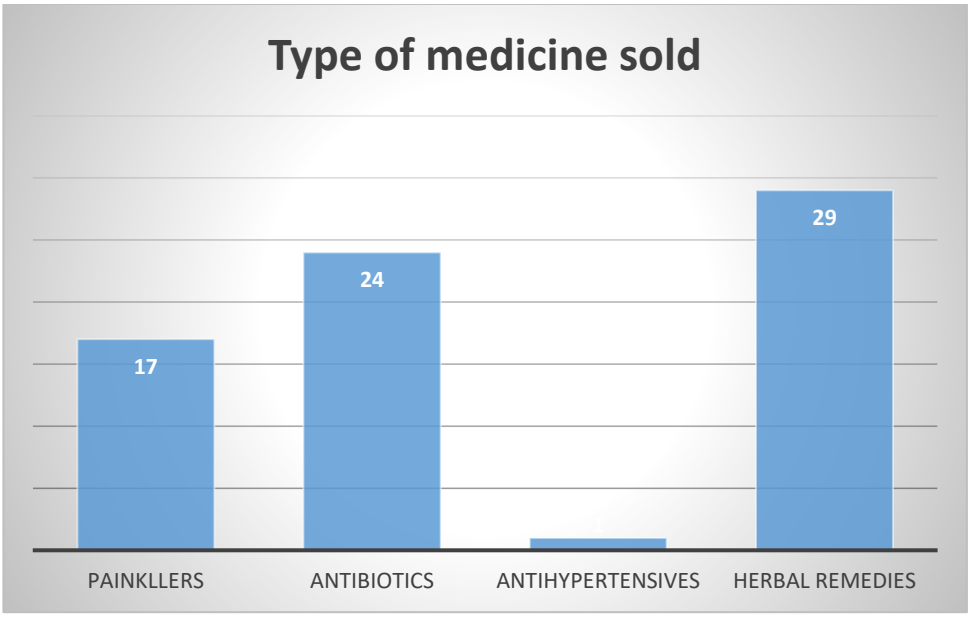

Figure 4.9 Type of medicine sold

The fig above shows that herbal remedies were the most sold with a frequency of 29, followed by antibiotics with a frequency of 24, followed by painkillers (17) and lastly antihypertyensives (1). An analysis of the options which were mentioned shows that, sex boosters, bum boosters and skin lightening creams were the most mentioned.

Table 4.7. Descriptive Statistics for Informal Medicine Vendor (N = 30)

	N	Minimum	Maximum	Mean	Std. Deviation
I operate in easily accessible public spaces within the CBD	30	4.00	6.00	4.5333	.57135
I use social media or phone calls to coordinate with customers	30	2.00	6.00	4.3667	.85029

Most of my customers are regulars	30	2.00	5.00	4.1667	.69893
Customers choose me for lower prices compared to pharmacies	30	1.00	5.00	2.6667	1.12444
Customers choose me for greater convenience compared to pharmacies	30	4.00	5.00	4.8667	.34575
Customers trust me more than formal pharmacists	30	1.00	5.00	3.3333	1.09334
I store medicine in a satchel or bag	30	4.00	5.00	4.0667	.25371
I store medicine in a car boot	30	2.00	5.00	3.5333	.73030
I store medicine in secure indoor location	30	4.00	5.00	4.0667	.25371
I use temperature-controlled storage for my medicines	30	1.00	4.00	2.1667	.83391
I advertise through word of mouth	30	2.00	5.00	4.4333	.67891
I use social media to advertise my products	30	1.00	5.00	4.3333	1.06134
Valid N (listwise)	30				

Table 4.8. Frequencies for Informal Medicine Vendor (N = 30)

Statement	SD	D	N	A	SA
I operate in easily accessible public spaces within the CBD				37.5%	62.5%
I use social media or phone calls to coordinate with customers			12.5%	31.3%	56.2%
Most of my customers are regulars			12.5%	50%	37.5%
Customers choose me for lower prices compared to pharmacies	18.8%	12.5%	56.2%	12.5%	

Customers choose me for greater convenience compared to pharmacies				12.5%	87.5%
Customers trust me more than formal pharmacists		12.5%	68.7%	12.5%	6.3%
I store medicine in a satchel or bag				93.7%	6.3%
I store medicine in a car boot			37.5%	62.5%	
I store medicine in secure indoor location				100%	
I use temperature-controlled storage for my medicines	12.5%	31.3%	56.3%		
I advertise through word of mouth		6.3%		50%	43.8%
I use social media to advertise my products			6.3%	18.8%	75%

In response to whether, they operate in easily accessible public spaces within the CBD: 37.5% agreed and 62.5% strongly agreed. The combined agreement (100%) and the associated mean of 4.6 suggest that all the respondents acknowledge the presence of informal medicine vendors in easily accessible public spaces within the CBD.

Data on whether informal vendors use social media or phone calls to coordinate with customers was also gathered. In respond, 12.5% were neutral, 31.3% agreed and 6.2% strongly agreed. The combined agreement (87.5%) and the obtained mean (4.4) suggest that a significant majority of respondents use social media or phone calls to coordinate with customers, highlighting the importance of these channels in their business operations.

Respondents were also asked if most of their customers are regular. The responses show that: 12.5% expressed neutrality, 50% agreed and 37.5% strongly agreed. This gave a combined agreement of 87.5% and a mean of 4.3 suggesting that a significant majority of respondents have a loyal customer base, with regular customers making up a substantial portion of their clientele. Regular customers may indicate trust and satisfaction with the vendors` services.

Respondents were also asked if customers choose them for lower prices compared to pharmacies. The results obtained show that: 18.8% strongly disagreed, 12.5% disagreed, 56.2% were neutral and 12.5% agreed. Thus, 31,3% of the respondents disagree that price is a primary factor for customers, 56.2% are neutral, indicating uncertainty or mixed opinions and 12.5% agree that customers choose them for lower prices. Together, with the obtained mean of 2.6, these findings suggest that the relationship between price and customer choice is nuanced, with a significant proportion of respondents uncertain or disagreeing that price is a primary factor.

Data on whether customers choose informal vendors for greater convenience compared to pharmacies was also gathered. In response, 12.5% agreed and 87.5% strongly agreed. The combined agreement (100%) and the obtained mean of 4.9 suggests that all respondents believe customers prioritize their services due to convenience, with a significant majority (87.5%) strongly agreeing.

In response to whether customers trust informal vendors more than formal pharmacists, 12.5% disagreed, 68.7% were neutral, 12.5% agreed and 6.3% strongly agreed. These findings suggest that: the significant majority (68.7%) are neutral, indicating uncertainty about trust levels. 12.5% who disagree suggest that some respondents do not believe customers trust them more. The obtained mean of 3.1 also indicates uncertainty.

The study also gathered data on whether informal vendors store medicine in a satchel or bag. The results show that 93.7% agreed and 6.3% strongly agreed. The combined agreement (100%) and the obtained mean of 4.1 suggests that all respondents store medicine in a satchel or bag, highlighting the common practice among informal vendors.

Respondents were also asked if they store medicine in car boots. The results obtained show that: 37.5% were neutral and 62.5% agreed. Thus, a significant proportion (62.5%) of respondents store medicine in a car boot. The 37.5% who expressed neutrality may indicate that they do not store medicine in a car boot or are unsure. The obtained mean of 3.6 suggests uncertainty.

In response to whether informal vendors store medicine in secure indoor location, 100% of the respondents agreed and as a result a mean of 4.0 was obtained. The unanimous agreement suggests that all respondents prioritize storing medicines in a secure and controlled environment, which can help maintain medicine quality and safety. The results highlight the positive storage practices among respondents.

The study also sought to find out if informal vendors use temperature-controlled storage for their medicines. The results obtained revealed that: 12.5% strongly disagreed, 31.3% disagreed and 56.3% were neutral. These findings suggest that 43.8% of respondents do not use temperature-controlled storage (12.5% strongly disagreed + 31.3% disagreed). 56.3% of those who are neutral may indicate a lack of awareness or inconsistent practices. A mean of 2.4 was obtained, indicating lack of support for the statement.

Respondents were also asked to indicate if they would advertise through word of mouth. The study results show that 6.3% disagreed, 50% agreed and 43.8% strongly

agreed. The combined agreement (93.8%) and the obtained mean of 4.3 suggests that almost all respondents rely on word of mouth for advertising. This highlights the importance of word-of-mouth advertising in this business.

Lastly, respondents were asked if they use social media to advertise their products. The results obtained show that: 6.3% were neutral, 18.8% agreed and 75% strongly agreed. The combined agreement (93.8%) and the obtained mean of 4.7 suggests that almost all respondents utilize social media for advertising, highlighting its widespread adoption.

4.2.2.4 Consumers of Informal Pharmaceuticals

The first section of the questionnaire form gathered respondents` demographic characteristics of the following: gender, age range and education.

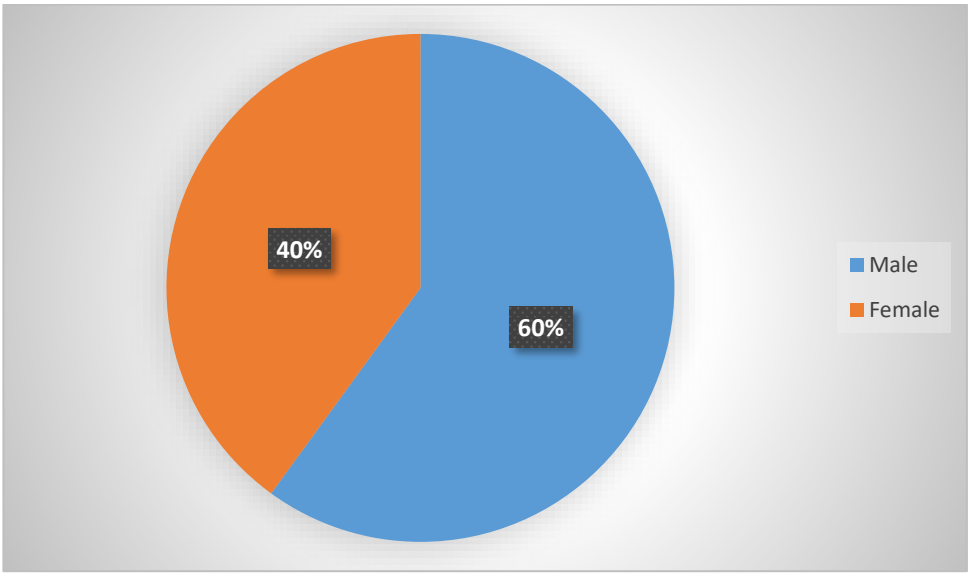

Figure 4.10 Consumers of Informal Pharmaceuticals Gender

Source: Primary Data (2025)

Fig 4.10 above presented the gender distribution of consumers of informal medicines. The graph shows that 40% of consumers are females and 60% are males. These results suggest that males are more likely to consume informal medicines. The findings also suggest that females also consume informal medicines, but to a lesser extent.

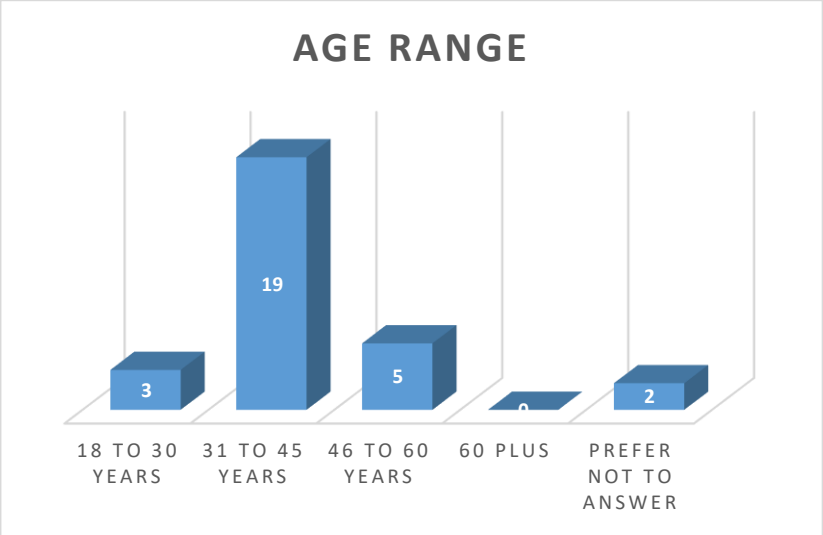

Figure 4.11 Consumers of Informal Pharmaceuticals Age range

The age distribution for consumers of informal medicines is shown on fig 4.11 above. Fig 4.11 shows that 3 respondents are in the 18-30 years age range, 20 are in the 31-45 years age range, 5 are in the 46-60 years age range and 2 preferred not to answer. The results suggest that most consumers (66.7%) fall within 31-45 years age range, indicating middle-aged demographic. The results also show that younger and older people also consume informal medicines.

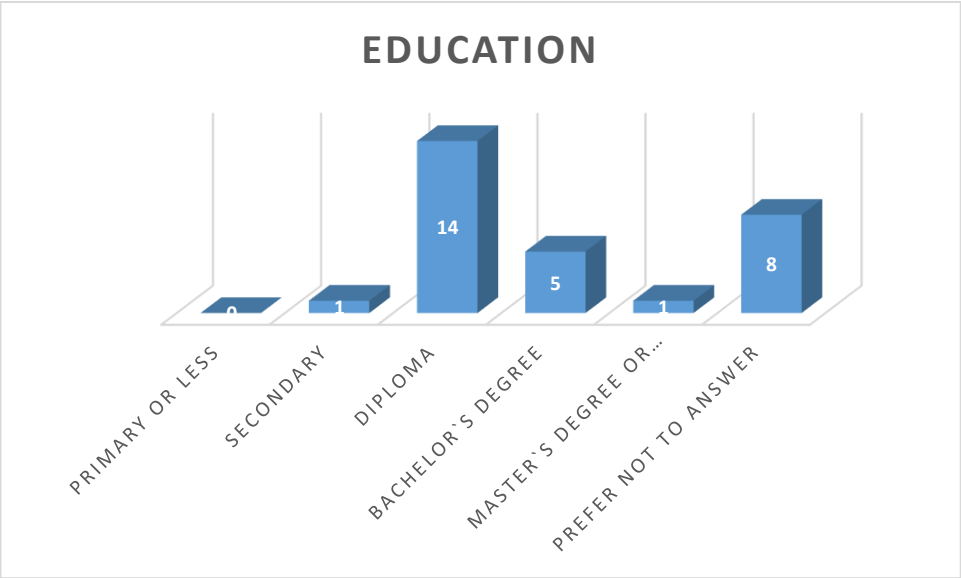

Figure 4.12 Consumers of Informal Pharmaceuticals Education

Fig 4.12 above shows the educational levels for consumers of informal medicines. The results show that: 1 respondent attained secondary education, 14 have diplomas, 5 have bachelor`s degrees, 1 has a master`s degree or higher and 8 preferred not to answer. These results suggest that most respondents have post-secondary education. Consumers' level of education may impact their understanding of health information as well as their decision-making.

The researcher also gathered insights from consumers of informal pharmaceuticals. This section presented the research findings from consumers of informal pharmaceuticals.

Table 4.9. Descriptive Statistics for Consumers of Informal Pharmaceuticals N = 29

	N	Minimum	Maximum	Mean	Std. Deviation
I use informal medicines because I cannot afford formal healthcare	29	1.00	5.00	2.6207	1.14685
Informal medicine vendors are more accessible than registered pharmacies	29	2.00	4.00	3.7931	.55929
I was introduced to informal medicine source through word-of-mouth	29	4.00	5.00	4.2069	.41225
I use informal medicines to treat minor health issues	29	3.00	5.00	4.0345	.32544
I use informal medicines to treat chronic conditions	29	1.00	6.00	2.2759	1.16179
I primarily use informal medicines to address my healthcare needs	29	1.00	4.00	3.4828	.98636
Valid N (listwise)	29				

Table 4.10. Frequency Table for Consumers of Informal Pharmaceuticals N = 29.

Statement	SD	D	N	A	SA
I use informal medicines because I cannot afford formal healthcare	10.3%	55.3%		31%	3.4%
Informal medicine vendors are more accessible than registered pharmacies		6.9%	6.9%	86.2%	
I was introduced to informal medicine source through word-of-mouth				79.3%	20.7%
I use informal medicines to treat minor health issues			3.4%	89.7%	6.9%
I use informal medicines to treat chronic conditions	24.1%	44.8%	17.2%	10.3%	3.4%
I primarily use informal medicines to address my healthcare needs	6.9%	13.8%	3.4%	75.9%	

In response to whether they use informal medicines because they cannot afford formal healthcare, 10.3% strongly disagreed, 55.3% disagreed, 31% agreed and 3.4% strongly agreed. The combined disagreement (65.6%) suggests that a majority of respondents do use informal medicines solely due to affordability issues with formal healthcare. However, the combined agreement (34.4%) and the obtained mean of 2,6 indicates that affordability is a factor for significant proportion of consumers.

Data on whether informal medicine vendors are more accessible than registered pharmacies was gathered. The results obtained showed that 6.9% disagreed, 6.9% were neutral and 86.2% agreed. The high level of agreement and the obtained mean of 3.8

suggests that a significant majority of consumers find informal medicine vendors more accessible than registered pharmacies.

The study also gathered data on whether consumers were introduced to informal medicine source through word-of-mouth. The results obtained show that: 79.3% agreed and 20.7% strongly agreed. This gave a combined agreement of (100%), suggesting that all respondents were introduced to informal medicine sources through word of mouth. The obtained mean of 4.2 also indicates the influential role of personal recommendations and social networks

Respondents were also asked if they use informal medicines to treat minor health issues. The responses obtained show that: 3.4% were neutral, 89.7% agreed and 6.9% strongly agreed. This gave a combined agreement of (96.6%) and an associated mean of 4.0, suggesting that significant majority of respondents use informal medicine to treat minor health issues.

The respondents were also asked if they use informal medicines to treat chronic conditions. The results revealed that 24.1% were in strong disagreement, 44.8% disagreed, 17.2% were neutral, 10.3% agreed and 3.4% strongly agreed. The findings gave a combined disagreement of (68.9%) and a mean of 2.3 suggesting that most respondents do not use informal medicines to treat chronic conditions. This suggests that respondents may be seeking formal healthcare services for chronic condition management.

The last item, sought to find out if respondents primarily use informal medicines to address their healthcare needs. in response, 6.9% strongly disagreed, 13.8% disagreed, 3.4% were neutral and 75.9% agreed. The high level of agreement (75.9%) and the

obtained mean of 3.5 suggests that a significant majority of respondents rely primarily on informal medicines to address their healthcare needs.

Respondents were also asked to indicate the types of health issues they treated with informal medicines. The results revealed the following: stomach issues, sex boost, weight loss, headache, infections, bum enlargement, skin lightening, cough and flu. However, a deep analysis of the results show that a significant majority of the respondents have used informal medicines for sex enhancement, followed by weight loss, bum enlargement and skin lightening.

Table 4.11. Descriptive statistics on the perceived impact of the informal pharmaceutical market on public health outcomes within Harare CBD N = 29.

	N	Minimum	Maximum	Mean	Std. Deviation
I trust the quality and safety of the medicines sold by informal vendors	29	3.00	4.00	3.9310	.25788
I feel the product information provided by informal vendors is reliable	29	3.00	4.00	3.8966	.30993
I feel safe using medicines from informal vendors	29	3.00	4.00	3.9310	.25788
I also use formal healthcare services	29	1.00	5.00	3.9310	.65088
My use of informal medicines is last resort	29	1.00	5.00	1.6552	.81398
Valid N (listwise)	29				

Table 4.12. Frequency Table on the perceived impact of the informal pharmaceutical market on public health outcomes within Harare CBD N=29.

Statement	SD	D	N	A	SA

I trust the quality and safety of the medicines sold by informal vendors			6.9%	93.1%	
I feel the product information provided by informal vendors is reliable			10.3%	89.7%	
I feel safe using medicines from informal vendors			6.9%	93.1%	
I also use formal healthcare services	3.4%		3.4%	86.2%	6.9%
My use of informal medicines is last resort	44.8%	51.8%			3.4%

Source: Primary Data (2025)

Consumers were also asked if they trust the quality and safety of the medicines sold by informal vendors. In response 6.9% expressed neutrality and 93.1% agreed. The high level of agreement (93.1%) and the obtained mean of 3.9 suggest that a significant majority of respondents trust the quality and safety of medicines sold by informal vendors.

In response to whether they feel the product information provided by informal vendors is reliable, 10.3% of the respondents were neutral and 89.7% agreed. The high level of agreement (89.7%) and the obtained mean of 3.8 suggest that a significant majority of consumers trust the product information provided by informal vendors.

Data on whether consumers feel safe using medicines from informal vendors was also gathered. In response, 6.9% expressed neutrality and 93.1% agreed. The high level of agreement (93.1%) and the obtained mean of 3.9 suggest that a significant majority of respondents feel safe using medicines from informal vendors.

Respondents' views on whether they also use formal healthcare services were gathered. The data obtained show that 3.4% strongly disagreed, 3.4% were neutral, 86.2% agreed and 6.9% strongly agreed. This gives a combined agreement of 93.1% and a mean of 3.9 suggesting that a significant majority of respondents use both informal vendors and formal healthcare services.

The study also gathered data on whether consumers` use of informal medicines is last resort. In response, 44.8% strongly disagreed, 51.8% disagreed and 3.4% strongly agreed. The combined disagreement (96.6%) and a mean of 1.7 suggests that a significant majority of respondents do not use informal medicines as a last resort. Instead, they may prefer to use informal medicines for various reasons (convenience, price, and accessibility).

4.3 Interview Data

4.3.1. The Sources of Pharmaceutical Medicines in Harare CBD

4.3.1.1 Regulatory Authority Officials

To identify the sources of informal pharmaceuticals, the respondents were asked to estimate the proportion of informal medicines they think are counterfeit compared to illegally diverted medicines. The research findings show that it is difficult to estimate due to the secret nature of trade.

Respondent B said that: It is very difficult to estimate due to porous borders and weak regulatory environment.

Respondent A said: It is very difficult to tell due to the secret nature of the trade but I estimate it at 1:5.

The researcher also gathered data on the metrics used to track regarding seized medicines. The study revealed that, MCAZ: track the quantity and type of medicines seized, assess public health risks associated with the seized drugs and works with ZRP to effect prosecutions. It was noted that, by tracking such metrics, MCAZ can evaluate the effectiveness of its efforts to combat the sale of illicit medicines.

4.3.1.2 The Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

To identify the distribution channels, regulatory officials were asked to identify the main challenges in monitoring and policing the informal distribution networks. The study revealed that the health professions authority has problems in monitoring these networks due to the secret nature of trade. They expressed that they can only intervene if the networks include registered health personnel and such people will be suspended from practicing. The study revealed that the traders operate secretly and they do not display their merchandise. It was also noted that corruption among some of the ZRP staff where officers are bribed to look aside whilst illicit drugs are being sold on the streets was another challenge,

Respondent A said: The distribution networks are criminal in nature and this is a difficulty for law enforcement agents such as ZRP and local municipal police.

Data on the metrics used regarding enforcement activities was also gathered. The study revealed the following: number of arrests per week with regards to illicit drug vendors and quantities of seized medicines. The respondents also expressed that the conduct inspections of licensed premises.

4.3.1.3 The Perceived Impact of the Informal Pharmaceutical Market on Public Health Outcomes within Harare CBD

In line with the impact on public health, regulatory officials were asked the quantifiable data they have on public health issues linked to the informal market. The data obtained show that 40% of the respondents expressed that no data was available at hand, one respondent expressed that, counterfeit medicines kill approximately 250 000 in sub-Saharan Africa yearly and counterfeit medicines cost low-income countries about 30 billion annually.

Respondent C said: *There is a general increase in antimicrobial resistance due to the use of cheap illicit antibiotics on the streets.*

Respondent D expressed that: *In terms of statistics, it is difficult to quantify but we have numerical asses of fatalities due to illicit medicines like the recently Chivi man who died after consuming 2 liters of guchu.*

4.3.1.4 Recommendations Aimed at eradicating the Informal Pharmaceutical Market in Harare CBD.

The last item on the interviews focused on policy interventions. In response to the policies they believe would be most effective, respondents mentioned: public awareness campaigns educating people on the dangers of taking illicit drugs, tightening of screening at porous border posts and national health insurance introduction as a national policy,

4.3.2 Registered Distributor of Pharmaceuticals

4.3.2.1 The Sources of Pharmaceutical Medicines in Harare CBD

In line with the sources of pharmaceuticals, respondents were asked to estimate the extent of diversion from formal channels into the informal market. The results revealed that diversion seems to be on the rise as evidenced by flooding of registered medicines

into the streets. It was revealed that it is difficult to put in numbers but there is evidence that medicines are being diverted from official channels into the streets. In response to how do they monitor the diversion, the study revealed that the respondents do not have means to monitor this. Below are some of the responses obtained:

Respondent D: *It is huge but statistics are not easily available.*

Respondent N: *No figures off hand but we see registered medicines in the streets especially Histalix in large quantities.*

Respondent J: *Difficult to quantify but registered drugs are also flooding the streets at an alarming rate.*

Respondent B said: *As a company, we do not have a policy to monitor drugs that go into the streets. The problem is that the trade is illegal and very difficult to get statistics.*

Another respondent Y said: *We do not monitor but there is a growing trend of medicines being diverted to the streets especially the ones with the potential for abuse.*

4.3.2.2 The Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

In an effort to understand distribution channels, respondents` views on the impact distributors observe from informal distribution on their sales volume were also gathered. The results show that there is no impact as the customers are totally different. Below are some of the responses:

Respondent A: *None at all, our customers are different.*

Respondent C: *No effect at all, our clients are totally different. Those who buy in pharmacies rarely buy from the streets.*

Respondent F: *Not much, I think street customers and pharmacy customers are totally different.*

4.3.2.3 The perceived Impact of the Informal Pharmaceutical Market on Public Health Outcomes within Harare CBD

To gain insight on the impact on public health, data on measures being taken to educate the public on the risks of informal pharmaceuticals was gathered. Respondents expressed that, through public awareness during pharmacy week and also through social media platforms. However, some believe that it is the duty of the regulatory officers to do public awareness especially the ZRP and the ministry of health through MCAZ.

4.3.2.4 Recommendations Aimed at eradicating the Informal Pharmaceutical Market in Harare CBD

Lastly, data on policy interventions was gathered, in response to how distributors could be incentivized to partner more effectively with authorities to curb the informal market, respondents said none. It was revealed, that there is no need for incentives since it is the moral duty of all pharmacists to cooperate with regulatory authorities.

4.3.3 Informal Medicine Vendor

4.3.3.1 The Sources of Pharmaceutical Medicines in Harare CBD

The first section aimed at identifying the sources of informal pharmaceuticals. The data obtained show that majority of the informal vendors get their medicines from Indians in Harare town, followed by those who get them from Mbare musika and lastly those who obtain them from countries like South Africa, Zambia and Mozambique. These findings are in line with Bate et al., (2020) who found that countries located

within coastal shows are the major sources of medical contraband as they are aided by illegal sea routes.

The study revealed that those who get their medicines from Mbare receive stock worth $250 to $450 per month, while those who get supply from Indians estimated their monthly stock to range from $200 to $1500 and those who get their supply from outside the country estimated their monthly stock to range from $500 to $5000.

4.3.3.2 The Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

The research also aimed to identify the distribution networks used by informal vendors. The results revealed that informal medicine vendors sell directly to consumers. The study revealed that medicines are sold in sachets at bus ranks, car boots and corner positions. It was also revealed that some vendors sell through runners on commission basis. In response to how often they move locations, it was revealed that informal medicine vendors do not change positions. They have specific operating locations. Research findings on the value of daily transactions shows that sales range from $40 to $350 per day.

4.3.3.3 The Perceived Impact of the Informal Pharmaceutical Market on Public Health Outcomes within Harare CBD

The third section of the interviews aimed to identify the impact on public health. Responses on the sellers` belief regarding the impact of the medicines on customers` health shows that the sellers believe that the drugs are good to customers unless if abused.

Respondent X said: *If used correctly, they are good, however we have the problem of addicts especially with cough mixtures.*

Respondent Y said: *If used wrongly, people are becoming addicts.*

Respondent Z said: *If used according to our instruction, they are good. However, some customers abuse them.*

Responses on whether the sellers have ever knowingly sold expired or substandard medicines revealed that all the respondents have never did such a thing. The respondents were also asked to estimate the percentage of their stock they feel is counterfeit. All the responses obtained show that respondents consider none of their stock to be counterfeit.

Respondent E said that: *Our stock works, it is not fake, so 0%.*

Respondent P said: *These drugs are not fake, they help people, so I can say 0%.*

Respondent D said: *Our drugs are not fake. They come from South Africa,*

Respondent G said: *0%. Our drugs are genuine.*

4.3.3.4 Recommendations Aimed at eradicating the Informal Pharmaceutical Market in Harare CBD

The last section looked at policy interventions. In response to the key drivers for the informal market`s persistence, the respondents noted the following: easy accessibility, lack of jobs, affordability and increased demand.

Responses on the support vendors would need to transition to formal market show that most respondents believe none. However, some believe that their trade should be legalized just like in other countries or law enforcers must arrest abusers not sellers. Some of the notable responses are listed below:

Respondent X said: *None, just the police to leave us alone.*

Respondent C said: *Recognize our trade and let us trade freely like what they do in Zambia.*

Respondent A said: *Police to leave us alone. Arrest addicts not vendors.*

4.3.4 Consumers of Informal Pharmaceuticals

4.3.4.1 The sources of Pharmaceutical Medicines in Harare CBD

The first questioned aimed to know how the consumers come to know about informal medicine sources. The research findings revealed that most consumers came to know about informal medicine sources through social media (Facebook and WhatsApp), friends and word of mouth. Respondents were also asked to describe their first experience. Most respondents expressed that their first experience was good and the medicine worked. Below are some of the responses which were obtained:

Respondent Y: *I saw an advert on WhatsApp group. The product I bought worked wonders in my life.*

Respondent B: *I saw them displaying their merchandise at the rank.*

Respondent X: *The vendors sell to you without asking too many questions.*

4.3.4.2 The Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

The second section aimed to gain insights into distribution networks. The first question required respondents to describe how they identify sellers. The results revealed that most respondents deal with same vendor and call them when they need to enquire. It was also revealed that the sellers are always at the same place. The results also revealed that consumers spending on informal medicine range from $5 going up to even $50. Below are some of the responses:

Respondent C: *Always at the same place you find them.*

Respondent D: *They always sell at the same place and they display their merchandise.*

Respondent Y: *I buy from the same vendor all the time and I find him at the same place.*

4.3.4.3 The Perceived Impact of the Informal Pharmaceutical Market on Public Health Outcomes within Harare CBD

In attempt to get insights on the impact on public health, respondents` views on how safe they feel using informal medicines. The results obtained show that significant majority of the respondents feel very safe while only a few were not so sure, especially about the long term effects. Below are some of the responses:

Respondent B: *I buy herbal medicine from them and its very safe. No side effects.*

Respondent F: *Very safe, I buy their herbal remedies.*

Respondent G: *Very safe, no problems so far.*

Respondent X: *Not so sure but nothing bad so far.*

Respondent T: *You never really be sure, but so far so good, no side effects.*

Respondents were also asked if they ever purchased a medicine that looked different from what they expected or previous purchase. The results revealed that some respondents expressed that it happens at times while some said not at all. However, it was revealed that even though they might receive a different product from their expectations or previous purchase, the products always work the same. Below are some of the responses obtained:

Respondent A: *No, not all. I always buy the same thing.*

Respondent C: *No, I always insist to get the same product all the time.*

Respondent D: *At times the packaging looks different, but what is inside is the same. Besides, vendors explain it to you.*

Respondent F: *At times, but it worked the same nevertheless.*

Data on whether respondents have ever experienced negative health reaction shows that the respondents had never experienced such things.

4.3.4.4 Recommendations Aimed at eradicating the Informal Pharmaceutical Market in Harare CBD

Lastly, the researcher sought data on policy interventions. Respondents were asked about the factors they think would significantly increase their use of formal pharmacies. The main theme that was identified is too many questions. The respondents expressed that it is very difficult to buy without prescription. The respondents expressed that pharmacies must not ask too many questions. It was also revealed that pharmacies do not market their drugs while vendors do.

4.4 Discussion of Findings

This section discusses the research findings in line with literature and theories

4.4.1 Sources of Pharmaceutical Medicines in Harare CBD

Research findings show that regulatory authority officials expressed that it is difficult to estimate due to the secret nature of the trade.

The study revealed affordability and accessibility as the main drivers of the informal market. These findings are in line with the demand-side theory, which posits that consumer behavior significantly influences the demand for informal pharmaceutical medicines (Cohen and Mendez, 2016). Literature also shows that, the high cost of

medicines, limited access to medical care, and a lack of knowledge amongst the general population were highlighted as key factors influencing the sale of falsified and counterfeit medicines in India (Khan and Khar, 2015).

It was further revealed that registered pharmaceuticals distributors believe that diversion seems to be on the rise as evidenced by flooding of registered medicines into the streets and it was revealed that it is difficult to put in numbers but there is evidence that medicines are being diverted from official channels into the streets.

The findings show that informal vendors get their medicines from Indians in Harare town, followed by those who get them from Mbare musika and lastly those who obtain them from countries like South Africa, Zambia and Mozambique. These findings are in line with Bate et al., (2020) who found local vendors, community pharmacies, and unregulated suppliers. The research findings revealed that most consumers came to know about informal medicine sources through social; media (Facebook and WhatsApp), friends and word of mouth. LegitScript (2016) found that internet is providing an increasingly viable option for distributing pharmaceutical products, both legitimate and counterfeit to domestic and international consumers.

4.4.2 Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

The study revealed that the health professions authority has problems in monitoring these networks due to the secret nature of trade. They expressed that they can only intervene if the networks include registered health personnel and such people will be suspended from practicing. These findings are supported by Lamy (2017) who expressed that weak pharmaceutical regulations, porous borders, limited access to

healthcare services contribute to the proliferation of counterfeit medications in this region with the potential to increase drug-resistant malaria.

The study revealed that the traders operate secretly, and they do not display their merchandise. It was also noted that corruption among some of the ZRP staff where officers are bribed to look aside whilst illicit drugs are being sold on the streets was another challenge. This issue of corruption is supported by Nsarhaza (2018) who found that in Congo, the medicines market has been formally regulated, but owing to a lack of money, corruption, pursuit of profit and lack of technical expertise, this legal framework has remained dead letter.

The study revealed that most of the medicines sold by informal sellers are convenient medicines. This is supported by literature which shows that, over-the-counter medicines are sold at drugstores or at the chemist's while prescription drugs are available only at drugstores, on submission of a prescription (Bate et al., 2020). The study found that informal medicine vendors sell directly to consumers.

The study revealed that medicines are sold in satchels at bus ranks, car boots and corner positions. It was also revealed that some vendors sell through runners on commission basis. This is supported by Pai et al (2018) who found that in Kinshasa medicines are sold in stalls along the road.

The results revealed that most respondents deal with same vendor and call them when they need to enquire. It was also revealed that the sellers are always at the same place.

4.4.3 The Perceived Impact of the Informal Pharmaceutical Market on Public Health Outcomes

The data obtained from public health officials' show that 40% of the respondents expressed that no data was available at hand to assess the perceived impact of informal

pharmaceutical market. The study found that the sellers believe that the drugs are good to customers unless if abused.

The study revealed the existence of addicts who end up using drugs for what they are not made for. According to this research, it often happens that medicines are sold to treat diseases other than the official indications (Bledsoe and Goubaud, 2015).

The study found that significant majority of the consumers feel very safe while only a few were not so sure, especially about the long-term effects. These findings are in contrast to literature which documented several side effects of informal market pharmaceutical products: worsening condition and lead to death (Kelesidis & Falagas, 2015) (toxicity, increase the probability of other infections, as well as lead to therapeutic failure Blackstone, Fuhr, Pociask, 2014). Besides, counterfeit antimicrobials also reduce the patient's adherence to their use and leads to treatment failure, increasing a populations' morbidity and mortality (Kelesidis et al., 2007)

4.4.4 Recommendations Aimed at eradicating the Informal Pharmaceutical Market in Harare CBD

The study revealed that the health professions authority has problems in monitoring these networks due to the secret nature of trade. They expressed that they can only intervene if the networks include registered health personnel and such people will be suspended from practicing. Therefore, it is recommended that regulatory authorities must try to register all sellers of pharmaceuticals, maybe through reducing registration requirements and tax incentives.

The study found that public awareness during pharmacy week and also through social media platforms are effective measures to educate the public on the risks of informal

pharmaceuticals. Therefore, it is recommended that the responsible authorities conduct more public awareness campaigns.

The study also revealed corruption as the main challenge faced in dealing with informal pharmaceutical market. Based on this finding, it is recommended that stricter punishments be put in place regarding corruption.

The study identified the main sources of informal pharmaceuticals as: Indians in Harare town, Mbare musika and smuggled items from countries like South Africa, Zambia and Mozambique. It is therefore recommended that law enforcement agents monitor these sources closely.

In terms of distribution networks, the study revealed that informal medicine vendors sell directly to consumers, medicines are sold in satchels at bus ranks, car boots and corner positions. It is therefore recommended that law enforcement agents be vigilant about such activities.

The study revealed that the sellers of informal medicines believe that the drugs are good to customers unless if abused. Based on this finding, it is recommended that regulatory authorities assess the quality of informal medicines.

The study found that the key drivers for the informal market`s persistence are easy accessibility and affordability. Based on these findings, it is recommended that the formal market increases its accessibility and affordability of its products.

The study revealed that most consumers came to know about informal medicine sources through social media (Facebook and WhatsApp), friends and word of mouth. Based on this finding, it is recommended that the formal medicine market utilize such strategies to reach more customers.

The study found that significant majority of the respondents feel very safe while only a few were not so sure, especially about the long-term effects. Therefore, it is recommended that the relevant authorities find a better way of monitoring the sale of informal medicines without disrupting much of the activities.

The study found the issue of too many questions, as the most lamented problem that needs to be addressed. It was also revealed that it is very difficult to buy without prescription. Therefore, it is recommended that pharmacies must not ask too many questions. Based on the finding that was pharmacies do not market their drugs; it is recommended that they do so.

4.5 Summary

The chapter looked at data presentation, analysis and discussion. Data was mainly presented through graphs and tables. Analysis was done mainly using frequencies (percentages), descriptive statistics (means) and themes. Data from both questionnaires and insights brought enough insights in to the pharmaceutical market in Harare CBD. The following chapter presents the research summary, conclusions, and recommendations.

CHAPTER 5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The previous chapter dealt with data presentation, analysis and discussion. The present chapter summarizes the study's conclusions, implications, recommendations, and suggestions for future studies.

5.2 Discussion

The study looked at managing the pharmaceutical informal market in Harare, Zimbabwe. As such, the study was geographically delimited to Harare. The study was guided by the following specific objectives: to identify the sources of pharmaceutical medicines in Harare CBD, to map the distribution channels of informal pharmaceutical medicines within Harare CBD, to assess the perceived impact of the informal pharmaceutical market on public health outcomes within Harare CBD and to develop recommendations aimed at eradicating the informal pharmaceutical market in Harare CBD. The study was guided by the following theories: demand side theory, structural theory and quality management theory.

The study adopted an explanatory sequential mixed-methods design. The population for the study was 100 participants which comprised consumers of informal pharmaceuticals, informal medicine vendors, regulatory authorities, and registered distributors. The sample size was determined using Krejcie and Morgan (1970)`s sample determination table. The researcher used stratified sampling, purposive sampling and snowball sampling. The snowball sampling process began with carefully selected "seed" participants chosen for their diverse networks. Once initial seeds were interviewed, they were asked to refer 1 or 2 other individuals who fit the study criteria.

Questionnaires and interviews were used as the main data collection tools. Questionnaire findings were presented mainly through graphs and tables. Data analysis for questionnaire findings was mainly done using: descriptive statistics, frequencies and percentages. Data obtained through interviews was presented and analyzed mainly using thematic analysis.

In line with the sources of pharmaceuticals, the results revealed that diversion seems to be on the rise as evidenced by flooding of registered medicines into the streets. It was revealed that it is difficult to put in numbers but there is evidence that medicines are being diverted from official channels into the streets. The findings show that majority of the informal vendors get their medicines from Indians in Harare CBD, followed by those who get them from Mbare musika and lastly those who obtain them from countries like South Africa, Zambia and Mozambique.

The study revealed that those who get their medicines from Mbare receive stock worth $250 to $450 per month, while those who get supply from Indians estimated their monthly stock to range from $200 to $1500 and those who get their supply from outside the country estimated their monthly stock to range from $500 to $5000.

5.2.2 The Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

Research findings show that most respondents deal with the same vendor and call them when they need to purchase or enquire. It was also revealed that the sellers are always at the same place. The study findings show that informal medicine vendors sell directly to consumers. The study revealed that medicines are sold in satchels at bus ranks, car boots and corner positions. It was also revealed that some vendors sell through runners on commission basis. The study revealed that, the traders operate secretly and they do not display their merchandise. The research findings revealed that most consumers came to know about informal medicine sources through: social media (Facebook and WhatsApp), friends and word of mouth.

The research findings show that counterfeit medicines kill approximately 250 000 in sub-Saharan Africa yearly and counterfeit medicines cost low-income countries about 30 billion annually. The findings show that the sellers believe that the drugs are good to customers unless if abused. Respondents were also asked to describe their first experience. Consumers also expressed that their first experience was good and the medicine worked. The research findings show that significant majority of the respondents feel very safe while only a few were not so sure, especially about the long term effects. The study also found that the consumers had never experienced negative effects from the use of the informal medicines.

The study found that conducting public awareness campaigns educating people on the dangers of consuming medicines from informal sources, tightening of screening at porous border posts and national health insurance introduction as a national policy, will go a long way in eradicating the informal pharmaceutical market in Harare CBD.

In terms of the key drivers for the informal market`s persistence, the study revealed the following: easy accessibility, lack of jobs, affordability and increased demand.

There is need to recognize informal pharmaceutical selling just like in other countries or law enforcers must arrest abusers not sellers.

The study found that formal pharmacies are avoided due to too many questions. It was also revealed that pharmacies do not market their drugs while vendors do. Drawing from this, it is recommended that formal pharmacies invest in marketing.

5.3 Conclusions

Drawing from the findings, it can be concluded that majority of the informal vendors get their medicines from Indians in Harare town, followed by those who get them from Mbare musika and lastly those who obtain them from countries like South Africa, Zambia and Mozambique.

Based on the research findings, it can be concluded that informal medicine vendors sell directly to consumers, medicines are sold in satchels at bus ranks, car boots and corner positions and through runners on commission basis. Traders operate secretly and they do not display their merchandise. Most consumers came to know about informal medicine sources through social media (Facebook and WhatsApp), friends and word of mouth. Consumers deal with a specific vendor and they call them when they need to enquire, and sellers are always at the same place.

The products being sold in Harare seem to have no negative effects as sellers believe that the drugs are good to customers unless if abused and customers also believed that their first experience was good and the medicine worked. The significant majority of customers feel very safe while only a few were not so sure, especially about the long

term effects. Consumers had never experienced negative effects from the use of the informal medicines.

The most needed interventions are public awareness campaigns educating people on the dangers of taking illicit drugs, tightening of screening at porous border posts by use of modern scanning technology and national health insurance introduction as a national policy.

The key drivers for the informal market`s persistence are easy accessibility, lack of jobs, affordability and increased demand. There is need to recognize informal pharmaceutical selling just like in other countries or law enforcers must arrest abusers not sellers.

5.4. Implications

The evidence related to the prevalent circulation of drugs via the informal pathways as in the case of the Indians in Harare CBD into the streets indicates a major system failure in the pharmaceutical distribution network of Zimbabwe. It means that the existing regulations, control and enforcement facilities are not adequacy enough which suggests that there is no control over distributors which results in a high number of people engaging in diversion. The large financial projections of the monthly stock received by vendors of various sources (between 200 and up to 5000) mean that the informal market is a well-developed, high-volume parallel economy that greatly threatens the economic sustainability and integrity of the formal health sector and probably causes the loss of tax revenue and difficulties in competitive operations of legitimate pharmacies.

Although there are high health risks such as the death of nearly 250,000 people in sub-Saharan Africa annually due to counterfeit medicines (which is a global health issue),

the perceived safety and good first experiences by consumers in Harare are a dangerous contradiction to the health of people. This means that the choice made by the consumers is highly shaped by the short-term, perceived performance and the convenience and cost-effectiveness of the informal market, as opposed to long-term risks awareness and possibly ineffectiveness.

Socio-economically and policy-wise, the study suggests the informal pharmaceutical market is not a criminal issue on its own, but is a sign of larger national failures in employment and health coverage. The lack of formal job creation is closely associated with the persistence of the market, and vending is an economic necessity to many people, especially young ones. The most robust policy impact is that eradication cannot be based on punitive law enforcement only but it requires the adoption of extensive structural changes, such as the introduction of a National Health Insurance Scheme to enhance the accessibility of safe medicine and massive government job creation to eradicate the economic factors that force citizens to engage in the high-risk market.

5.5 Recommendations

5.5.1 The Sources of Pharmaceutical Medicines in Harare CBD

Drawing from the findings, it is recommended that regulators and law enforcement agency must watch the following sources: Indians in Harare town, Mbare musika and smuggled pharmaceutical products especially from South Africa, Zambia and Mozambique.

5.5.2 The Distribution Channels of Informal Pharmaceutical Medicines within Harare CBD

Based on the research findings, it is recommended that: regulatory measures must be established to oversee informal medicine vendors, there is need to mandate licensing

and accreditation for vendors to ensure compliance with standards, and law enforcement must monitor the identified hotspots like bus termini, car boots and corner positions.

5.5.3 The Perceived Impact of the Informal Pharmaceutical Market on Public Health Outcomes within Harare CBD

Drawing from the findings, the Ministry of Health and Child Care is recommended to implement health education programs to consumers and vendors aimed at raising awareness about the risks associated with the use of informal medicines. This awareness will enable individuals to desist from acquiring medicines from unregulated sources as they will be aware of the potential dangers implicit in doing so.

5.5.4 Recommendations Aimed at eradicating the Informal Pharmaceutical Market in Harare CBD

Based on the findings, regulatory authorities need to conduct awareness campaigns, educating people on the dangers of taking illicit drugs, as well as tightening of screening at porous border posts by law enforcement agents. Additionally, since most informal vendors view their trade as their employment, it is recommended that the government create employment for the unemployed, especially the youth since majority of the sellers were youths.

The government should also implement a National Health Insurance Scheme to ensure accessibility of safe and quality medicines since consumers highlighted accessibility as one of the major drivers of the informal pharmaceutical market in Harare CBD.

5.6 Suggestions for Further Studies

The study focused exclusively on the Harare CBD, which limited the generalizability of the research findings. It is therefore suggested that future studies must look at other areas or even the whole country.

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APPENDICES

APPENDIX 1: Questionnaire Survey Instrument

MANAGING THE HARARE CBD INFORMAL PHARMACEUTICAL MARKET IN ZIMBABWE

Introduction

My name is Scorn Chipatiso. I am a final year student studying towards an Executive Masters in Business Administration from Africa University, Mutare. I am carrying out research on managing the Harare CBD informal pharmaceutical market in Zimbabwe. This questionnaire is meant to acquire insights on the informal pharmaceutical market in Harare CBD and its impact on public health outcomes. I am kindly asking you to participate in this study by answering this questionnaire. Participating in this research survey is voluntary and you may opt out at any stage. The information provided will be treated with utmost confidentiality. Your participation is greatly valued.

Tick in the correct box

Section A: Demographic Information

1. Gender.

Male [ ] Female [ ]

2. What is your age range?

18-30 years [ ] 31-45 years [ ] 45-60 years [ ] 60+ years [ ]

3. What is your level of education?

Diploma [ ] Bachelor's degree [ ] Master's degree []

Section B

Instructions

Please tick the box that best describes your agreement or disagreement with each statement, where:

1.Strongly Disagree

2.Disagree

3.Neutral

4.Agree

5.Strongly Agree

Sources of Informal Pharmaceutical Medicines

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.Informal vendors acquire medicines from individuals bringing them in Zimbabwe					
2.Unregistered suppliers are the main suppliers of informal medicines in Harare CBD					
3.Informal vendors have direct contact with manufacturers of counterfeit and unregistered medicines					

Distribution networks of informal pharmaceuticals

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4.Informal pharmaceutical vendors operate in easily accessible public spaces					

5.Informal pharmaceutical vendors use social media and phones to connect and distribute medicines to customers					
6.Informal vendors collaborate with formal pharmaceutical players to distribute medicines					

Impact on public health outcomes

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7.The informal pharmaceutical market contributes to the rise in antimicrobial resistance					
8. Using informal medicines delays people from seeking proper health care					
9.The informal pharmaceutical market provides access to essential medicines for					

people who cannot afford formal healthcare					

Policy Interventions

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
10. Stricter enforcement of existing laws against informal medicines is necessary					
11.Providing more affordable formal healthcare will reduce reliance on informal medicines					
12. Improving the supply chain of formal medicines will reduce prevalence of informal market in Harare					

APPENDIX 2: Interview Guide

1.What are the sources of informal pharmaceutical medicines within Harare CBD Zimbabwe?

2.What are the distribution networks of informal pharmaceuticals within Harare CBD, Zimbabwe?

3.What is the impact of the informal pharmaceutical market on public health in Harare CBD, Zimbabwe?

4.What policy interventions can be implemented to regulate the informal pharmaceutical market in Zimbabwe?

Closing

Thank you for your time and insights. Your contributions are greatly appreciated and will help inform the study's findings.

APPENDIX 3: AUREC letter

"Investing in Africa's future"

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 Website: www.africau.edu

Ref: AU4017/25

26 September, 2025

SCORN CHIPATISO
C/O Africa University
Box 1320
MUTARE

RE: ***MANAGING THE HARARE CBD INFORMAL PHARMACEUTICAL MARKET IN ZIMBABWE***

Thank you for submitting the above-titled proposal to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following. a)
Research proposal

- **APPROVAL NUMBER** AUREC 4017/25
  This number should be used on all correspondence, consent forms, and appropriate documents
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** September 26, 2025
- **EXPIRATION DATE** September 26, 2026
- **TYPE OF MEETING**: Expedited
  After the expiration date, this research may only continue upon renewal. A progress report on a standard AUREC form should be submitted a month before the expiration date for renewal purposes.
- **SERIOUS ADVERSE EVENTS** All serious problems concerning subject safety must be reported to AUREC within 3 working days on the standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

AFRICA UNIVERSITY
RESEARCH ETHICS COMMITTEE (AUREC)
APPROVED
P.O. BOX 1320, MUTARE, ZIMBABWE

Yours Faithfully

MARY CHINZOU
FOR CHAIRPERSON AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE