COLLEGE OF MEDICINE

Exploring HIV Services Needs of People at Lilongwe Central Market, Malawi

By

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DECLARATION

I, **James Haswell Chitete Jere**, hereby declare that this dissertation is my original work and has not been presented for any other award at the University of Malawi or any other University.

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CERTIFICATE OF APPROVAL

The dissertation of **James Haswell Chitete Jere** is approved by the Dissertation Examination Committee

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ABSTRACT

Reaching all people with HIV services, including those in the informal economy, is critical to meeting the UNAIDS goals of 95-95-95. However, people who sell in the market, prioritise their business over attendance at health facilities, inevitably limiting the services they can access if these services are not in their place of business. An exploratory qualitative study design was used to explore market traders' preferences for the type and delivery methods of HIV services at Lilongwe Central Market, Malawi. We conducted four Key informant interviews (KIIs), three with officers responsible for planning HIV services at both the District and Council levels, and one with a market chairman. Sixteen In-depth interviews (IDIs) were conducted with traders in different businesses at Lilongwe Central market. All interviews were face-to-face and were audio-recorded and later transcribed. Data were analysed thematically and was guided by the Differentiated Services Delivery framework. HIV services preferred by market traders include HIV testing, Antiretroviral Therapy, HIV awareness campaigns, and Condom's dispensation. These services could be offered when the market is less crowded via a temporary shelter or mobile vans. Service providers can be both trained peers and health professionals depending on the service. To mitigate the stigma associated with HIV-specific services these HIV services should be offered in an integrated care setting. Therefore, to accelerate the achievement of UNAIDS 95-95-95 goals by 2030, HIV services should be available to all those who require them at times and locations that are convenient for them, through providers they have chosen and provided in an integrated manner to mitigate stigma. This necessitates the development of new approaches to closing gaps and the inclusion of under-served groups, such as traders, in markets.

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LIST OF ACRONYMS AND ABREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome.
ANC	Antenatal Clinic
ART	Anti-Retroviral Therapy
COMREC	College of Medicine Research and Ethics Committee
CHW	Community Health Workers
DSD	Differentiated Service Delivery
DHO	District Health Office
GDP	Growth Domestic Product
HIV	Human Immunodeficiency Virus
HTS	HIV Testing Services
IDIs	In-depth Interviews
KIIs	Key Informant Interviews
MoHP	Ministry of Health and Population
OPD	Outpatient Department.
PEP	Post Exposure Prophylaxis
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission
PreP	Pre Exposure Prophylaxis
TB	Tuberculosis

VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organisation

OPERATIONAL DEFINITIONS

Discrimination	The unjust treatment of people based on their real or perceived HIV status [1].
Health facilities	Designated places where health services are offered.
Informal Economy	Are commercial activities that are characterised by lack of registration and payment of taxes, and low income.
Informal Workplace	Refers to any place in which workers perform their activities either doing non-regulated work or through self-employment [2].
Stigma:	The social mark that, when associated with a person, presents an obstacle to the full enjoyment of social life by the person infected or affected by HIV.
Vendor	A person offering something for sale, especially a trader on the street.
Workplace	Refers to any place in which workers perform their activity and encompasses formal and informal economies.

CHAPTER 1: INTRODUCTION

1.1 Introduction and Background Information

This is a dissertation from a study that was conducted to explore the HIV services needs of the traders at Lilongwe Central market. The first chapter presents the background, literature review, conceptual framework, and problem statement.

Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) is an important health challenge in the world affecting many people and the economy of every nation [3]. Both formal and informal economies are challenged with the impact of the epidemic [4]. However, the impact is more pronounced in the informal economy coupled with high HIV risk due to low levels of literacy which limit understanding of HIV prevention methods [3], extreme poverty associated with low incomes, poor access to social services which result in poor health outcomes [5], and high levels of mobility and migration [6].

Despite such vulnerabilities, the informal workforce is hardly reached with health services because of high mobility as reported among fish traders in southern Malawi in 2012 [6]. They are also reported to prioritise their business over attendance to health facilities exacerbated by limiting public health system's operational hours as reported in 2011 among the informal workforce in Johannesburg [2,7]. The problem of health service provision is not only that of informal settings. In 2018, while some formal workplaces in Zambia provided costly HIV testing services (HTS) and Antiretroviral Therapy (ART) to their employees, others mainly focused on awareness and prevention due to funding constraints [1,8].

The standard way of addressing HIV services in workplaces is through HIV workplace policy which is a guide on how employers can respond to HIV pandemic in the workplace [8,9]. Unlike in the formal economy, these policies are limited in the informal economy due to the lack of easily identifiable employers to lead the HIV response [2]. This necessitates efforts to develop HIV policies to help scale up HIV services for the informal economy in Malawi which in 2016 constituted 89% of the workforce [10]. The designing of such policies would need the engagement of informal economy workers [11]. Therefore, this study purposed to explore the HIV services needs of traders in the informal economy to inform policies aiming at facilitating the scale-up of the HIV services they lack.

1.2 Literature Review

This section presents literature on differences between formal and informal economy, HIV services that are available in Malawi in various settings, HIV service provision methods for in various settings, factors that influence the delivery of HIV services, and the Differentiated Service Delivery (DSD) framework used in this study.

1.2.1 Formal and Informal Economy

Unlike the formal economy, the informal economy is not regulated, taxed, with no contracts, and consists of self-employment [12]. Mostly, people are driven into the informal economy as a consequence of high unemployment [5]. This makes the informal economy become oversupplied with labour a phenomenon that contributes to low earnings [5,12].

1.2.2 Importance of HIV Services in Workplaces.

Clinics within business settings have been documented in the United States of America (USA) [13]. Strategically located in these settings, such clinics facilitate the provision of health services for the business workforce [14]. Since adults spend 60% of their time in the workplace, workplaces offer an opportunity for provision of targeted health services [8]. The large informal economy and its significant contribution to national Growth Domestic Product (GDP) in Malawi [15] further makes it an ideal target for health services.

1.3 HIV Services that are Available in Malawi in Various Settings

In Malawi, HIV testing, ART, Viral Load, and HIV prevention services can be accessed at, all levels of health care including at the community level [16,17]. Provision of these services in markets is essential because of the high HIV burden among traders when compared with the general population [18]. However, many subgroups such as traders, are not aware of their HIV status inevitably limiting access to treatment and care services [19]. Failure to include such subgroups across the HIV cascade makes the achievement of epidemic control difficult [19]. Therefore achievement of UNAIDS 95-95-95 targets by 2030 requires that underserved groups such as traders know their HIV status, are retained on ART and are linked to prevention services [19,20]. In Malawi, gaps in 95-95-95 targets are being closed trough HIV testing services, ART, Viral Load, and HIV prevention services being provided at both community and facility-based settings. These are discussed below.

1.3.1 HIV Testing Services

Many people in sub-Saharan including Malawi are not aware of their HIV status and therefore not linked to treatment and support services [21]. Increasing targeted HIV testing services hold

promise to reduce the number of remaining undiagnosed people living with HIV (PLHIV), among both the general and high-risk population [22].

1.3.2 ART Services

The scale-up of ART has improved the lives of many PLHIV [23]. In 2016, 979,000 Malawians living with HIV were on ART [24]. However, despite such ART scale-up, some PLHIV do not initiate [25]. Therefore there is a need to target them with ART services through explicit mechanisms [2]. These mechanisms include the expansion of community ART services for traders and other subgroups with similar characteristics [26].

1.3.2.1 Viral Load Monitoring

Viral load (VL) testing helps to monitor response to Antiretroviral Therapy (ART) [17]. However Malawi with twenty-nine Districts needing at least one Viral Load testing laboratory, only nine were available in 2016 [17]. These include 4 Central Hospital laboratories, Chiradzulu, Nsanje, and Mzimba District Hospital laboratories, Partners in Hope, and Blantyre Dream laboratories. The limited number of Viral Load testing laboratories in Malawi delays VL results for patients and necessitates the scale-up of point-of-care viral load testing [27].

1.3.3 HIV Prevention Services

HIV prevention services mitigate treatment costs, morbidity, and mortality [28]. Both formal and Informal workplaces provide useful entry points to HIV prevention strategies inclusive of condoms, promotion of Voluntary Medical Male Circumcision (VMMC), Pre-Exposure Prophylaxis (PrEP), and Post Exposure Prophylaxis (PEP) [2]. These strategies are discussed as follows:

1.3.3.1 Provision of Condoms

Condoms are effective at reducing HIV transmission when used correctly and consistently [29]. Their scale-up among at-risk populations is key in reducing HIV infections in the general population [20]. However, their use among underserved groups is low [29]. Misconceptions and inability to negotiate condom use are responsible for low condom use [30]. Therefore Condom programs must increase sensitisation, access, and acceptability if they are to be effective [29].

1.3.3.2 Voluntary Medical Male Circumcision

Male circumcision offers heterosexual men 60% protection against HIV [31]. Unlike other HIV prevention strategies, male circumcision provides lifelong partial protection against HIV [29]. It has been adopted as a component of HIV prevention in Malawi and Uganda [29,32]. Its scale-up is recommended, because the risk of contracting HIV is higher among the uncircumcised than circumcised men [33].

1.3.3.3 Pre and Post Exposure Prophylaxis

The World Health Organisation recommends Pre Exposure Prophylaxis (PrEP) as another HIV infection prevention strategy for HIV-negative people at high HIV risk of HIV infection [19]. However, gaps in its implementation have been reported [34]. In Malawi it is unavailable in most health facilities despite its approval as an additional HIV prevention intervention, in 2018 [29]. Therefore, efforts are needed to scale up PreP to help curb the pandemic

Besides PreP, Post Exposure Prophylaxis (PEP) after a high-risk exposure is another important HIV prevention method available in Malawi [35]. Despite an increase in condom use, PEP

remains relevant because certain subgroups have frequent exposures that can still lead to HIV infection [35]. Therefore, integration of both PEP and PreP into current HIV prevention programs is desirable [34].

1.4 HIV Service Provision Methods in Various Settings

1.4.1 Mobile Approaches

Mobile clinics are convenient since they are easily accessed by target populations and are, therefore, complementary to health facilities [23]. In Malawi, they are provided by Health Surveillance Assistants (HSAs) who provide health education, disease prevention messages, and HIV services [30]. Mobile clinics have been effective in the provision of integrated HIV services in South Africa [23]. The acceptability of mobile HIV services in previous studies [23, 28, 36] adds to the gravity of providing them in markets. Their ability to target high disease burden settings is an important attribute towards epidemic control [23]. However, since high-risk subgroups may avoid mobile clinics because of a presumed HIV-positive diagnosis, caution is needed to make sure that they reach the intended audience [23].

1.4.2 Community Approaches

Community-based approaches are essential in closing the gaps in the UNAIDS 95,95,95 targets [37]. This approach has been instrumental in the provision of convenient ARVs at the community level through peer-led support groups in Malawi [24]. We support the roll-out of this approach to markets despite the high costs associated with recruiting, training, and deployment of lay or peer providers [37].

1.4.3 Facility Approaches

A facility-based approach is a traditional approach to health service provision in Sub Sahara Africa [38]. Comprehensive care and high linkage to care are some of the benefits associated with facility-based approaches [28]. In these clinics, HIV testing is accessed voluntarily or initiated by a provider [38]. However, poor transport networks and distance to health facilities limit access to facility-based programs [39].

1.5 Factors that Influence the Provision of HIV Services

1.5.1 Individual-Level Factors

1.5.1.1 Stigma and Discrimination

Stigma and discrimination threaten PLHIV access to health services [4]. It creates huge gaps in 2030 epidemic control efforts because it increases the number of people who default from care and those unaware of their status [34,40–42]. Measures to mitigate stigma may revolve around redesigning health facilities set up, efforts to improve health worker attitude, and their adherence to ethical code [41].

1.5.1.2 Migration

The risk of HIV among migrants is high owing to disruption of their livelihoods [43]. Their access to health care is limited by; lack of knowledge about where to get health care, discrimination associated with living illegally in a host country, and lack of **r**eferrals from native countries [27]. Therefore to include migrants in the HIV responses, countries need to engage with the phenomenon of migration and not migrants as a way of closing the gaps towards the epidemic control [2].

1.5.1.3 Poverty

Extreme poverty deteriorates people's health since patients are unable to find the required income to cover transportation to health facilities, buy additional drugs, and maintain a healthy diet [23, 34, 44, 45]. Poverty further affects people's health as it limits an individual's education which is directly responsible for limiting the knowledge about general public health [44].

1.5.2 Health Systems-Level Factors

1.5.2.1 Health System Operation Hours

Health services for traders are challenged because public health services do not match with their schedule [7]. Offering HIV services on designated days as is the case with some health centers in Malawi, further limits their access [16]. The health care system needs to make deliberate efforts to adjust its routines to accommodate traders in markets and other subgroups with similar characteristics.

1.5.2.2 Distance to Health Facilities

Location of health facilities away from settlements reduces access to health services [45,46]. This is because patients are required to overcome many challenges to reach health facilities located away from their localities [47]. Therefore, there is needed to promote innovations that target specific groups of people such as traders who may have numerous limitations to access health services from health facilities [7].

1.5.2.3 Health Worker Shortage

Shortage of health workers has been reported in Tanzania [41]. Similarly, the Malawi Ministry of Health and Population (MoHP) staff establishment indicates huge health personnel deficiencies [30]. Uganda is not an exception [34]. Task-shifting has been used to cushion health staff shortage in Africa [48]. Incentives and reducing the workload through spacing clinic appointments have been used as a cushioning mechanism in the provision of a temporary solution to the health worker crises [49].

1.5.2.3 Availability of Drugs

The availability of successful HIV services depends on the availability of enough stocks of HIV drugs because, unlike other ailments, HIV treatment is taken for life [34,50]. This requires that drugs must be available through adequate funding [51]. Constant supply of drugs is critical in the HIV care cascade because the unavailability of HIV drugs discourages patients from initiating care [34,46].

1.6 Conceptual Framework

Differentiated Service Delivery (DSD) framework was used to explore HIV services required by traders in the market setting. The DSD model is a client-centered model that aims to maximize the reach, effectiveness, efficiency, and impact of HIV services and resources for specific sub-groups [19].

Figure 1: Building Blocks of Differentiated Service Delivery

1.6.1 Application of the DSD Framework

In the application of the model to the study, the DSD framework was used to explore the HIV services needs of traders in a market setting. Specifically, it was used to understand: When should these services be provided? Where should these services be provided? Who should provide these services, and What HIV services are needed by traders? [50]. The following is how each building block of the model was used in this study.

1.6.1.1 When Should HIV Services Be Provided?

This supported the determination of appropriate timing for providing HIV services to marketers [52]. In this regard, the study explored opinions on appropriate timing for the provision of health services to the traders without disrupting their business [19]. This was necessary because, for some sub-groups, more flexible hours are key to enhancing their engagement in HIV programs [7].

1.6.1.2 Where Should HIV Services Be Provided?

The time spent and travel costs to clinics is known to affect retention in HIV care [19]. We, therefore, used this key element of the DSD model to explore location preference for the provision of health services for traders. This aspect is essential cognisant that the choice of health service location may vary according to the specific population being targeted [53,54].

1.6.1.3 Who Should Provide HIV Services?

This arm of the model served to explore the cadre of providers who would be more appropriate in enhancing HIV services for market settings [19]. Evidence points to the role of non-health providers in expanding access to HIV interventions, for the target population [7]. However, the reduced quality in clinical care linked to non-health cadres necessitates constant monitoring of the impact of such initiatives [55].

1.6.1.4 What HIV Services Are Needed by Traders?

This aspect was used to explore traders' preferred HIV services in this setting and whether they be accessed in standalone or integrated settings. While Stand-alone clinic runs on specific days, with specific personnel and HIV services physically separated from the rest [56], Integrated services involve the provision of HIV services in a general setting such as OPD [57].

1.7 Problem Statement

The Malawi government strives to ensure that all Malawians receive quality health care regardless of their location or socio-economic status [30]. This means that health services need to reach all people that need them. The ideal goal is that 95 % of all people living with HIV should know their HIV status, 95 % of all people diagnosed with HIV infection should receive ART, and 95 % of all people receiving ART should achieve viral suppression by 2030.

To meet these targets, hard-to-reach subpopulations such as traders need to be targeted with need-based health care [27]. This requires, information on the health services needs of any population [58]. However, for traders, this information is rarely available. Besides, coverage of HIV services in the market is largely unknown [59]. This is happening when gaps in HIV services provision have been reported in an informal economy setting in South Africa [15].

The consequences of these gaps are huge and include a threat to profitability, and increased mortality and morbidity of the informal economy workforce [15]. Therefore, this study aimed to explore the HIV Services needs of traders in a market setting to gather the information that is essential to strengthen scale-up and repackaging of HIV services for the markets and other related settings [33].

1.7.1 Significance of the Study

The study helped to build an evidence base to inform; What HIV services are needed? When should they be provided? Who should provide them? Where should these services be provided, and how should the HIV services be provided to ensure that traders have greater reach to HIV services.

CHAPTER 2: STUDY OBJECTIVES

2.1 Broad Objectives

The broad objective of the study was to explore HIV services that are needed by traders at Lilongwe Central market.

2.2 Specific Objectives

Specific objectives of the study included the following:

1. To identify types of HIV services that traders at Lilongwe Central market need.
2. To explore methods of providing HIV services to traders at Lilongwe Central market.
3. To explore factors that affect the provision of HIV services to traders at Lilongwe Central market.

CHAPTER 3: METHODS

3.1 Introduction

This chapter details method used to conduct the study including study design, study places, study population, sample size, selection of study participants, study period, data collection process, data management, data analysis, study limitations, and ethical considerations.

3.1.1 Study Design

An exploratory research design that examines phenomena, perceptions, and ideas of specific social groups that have not been examined as intensely as other groups were used [60]. This design is appropriate for projects that deal with exploring the phenomenon [60]. This study design was used to explore, ideas, and perceptions of traders on their HIV service's needs.

3.1.2 Study Setting

The study was conducted at Lilongwe's central market, Malawi. This is the largest retail market with a population of approximately 2000 traders in 2019 [61]. It is located in Lilongwe urban where in 2016 HIV prevalence was 11.6% [62]. The market is managed by Lilongwe City Council which is mandated to allocate space, provide waste collection, and sanitary facilities [61]. Commonly sold items include fresh and dried meat and fish, fruits and vegetables, hair products, groceries, clothes, shoes, tinsmith services, carpentry, car spare parts, and hardware [61]. The market shares its border with Bwaila Hospital which is managed by Lilongwe District Health Office and it offers both In-Patient (Maternity and Tuberculosis(TB)) and Out-Patient services [63]. Martin Preuss Centre clinic which is within Bwaila hospital campus offers an integrated TB and HIV clinic, managed under the partnership of Lighthouse and

Lilongwe District Health office. It has several units that are responsible for HTS, ART, and the management of tuberculosis [63].

3.1.3 Study Population

The study population included traders who do business in this study setting and their market chairman. It also included an ART and HIV Coordinator from Lilongwe D H O and Lilongwe City Council respectively and a Labour Officer from Lilongwe District Labour office.

3.1.4 Study Period

The study was conducted from November 2019 to December 2020 as shown below.

Table 1: Gantt's Chart of study activities

Activity	**Nov 2019**	**Feb 2020**	**April 2020**	**June 2020**	**Aug 2020**	**Octo 2020**	**Dec 2020**
Two-page proposal							
Literature review							
Proposal development							
COMREC submission							
Data collection							
Data analysis							
Submission of research							

3.1.5 Sample Size

Purposive sampling which are commonly used form of non-probabilistic sampling and relies on saturation were used [64]. Research has shown that among a homogeneous population, saturation may occur when samples of 12 participants are interviewed, with more than 12 interviews if the goal is to assess variation between distinct groups or correlation among variables [64, 65]. Others studies suggest 5 to 50 participants as adequate [66]. The present study used a sample of 20 participants which included 16 IDIs from various sections of the market and 4 KIIs, each from Lilongwe District Health Office (DHO), Lilongwe City Council, Ministry of Labour, and Lilongwe Central market.

Table 2: Classification of study participants

Participant	Variation	Rationale	Number
Key Informants	1. HIV Coordinator-DHO 1. Market Chairman 1. HIV coordinator-city Council 1. Labour officer	To explore HIV services that are needed by traders at Lilongwe Central market	4
Men	1. Second-hand clothes 1. Hardware dealer 1. Restaurant service 1. Textile's seller 1. Stationery dealer 1. Cosmetics 1. Irish potato seller 1. Vegetables	To explore HIV services that are needed by traders at Lilongwe Central market	8
Women	1. Second-hand clothes 1. Hardware dealer 1. Restaurant service 1. Textile's seller 1. Stationery dealer 1. Cosmetics 1. Irish potato seller 1. Vegetables	To explore HIV services that are needed by traders at Lilongwe Central market	8
Total			20

3.1.6 Sampling Technique

Purposive sampling method was used to select participants based on their knowledge about market traders and business experience [67]. Maximum variation sampling method was achieved by purposively selecting a wide range of traders for the inquiry [68].

3.1.7 Eligibility Criteria

3.1.7.1 Inclusion Criteria

- Adults' traders aged 18 and above.
- At least 3 consecutive months trading at Lilongwe Central market
- Those consenting to participate.
- Officers responsible for HIV services in Lilongwe District.
- Able to read and write in either English or Chichewa.

3.1.7.2 Exclusion Criteria

- Those who are not into selling business.
- Mobile Vendors.
- Those uncomfortable with putting on a mask

3.1.8 Data Collection

Data were collected using semi-structured open-ended IDIs and KIIs from eligible study participants and HIV Coordinators from Lilongwe District Health office, Lilongwe City Council, and Lilongwe District Labour Office. In-depth interviews are optimal for collecting data on individuals' personal histories, perspectives, and experiences [69]. The interview guide addressed the objectives of the study through open-ended questions formulated from the DSD conceptual framework (See Appendix 2A and 3A). Data collected included participants' opinions, experiences, perceptions, and insights on, When and Where to provide the HIV services? Who provides the HIV services? and What HIV services are needed by traders. Demographic data on age, gender, education, marital status, occupation, and other factors were collected from participants to validate different views and experiences [69].

Data collection tools were designed in both English (see Appendix 2A and 3A) and Chichewa (see appendix 2B) and were pretested at Kawale market. The pilot did not result in any changes to the interview guide. The results from the pilot were not included in the study. Data collection tools had demographic data, questions on HIV service's needs of traders, methods of providing HIV services, and factors that affect the provision of HIV services to traders. All audio recorded interviews were done at City council offices within the market setting. This venue was identified to maintain the confidentiality of study participants. Unique identifiers were used to secure interview records.

3.1.9 Data Management

To ensure consistency, the researcher listened to audio-recorded IDIs and KIIs at least 3 times before transcription. In the process, the researcher translated the audios, content from Chichewa into English, and thereafter transcribed the data verbatim. Translated transcripts and audio recorded data were stored in the researcher's computer and google drive software and were only accessed by the researcher.

3.1.10.1 Data Credibility

Several methods are used to establish if research findings are correct interpretations of the participant's views. This study used member checks [70].

3.1.10.1.1 Member Check

The purpose of doing member checks was to eliminate researcher bias when analysing and interpreting the results [71]. The researcher summarised key findings at the end of each interview with participants to get feedback from them if the findings reflected their accounts

[72]. This was also done for participants to evaluate the interpretation made by the researcher and to suggest changes if they had been misreported [71].

3.1.10.2 Data Dependability

This refers to the stability of findings over time and involves participants' evaluation of the study findings, interpretation, and recommendations of the study to ensure that they are supported by participants' accounts [70]. In this study, data dependability was achieved using an audit trail.

3.1.10.2.1 Audit Trail

To address the dependability, all steps taken from the start of the project to the reporting of findings were transparently described [70]. During the study, the researcher took field notes and audio recorded the interview to aid in the ascertainment of original participants' accounts. Following each interview, the researcher summarised key findings to be sure that the findings represented participants' views or if some accounts were missed or misreported. After the data collection process both IDIs and KIIs audio records were transcribed verbatim.

3.1.10.3 Data Transferability

This is described as the degree to which the results of qualitative research can be transferred to other contexts or settings with other respondents [72]. The researcher facilitated the transferability judgment by a potential user through a thick description. This was achieved through elucidating all the research processes, from data collection, the context of the study to the production of the final report to help other researchers replicate the study with similar conditions in other settings [73].

3.1.11 Data Analysis

The researcher used deductive content analysis for themes that were drawn from the DSD framework and inductive content analysis for new and unexpected ideas that emerged from the data [68]. Data analysis were conducted manually using a 6 step by step framework analysis for qualitative data by Braun and Clarke [74] as follows:

Familiarising with data: Through the repeated reading of the data while searching for meanings, and patterns, the researcher immersed himself in the data to the extent that he became familiar with the content. The researcher then transcribed the verbal and nonverbal data into written form while ensuring that the transcript retains participants' verbal accounts.

Generating initial codes: In this phase, initial codes were produced from the data. The researcher identified features in the data that appeared interesting, and which referred to 'the most basic information that could be assessed in a meaningful way regarding the phenomenon.

Searching for themes: This phase, involved sorting different codes into potential themes and collating all the relevant coded data extracts within the identified themes. The researcher started to analyse the produced codes and considered how different codes would combine to form an overarching theme.

Reviewing themes: During this phase involved discarding some candidate themes there were not themes, collapsing those themes relaying the same message into each other, and separating those themes relaying different messages into separate themes. The researcher employed internal homogeneity and external heterogeneity considerations by ensuring that data within themes cohere together meaningfully while ensuring that there was a clear and identifiable distinction between themes.

Defining and naming themes: This phase involved ongoing analysis for refining the specifics of each theme, and the overall story that the analysis told, generating clear definitions and names for each theme [75].

Producing the report*:* It involved a selection of vivid, compelling extract examples, the final analysis of selected extracts, relating the analysis to the research question and literature, and the production of a report of the analysis [75].

3.1.12 Presentation of the Results

Study findings were presented in line with both the identified themes and the Differentiated Service Delivery (DSD) model used in this study.

3.1.13 Dissemination of the Results

Study findings and recommendations will be shared with the Department of HIV and AIDS (DHA). A copy of the thesis will be submitted to the College of Medicine Research and Ethics Committee (COMREC) and College of Medicine Library. Finally, the researcher plans to publish findings in the local peer-reviewed journal.

3.1.14 Ethical Considerations

The major ethical issues in conducting research are; Informed consent, beneficence, respect for anonymity and confidentiality, and respect for privacy [76]. Informed consent which is a major ethical issue in conducting research was achieved by asking participants to sign an informed consent form worded in both Chichewa and English (See Appendix 1A and 1B). The study used unique identifiers in both transcripts and recordings to safeguard participants' privacy. The study did not give participants any incentives for their participation. Study purpose and

benefits were explained to the participants by the researcher. The right to withdraw from the study at any point without consequences was also explained to the participants. This study received ethical approval from the College of Medicine Research Ethics Committee (COMREC No: 3030) as indicated in appendix 4.

3.1.15 Constraints

The major challenge in this study was that data was collected over a long period because participants were not available on most days because of business priorities. This affected the next phases of the study.

3.1.16 Study Limitations

The study was conducted in one urban and static market whose characteristics may be different from other rural and mobile markets. Therefore, the study findings are specific for the study setting.

CHAPTER 4. STUDY RESULTS

4.1 Introduction

Explorative qualitative research was conducted among traders trading at Lilongwe Central market. An ART and HIV Coordinator from Lilongwe DHO and Lilongwe City Council respectively and a Labour officer from Lilongwe Labour Office, participated in this research. The study explored HIV services that are required, methods of providing these services, and factors that affect the provision of these services to traders. During August 2020 and September 2020, sixteen in-depth interviews, and four key informant interviews were conducted among participants in the market setting. All in-depth interview participants and Key informants attended only one interview which lasted for about 26- 80 minutes.

4.2 Demographic Characteristics of Key Informants

Key informants comprised two HIV Coordinators from Lilongwe DHO and City council, one officer from Lilongwe Labour Office, and a market chairman from Lilongwe Central market. Their median age was 40 (IQR: 32-47) and two of them were females.

4.3 Demographic Characteristics of Study Participants

Sixteen traders were interviewed and 8 of them were females. Thirteen of them were married. The median age was 41 (IQR:37-51.5), and 35 (IQR: 34-38.5) for men and women respectively. Three traders attained a tertiary level of education though in non-business-related fields. The median business experience years among participants was 14.5 (IQR:8-20.5).

Table 3: Demographic profile of study participants

Code	Sex	Age	Marital status	Education	Business	Business experience (Years)
P001	M	40	Single	Tertiary	Restaurant	13
P002	F	35	Married	Secondary	Restaurant	07
P003	M	48	Married	Primary	Vegetables	21
P004	M	35	Married	Secondary	Irish Potato	07
P005	F	46	Married	Secondary	Vegetables	20
P006	F	40	Married	Tertiary	Textiles	15
P007	F	37	Married	Primary	Textiles	27
P008	M	56	Married	Primary	Hardware	35
P009	M	55	Married	Primary	Hardware	25
P010	F	33	Divorced	Secondary	Second-hand clothes	03
P011	M	42	Married	Secondary	Second-hand clothes	09
P012	F	35	Married	Primary	Irish potato	14
P013	F	32	Single	Secondary	Stationery	07
P014	M	36	Married	Secondary	Cosmetics	20
P015	M	38	Married	Tertiary	Stationery	17
P016	F	35	Married	Secondary	Cosmetics	12

Table 4: Summary of Themes in Relation to Study Objectives

Objective	Theme	Sub-theme
To identify types of HIV services that traders at Lilongwe Central market need	Knowledge of HIV services	HIV Testing
		Receiving ARVs
		Provision of Condoms
		PMTCT
		VMMC
	Availability of HIV Services	Not available currently
	Acceptability of HIV services	Generally acceptable
	What HIV services are needed by traders?	HIV Testing Services
		Provision of Antiretroviral drugs
		Provision of Condoms.
		HIV awareness campaigns.
To explore barriers and enablers that influence traders access to HIV services at Lilongwe Central market	Factors hindering provision of HIV services	Individual Level Factors
		Health System-level factors
	Factors facilitating provision of HIV services	
To explore methods of providing HIV services to traders at Lilongwe Central market	When should HIV services be provided?	When the market is less busy
		Every day and without time restriction.
		Preceding a planned community program
	Where should HIV services be provided?	At a health Facility
		Within the market setup
	Who should provide HIV services	Health care workers
		Fellow traders-Peers
	How to provide HIV services	Integrated services
		Stand-alone services

4.4 Presentation of Results

Results are presented in relation to the objectives of the study.

Objective 1. Types of HIV Services that Traders at Lilongwe Central Need

In response to this objective, four themes emerged from the data. These are knowledge about HIV services, availability of HIV services, acceptability of HIV services, and HIV services.

4.4.1 Knowledge of HIV Services

4.4.1.1 Knowledgeable About HIV Services

Participants expressed knowledge about HIV services currently available in Malawi. Their response was in terms of the order in which HIV services are accessed at the health facility following an HIV test as in the below quote.

> *[…] If the results of HIV testing are HIV positive, health workers give you ARVs and if someone is HIV negative can be given condoms as an HIV prevention method to help him/her to remain negative. The other service I know; is that if a woman is expectant and if she is HIV positive it is possible to save the life of the child by giving medications to the mother to make sure that the child does not contract HIV.* ***P006***

4.5 Availability of HIV Services

4.5.1 Not Available Currently

The study found that there were no HIV services available in this setting with a once-off HIV testing outreach activity in 2016 as below:

In this market no HIV services are being provided, we must access them at the hospital if we need them. It is four years ago when we had the last HIV service and unfortunately at that time, we did not participate because we did not know that HIV testing is important. ***P010***

4.6 Acceptability of HIV Services

4.6.1 Generally Acceptable

Acceptance of HIV testing was demonstrated by rare suicide reports following an HIV-positive diagnosis as in the below quotes.

These days many people have accepted HIV issues. We no longer hear reports that someone has committed suicide after an HIV test because people accept their HIV status when they access HIV testing. ***P002***

4.7 What HIV Services are Needed by Traders?

HIV testing, ART, Condom's dispensation, and HIV awareness campaigns were the HIV services traders preferred in this setting.

4.7.1 HIV Testing Services

HIV testing was meant to help reach out to traders who, refuse health care seeking despite being unwell because they prioritise business. Another motivation for having HIV testing services was to facilitate linkage to prevention, treatment, and care services.

Because many people continue to come for business despite being unwell. When you tell them to seek medical help, they refuse yet they are not okay. They end up being taken to the hospital in a wheelbarrow when their health has worsened. ***P010***

When someone has tested, they will know their status, which will enable them to receive appropriate care. Those who test HIV positive can access ARVs, while those who test HIV negative can be linked to prevention services. ***P011***

4.7.2 Antiretroviral Services

ART services were needed to facilitate their ease of access. Convenient ARVs in this setting would mitigate economic losses associated with time spent queuing at ART clinics.

The challenge is that many traders in this market survive hand to mouth. This makes it difficult for them to leave their business and go to the hospital. The availability of ARVs in this market can offer an advantage as traders can easily get their medication without disrupting their business. ***P002***

4.7.3 Condom Dispensation

Traders proposed the need for condom dispensation in this setting because they felt that in markets sexual activities are inevitable. They were further concerned that branded condoms were expensive.

A market is a place where different groups of people including young women and young men meet. In such a place the likelihood of sexual activities is high. It can be

good to have a location where traders can find condoms as part of the HIV prevention strategy. ***P002***

Free condoms should be available so they can be used because there may be incidences where someone wants to have sex but does not have money. This can put someone at risk of contracting HIV. ***P005***

4.7.4 HIV Awareness Campaigns

Awareness campaigns were needed to promote HIV services uptake. This awareness would cover aspects of measures like HIV testing and VMMC without necessarily conducting the VMMC procedures within the market setting.

To sensitise people so that they should be interested in HIV testing. Some just hear about it but, they have never tested, and they do not know the benefits of HIV testing. ***P014***

[…] More importantly, the message about the benefits and the importance of VMMC should first reach traders. Because I do not think that everyone is aware. ***P015***

Objective 2. Explore Methods of Providing HIV Services to Traders

The main themes to address this objective emerged from the DSD framework and they include: When should HIV services be provided? Where should HIV services be provided? and Who should provide these services, and how to provide HIV services?

4.8 When Should HIV Services Be Provided?

The services could be provided when the market is less busy, every day and without time restrictions and, preceding a planned community program.

Table 5: Summary of When Should HIV Services be Provided.

	HIV Service type	When the market is less busy	Every day without time restriction	Preceding a planned community program
1	HIV Testing	●	●	
2	Antiretroviral Therapy	●	●	
3	Condom Dispensation		●	
4	HIV Awareness			●

4.8.1 When the Market is not Busy

Traders prefer to access HIV services when the market is not busy to allow more traders to use the services. This is vivid in the following respective responses.

> *In this market, the ideal time for services can be when most traders are free, and few customers are coming in to buy commodities. This time is usually between 02.00 pm and 03:00 pm. The best day is Wednesdays unlike Mondays and Tuesdays when business peaks as people have used up what they bought since they are coming from the weekend.* ***P004***

The best time for ARVs refills is from 04:00 pm to 06:00 pm because during this time the market is not very busy since customers who planned to buy things from the market have already done so. ***K006.***

4.8.2 Every Day Without Time Restriction

ARVs and were to be accessed all time and everyday ART services similar to the unrestricted provision of such services in public health facilities so that people can access them at their convenience. Condoms were also suggested to be readily available in this setting every day hoping that people will use them because it is no longer shameful to collect them since in addition to collecting them for sexual intercourse, they are also used as a family planning tool.

Dispensation of ARVs at the hospital is done every day… the best is to leave it that way so that anyone can go and refill anytime. ***P015***

Condoms should be available anytime because many people are not ashamed to collect condoms. After all, while others collect them for sexual protection, others use them for family planning. ***P004***

4.8.3 Preceding a Planned Community Program

Awareness about any HIV service should be done before any planned HIV service to maximise patronage of the service.

The purpose of awareness is to make people aware of an upcoming event or activity and its importance. Therefore, it must be done on a separate day before the planned event, so that someone can decide and plan to participate. ***P014***

4.9 Where Should HIV Services be Provided?

Participants categorised services such as HIV testing, ARVs, and condoms dispensation as services that could be dispensed in the market in a mobile van or City Council offices within the market or through regular health facilities.

Table 6: Summary of Where should HIV Services be Provided

HIV Service type	Market-Based	Facility-Based
HIV Testing	●	●
Antiretroviral Therapy	●	●
Condoms Dispensation	●	●

4.9.1 Market-Based HIV Services

HIV testing can be accessed in a room or a mobile van within the market setting to safeguard traders' privacy. The need for HIV testing within the market was to make the service convenient as opposed to accessing it from a public health facility.

> *HIV testing does not take long and therefore can be accessed even here at the market if there can be a room or a mobile Van.* ***P006***

> *If it can be accessed here at the city council office within the market. People can come since it is near; because when we say HIV testing should be accessed at Bwaila hospital, even if we inform them that HIV services are available there, traders cannot go.* ***P010***

The provision of ARVs within the market in a temporary constructed shelter was to avert longer waiting times at the health facility and the long distance that clients must cover to reach the public health center as encapsulated in the below quotes.

> *PLHIV can receive ARVs at a temporary shelter constructed at the market car park. In doing so, it can be like reducing the burden of queuing at the hospital.* ***P008***
>
> *Taking ARVs closer to traders will reduce both the time and distance taken to get the ARVs from the hospital.* ***K004.***

Additionally, participants stated that condoms should be dispensed in a clinic within the market where traders can be offered free condoms upon receiving other health services. This is illustrated in the following response.

> *If we can have a clinic within the market where traders can be offered free condoms while participating in HIV testing with an encouragement to return for additional condoms like how people access them at Banja la Mtsogolo clinic.* ***P002***

4.9.2 Facility-based HIV Services

Fear of compromised confidentiality in the market setting necessitated the provision of the same services at a public health facility. Participants were further worried that if services were provided in the market, then they would miss out on professional reviews and laboratory investigations that are available in health facilities as in proceeding testimonials.

HIV testing should be delivered at the hospital because privacy concerns associated with the presence of a lot of people in the market can affect traders' willingness to participate in the services. ***P004***

ARVs should be accessed at the hospital because they offer other laboratory tests and measure your weight to assess if you are responding to ART medications unlike receiving drugs in this setting. ***P016***

4.10 Who Should Provide HIV Services?

Regarding cadres of different HIV services, it emerged that HTS, and ART be provided by both Health workers and Peers, Condoms are to be provided by peers while HIV awareness is to be done by both Health workers and peers.

Table 7: Summary of Who Should Provide HIV Services

	HIV Service Type	Fellow Trader-Peers	Health Care Workers
1	HIV Testing	●	●
2	Antiretroviral Therapy	●	●
3	Condoms Dispensation	●	●
4	HIV Awareness	●	●

4.10.1 Fellow Traders-Peers

Participants reported that their peers who have been adequately trained in ethics can offer HIV testing services.

It is possible to access HIV testing through peers after they have undergone appropriate training because, through such training, they will acquire skills in ethics that are necessary for safeguarding clients' privacy. ***P011***

Traders suggested the use of peers in collecting ARVs from a facility and distributing them to traders on ART within this setting. This model has been used before in the delivery of ARVs in villages and could be applied in a market.

PLHIV can go to the hospital and collect the ARVs and distribute them to peers in this market setting. ***K004***

Cognisant that there may be barriers to accessing condoms among people of varying age groups, participants suggested having peers of varying age groups distribute among their peers within their age band. They also recommended that this peer-led condom distribution be coupled with some supervision by health care workers.

An elderly and youthful trader can be identified to support condom distributing to peers within their respective age bands because giving an elderly person to distribute to teenagers, they do not speak the same language. ***K004.***

Condoms can be shared amongst ourselves. The health worker can just take a supervisory role in the condom distribution process. ***P014.***

Traders further wanted HIV awareness to be done by young men within the market who already disseminate other communications.

We have our young men who make communications whenever there is any information that traders need to know. The same can-do HIV awareness campaigns. ***P013***

4.10.2 Health Care Workers

Health workers were opted in the provision of HIV testing, unlike peers deemed because they are ethical. Medical personnel's valuable knowledge about HIV testing procedures was central to their choice as HIV testing providers as in the below assertions.

Health workers are appropriate because they safeguard privacy unlike me and my peers who immediately have disagreed on something, words like "You have AIDS, you have the virus" can easily come out. ***P007***

It must be someone with knowledge on what to do during HIV testing. Not everyone has this knowledge but those who did medical training. ***P009***

The choice of a community nurse in ART provision was to facilitate ease of access while doing their business setting. Additionally, health workers were chosen because of their role in the management of ARV-related complications.

[…] For the convenience of traders, it can be good if drugs can be delivered to this business community using community Nurses. ***K004***

It must be a doctor because it is also possible that whilst taking ARVs others can develop a rash, nausea, and loss of balance. Patients with such outcomes can be reviewed by a doctor who can initiate further investigation. ***P013***

Health care workers were also preferred in the provision of HIV awareness campaigns because they are trained to do it. Participants were concerned that if the awareness was to be done amongst themselves, it would not be seriously comprehended.

> *It should be a doctor because they are trained on health issues otherwise if we can choose someone to provide awareness among ourselves; it cannot be effective since we know each other and therefore, we can look down on each other.* ***P012***

4.11 How to Provide HIV Services?

4.11.1 Integrated HIV Services

Integrating HIV services with general health services safeguards privacy and confidentiality because people cannot know what services are being accessed. Participants further preferred to brand the outreach clinic for traders as a general to mitigate the stigma associated with accessing HIV services assertions captured in the following responses.

> *HIV services should be offered together with other services. In such a setting, even if someone spots you, you cannot be worried because everyone knows that in this clinic, there is diverse range of health services being provided.* ***P004***

> *[…] If HIV services are being provided in a general setting; everyone will go without any concerns. They can just say "I am not feeling well in my body", yet they aim to access an HIV test". Branding the clinic as HIV-specific will scare others from patronizing the services fearing being seen by the public.* ***P009***

4.11.2 Standalone HIV Services

Other participants viewed Standalone HIV clinics as less stigmatizing because people in such settings are all living with HIV as in the below narrative.

> *Even at Bwaila Hospital, services are separated with one side offering HIV services and the other side TB services so that even if people meet in these different settings, they feel safe because they know that all of us in this setting have the same disease.* ***P003***

The choice of standalone HIV services was a way of avoiding the risk of unintended disclosure whenever HIV-negative people seeking non-HIV-related services interact with those seeking HIV-related services in integrated settings.

> *HIV services should be provided separately from other health services because when they are offered together, there is a risk that those seeking non-HIV-related services may conceal the identities of those seeking HIV-related services.* ***P013***

Objective 3. Factors which Affect the Provision of HIV Services to Traders

From this objective two main themes emerged, and these are barriers and enablers to HIV services provision to traders in the market.

4.12 Factors which Affect the Provision of HIV Services for Traders

4.12.1 Factors Hindering Provision of HIV Services

Factors that make it difficult for traders to access HIV services have been categorised as Individual and Health system-level factors as below:

4.12.1.1 Individual-level factors

4.12.1.1.1 Competing Interests

Loss of income associated with disrupting business for consultations at health facilities affects traders' HIV services uptake as reported in the following quote.

> *You can leave your business and go for an HIV test at a health facility. However, the feeling is you have is that you have lost millions because during this period customers will be buying from other marketers.* ***P013***

4.12.1.1.2 Fear of HIV-Positive Results

Fear of HIV testing outcomes prevents people from accessing HIV services as is illustrated in the following response.

> *It can happen that you were chatting properly with your friends in the market; when you have been diagnosed HIV positive; your mood will change, which will make your friends conclude that you have been diagnosed with HIV since they spotted you accessing an HIV test.* ***P016***

4.12.1.1.3 Lack of Knowledge About the Available HIV Services

Lack of knowledge about the availability of HIV services in health facilities is a barrier that affects the utilisation of HIV services as indicated in the following quotes.

> *I do not think all traders in this market are aware that they can find the HIV services which we are discussing at the Bwaila hospital.* ***P006***

Lack of knowledge about the availability of HIV services is a barrier affecting HIV services access because for one to access HIV services they need to be aware that such services are available. ***K005***

4.12.1.1.4 Lack of Support from Employers

Reluctancy of some employers in the market to allow their employees to seek health services when they need them was seen as an impediment to health care access. This is illustrated in the following responses

[…] Our friends who are employed by foreign nationals find themselves reporting for work despite feeling unwell because whenever Chinese employers allow their employees to seek health care when coming back, they will hear that they have been terminated. ***K006***.

4.12.1.2 Health System-level Factors

4.12.1.2.1 Amount of Time Spent at the Health Facility

The more time spent in public health facilities due to large numbers of patients seems a barrier to traders' access to facility based-health services. The following response alludes to this finding.

[…] There are usually large numbers of patients at Bwaila hospital coupled with a universal testing policy where every patient undergoes HIV testing before their specific needs are met [...]. The long time spent there make us lose customers. ***P013***

4.12.1.2.2 Health Worker Shortage

Human resources shortage hinders HIV service provision because the few health workers are overwhelmed with the available workload resulting in delayed consultations as in the following excerpts from interviewee's narratives.

> *The number of health workers in the hospital is inadequate such that the workload becomes huge for them. If there can be at least three doctors working at the same time, we can get timely assistance and go back to the market in good time* ***P002.***

4.12.1.2.3 Health Workers' Attitude towards Their Work

Poor conduct of health workers while on duty was also reported to impede the provision of HIV services as captured in the following quotes.

> *Health workers are not interested in attending to patients unless patients come in a critical situation. Much as we have few doctors, the few do not observe time… Therefore, patients resort to buying medicines from dispensaries.* ***P003***

> *You can decide to go to the hospital to access HIV services but when you go there, you see them just moving about. They are busy with social media, and you wonder whether you will be assisted.* ***P007***

4.12.1.2.4 Financial Resources Challenges

Limited funding cripples the ability of health service providers from providing market-based health programs as captured in the following respective quotes.

The biggest challenge we have at the DHO level is our capacity to sustain the provision of HIV services to traders in the markets. This is because of the inadequate resources available to support allowances and fuel for market-based outreach activities. ***K004***

[…] The first challenge is financing […]. The resources government allocates to the City Council are not adequate. Therefore, while community-based health services plans are available, we fail to implement them. ***K005.***

4.12.2 Factors Facilitating Provision of HIV Services

4.12.2.1 Proximity to a Health Facility

Availability of a public health facility near the market, where HIV services are available is an enabler that facilitates services access for traders as is in the following testimonials.

We from the Central market are fortunate because Bwaila hospital where ART services are available is closer to this market. ***P006***

4.12.2.2 Availability of HIV Commodities

The availability of HIV commodities at health facilities under the authority of Lilongwe DHO facilitates the provision of HIV services. This notion is illustrated in the following quotation.

We have enough stock of both HIV testing kits and HIV drugs to support the provision of health services. We also normally have adequate Family Planning supplies courtesy of our partner's support. ***K004***

4.12.2.3 Availability of a Follow-up System

The existence of a defaulter tracing program through Community Health Workers (CHW) from public health facilities was recognised as facilitating retention in care.

> *[…] We thank health workers because when you stop reporting for reviews and ARVs refill, they follow you up to understand your problem.* ***P016***

CHAPTER 5: DISCUSSION

5. Introduction

This chapter presents a discussion of the study findings. The results are discussed in relation to the study objectives and the DSD conceptual framework used.

5.1 Knowledge of HIV Services

Traders are knowledgeable about HIV testing, ART, Male circumcision, and Prevention of Mother to Child Transmission (PMTCT) services consistent with previous studies [5]. Contrary, a study in a similar setting in Nepal [43] found gaps in HIV services knowledge, indicative of the need to expand HIV services awareness to marketers and other similar groups.

5.2 Availability of HIV Services

The absence of any HIV services in our study setting is consistent with a previous study [34]. However, previous studies have reported the provision of ART, HIV prevention, and care services in the informal economy in Zimbabwe and Nigeria [5,77]. The need for the availability of HIV services in markets is consistent with the Differentiated Service Delivery model used in this study which supports reorienting health services towards specific subgroups with a construct to improve their access while decongesting health facilities [26]. This study supports efforts that aims to narrow down the gap between the high HIV burden and the unavailability of HIV services in the markets and other related settings [33].

5.3 Acceptability of HIV Services

Acceptance of HIV services was demonstrated through minimal reports of suicide attempts following knowledge of HIV status consistent with previous research [47]. However, suicide

attempts after an HIV-positive diagnosis have been reported in Tanzania [41]. This reinforces the need for standard counselling skills to facilitate acceptance of HIV testing results.

5.4 What HIV Services Are Required?

5.4.1 HIV Testing Services

Availability of HIV testing services in a market setting reduces delayed health-seeking consistent with previous studies from both high and low-income countries [23,45]. Notably, the provision of HIV testing services in a market setting can identify people with undiagnosed HIV infection including those that postpone seeking health care until when they are critically ill [36]. Our finding that HIV testing is required by traders builds upon earlier assertions that contended that such services serve as a gateway to prevention and treatment [54,78]. Over time, community-based services target communities and therefore aid in earlier HIV detection [23]. This underscores the need for mobile HIV testing services for the market settings.

5.4.2 Antiretroviral Therapy Services

The convenience associated with the delivery of ARVs in the market setting was a key driver in wanting them there as that would minimise disruption to their business which was also reported in previous research [79]. Although workplace HIV policies are a standard way of ensuring successful workplace-based HIV programs they are more focused with the phenomena of formal sectors [9], and in most workplaces these policies rarely provide costly treatment interventions [1]. We recommend the development, piloting, and scale-up of workplace HIV policies that are tailored for the informal economy including markets [1].

5.4.3 Condom Dispensation

Our findings on condom dispensation in the market, build upon earlier findings [1] which demonstrated successful condom programming within the informal economy in South Africa. Additionally, the availability of condoms in the marker curbs the inability of marketers to purchase condoms due to cost implications consistent with previous research [80]. This highlights the importance of concerted efforts to ensure that free condoms which are available in public health facilities are channelled to high-risk HIV settings like markets [78].

The desire for HIV services awareness campaigns in this study is consistent with other studies [54], that have recommended its need as a means of increasing knowledge about the importance and existence of HIV services. Notably, HIV awareness is required in markets and other related settings because it will encourage traders to seek out services [47].

In as much as the Differentiated Service Delivery model is primarily associated with ART provision in generalised epidemic settings, the World Health Organisation (WHO) promotes its application in the provision of targeted HIV testing, treatment, and prevention services for specific subgroups of people who are underserved [19].

5.5 When Should HIV Services Be Provided?

5.5.1 When the Market is not Busy

The preference for accessing HIV services during specific times when the market is less crowded is similar to a previous study [16]. This finding reinforces the importance of providing HIV testing during off-hours, including weekends, to accommodate those who are pressed for time [81]. These findings are echoed by the Differentiated Service Delivery (DSD) model [52]

which promotes the delivery of HIV services at a time that is appropriate for specific groups of people.

5.5.2 Every Day Without Time Restriction

Furthermore, there were assertions that HIV services be provided at all times, which builds on previous studies that recommended the same as a measure of resolving access challenges among PLHIV [16,41]. Notably, these access challenges are more pronounced in specific subgroups, which do not only have fewer options for HIV services but also have difficulty reporting for clinic appointments [82]. This finding supports the argument that ART clinic hours should not be limited [16].

5.5.3 Preceding a Planned Community Program

The preference for holding an awareness session before providing any community HIV service in the market capitalises on the benefit of community mobilisation to generate demand for the service [102,103]. This strategy has proven to be effective in facilitating community HIV services utilisation in previous research [85]. We recommend an awareness campaign in the market before implementing any HIV services.

5.6 Where should HIV Services Be Provided?

5.6.1 Market-Based HIV Services

Providing HIV testing through a mobile van within the market is consistent with a previous study that demonstrated success when HIV testing services were provided from temporary tents [84]. Consistent with our findings, HIV testing via mobile vans has shown to be acceptable and satisfactory [86]. As a result, providing HIV testing in market settings through temporary

structures and a mobile van could be explored in Malawi [87]. This approach is supported by the Differentiated Service Delivery model which promotes a shift from facility to community-based HIV testing whenever necessary, to further influence patients' care through more convenient services [52]. Notably, taking HIV services to where the marketers or intended users are is a way of closing gaps in HIV services access [88].

Consistent with our findings, market-based ART provision can eliminate long waiting times and reduce the distance to clinics, both of which have been persistent barriers to ART provision [34,78,89]. As has been reported in our study, Antiretrovirals provided within the business setting remain convenient and do not disrupt the traders' business [90].

Accessing condoms in a clinic within the market setting resonates with aspects of having HIV services within the workplace where condoms are left in places that are convenient to employees [8]. Similarly, in previous studies [1] the presence of clinics offering HIV services to informal employees on site have supported the provision of condoms. We advocate for the establishment of clinics in informal business settings where condoms can be distributed alongside other HIV services.

5.6.2 Facility-Based HIV Services

Our findings on accessing HIV testing, ART, and condoms through the facility-based model are not new but add to the body of literature on what is currently available on mitigating stigma and discrimination [23,38,45,84], increasing the number of people who access HIV services [84], and an opportunity to access professional expertise [47,57].

Therefore, while advocating for differentiated services closer to communities where the targeted population lives, facility-based approaches must remain relevant.

5.7 Who Should Provide HIV Services?

5.7.1 Fellow Traders-Peers

Traders' acceptance of HIV testing from peers who have been taught well about privacy and confidentiality is consistent with previous research [86]. However, peer-led HIV testing services have to be developed with mitigation for gossip which affects acceptance of such services [81]. Furthermore, many countries are wary of peer-led HIV testing because of the limited quality of care that is associated with task shifting innovations [19]. Irrespective of such challenges, this study supports the use of trained peers in expanding HIV testing in community settings such as markets.

The finding that traders must collect ARVs for one another from a facility and distribute these to each other in the market setting is consistent with previous studies [79,89]. This approach is favoured because it reduces the amount of time traders would spend at ART clinics [89]. The Differentiated Service Delivery model advocates for shifting the delivery of ART from health workers to lay cadres in some contexts [79]. However, to optimise the use of this strategy, there is a need to research more on the reasons for the low uptake of community ART models in Malawi [24].

As was previously stated in earlier research [91]. traders in our study suggested that the distribution of condoms should be done by peers from the same age groups because this will promote their acceptance. Similar to our findings, there is a need to incorporate routine supervision over the peer-led distribution of condom strategies [55,91].

Our study further asserted that the provision of HIV service awareness campaigns be peer-led. These assertions on peer-led sensitisation have the potential of being effective because such

strategies have been effective in promoting HIV knowledge and uptake of HIV services [37,85,92]. Peer-to-peer health education is appropriate because peers are familiar with and can easily relate to the target group, which optimises information and service utilisation [92]. Also, the use of peers in promoting health information allows doctors and nurses to concentrate on complicated tasks [92].

5.7.2 Health Care Workers

Preference for health workers in the provision of HIV testing services because they adhere to ethics is contrary to previous studies [34,93] which reported a breach in confidentiality by health care workers during consultation. The need for the provision of HIV testing services from health workers due to their knowledge and expertise as reported in this study, is consistent with previous research [34,93]. However, the finding that peers are equally able to provide HIV testing according to set standards [86], gives hope to the provision of HTS services for traders and other hard-to-reach subgroups.

As has been reported in our study that antiretrovirals provided within business settings by health workers do not disrupt the traders' business and remain convenient [90]. The other notable advantage of having health care workers as providers of ART services in this setting is the prompt management of ART-associated side effects which facilites retention in care [40].

Our findings that health care workers should provide HIV awareness services are consistent with studies that have promoted their use and resulted in ongoing targeting of them with HIV awareness training [42]. This must be used with caution in Malawi, where trained ART providers failed to provide comprehensive information about ARVs, resulting in a higher ART

default rate [40]. Therefore, there is a need for improved training of health workers before they engage with market-based programs.

5.8 How to Provide the HIV Services

5.8.1 Integrated HIV Services

The role of integrated HIV services in protecting clients' confidentiality as reported in this study is contrary to previous research [94], where PLHIV feared they may be singled out when in such settings. However consistent with our findings, clients are more at ease in integrated clinics because it is more difficult to identify PLHIV in clinics shared by clients with diverse needs [81,94]. Our findings on designating an outreach clinic as a general clinic and not HIV specific clinic are consistent with measures of upholding confidentiality while integrating services [81].

5.8.2 Stand-alone HIV Services

As reported in this study vertical clinics play a critical role in protecting patients' privacy due to the PLHIV shared seropositivity [56,95]. However, contrary to our finding stand-alone clinics which are usually provided on designated days in Malawi promote congestion in the clinics that results in unintended disclosure of one's HIV status [16]. Additionally, vertical clinics creates the need for PLHIV with comorbidities, to visit several health facilities to access additional services which further compromises privacy [96]. As a result, wherever this model is implemented, striking a balance between stand-alone versus integrated services while weighing on the benefits and associated harms remains a challenge [95].

5.9 Factors which Affect the Provision of HIV Services for Traders

5.9.1 Factors Hindering Provision of HIV Services

5.9.1.1 Individual-level Factors

5.9.1.1.1 Competing Priorities

Our finding on the role of competing priorities in limiting traders' access to health care services is supported by previous studies [11,46]. As such, to mitigate this challenge, there is a need to engage traders and other similar sub-groups in planning and designing services that seek their participation [95].

5.9.1.1.2 Fear of HIV Positive Results

Fear of unintended status disclosure associated with access to HIV services has been identified as limiting access to HIV services among traders consistent with previous studies [34,37,93]. HIV-related stigma and discrimination are central to such fears [42,93]. This finding necessitates advocacy for policies that help mitigate stigma and discrimination among specific targets to facilitate access to health services [54].

5.9.1.1.3 Lack of Knowledge about Availability of HIV Services

Lack of knowledge about the availability of HIV services in public health facilities was reported to affect traders' services uptake parallel to previous research [93]. Notably, the ability to reach health services hinges on knowledge about their existence [97]. However, the reasons for the low uptake of health services despite knowledge about their existence may need to be explored [25,93].

5.9.1.1.4 Lack of Support from Employers

The reluctance of some informal employers to allow their employees to seek health services whenever they are in poor health, compromises access to health services in this setting. Much as this finding is rarely reported in the literature, informal economy workers are subject to such exploitation because their work is not subject to national labour legislation [70]. This makes this sector lack entitlement to certain employment benefits such as paid sick leave [59]. Therefore, this barrier must be resolved at the policy level to enhance advocacy for the rights. Of informal workers.

5.9.1.2 Health System-level Factors

5.9.1.2.1 Amount of Time Spent at the Health Facility

More time spent in public health facilities limits traders' access to HIV services consistent with previous studies [34,45]. Therefore, taking health-related services closer to traders' locations has the potential to enhance their uptake. This is because targeted approaches are often preferred because of their shorter waiting times [78].

5.9.1.2.2 Health Worker Shortage

Health worker shortage in public institutions has been reported as another important bottleneck affecting traders' access to quality health care consistent with previous studies [34,40,46]. While task-shifting has been used to temporarily cushion health worker shortage [29,48], there is a need for long-term solutions to increase their numbers while putting measures to retain them [55].

5.9.1.2.3 Health Worker Attitude Towards their Work

In addition to healthy worker limited numbers, their poor attitude as reported in this study further limit access to health services consistent with previous studies [34,41]. Contrary to our finding, the positive attitude of health workers enhanced uptake of HIV services in previous studies [45,97]. This necessitates improvement in health worker-client interactions because of its role in facilitating services uptake [97].

5.9.1.2.4 Financial Resources Challenges

Inadequate funding limits the implementation of targeted health services to communities like markets consistent with existing literature [8,47]. Therefore, the need for adequate funding to support coverage of HIV services for marketers and other settings with similar characteristics cannot be overemphasised. Enhanced funding to health facilities that provide services to markets and other hard-to-reach communities would be an ideal way of supporting the scale-up of health services in these settings [59].

5.9.2 Factors Facilitating Provision of HIV Services

5.9.2.1 Proximity to a Health Facility

The location of the market proximal to a public health facility was reported to facilitate access to HIV services parallel to previous studies [78,97]. Contrary to this finding, certain subgroups of people are not comfortable with health services that are provided within their societies due to fear of unintended disclosure in their localities [45,54]. Therefore, the provision of health services must first engage with the phenomena of the population being targeted.

5.9.2.2 Availability of HIV Commodities

Availability of adequate ARVs and HIV test kits at a Bwaila hospital which is closer to the study setting was reported to enhance HIV services utilisation among traders contrary to the lack of these commodities in previous studies [34,41,93]. Efforts to ensure steady stock of these commodities are needed to facilitate HIV services provision for both general and specific subgroups [34,93].

5.9.2.3 Availability of a Follow-up System

The need for defaulter tracing programs to follow up on some clients who miss out on their appointments as a way of facilitating retention in care as reported in this study is consistent with previous studies [40,63,97]. However, the lack of such programs has been reported in previous studies despite their important role in the success of treatment and care programs [51,98].

5.10 Strengths and Limitations

To the researcher's knowledge these findings are among the first qualitative study findings on this subject, hence could be useful to inform HIV strategies and interventions for the traders and other groups with similar characteristics in Malawi and Africa. These findings contribute to filling the gap in literature attempting to understand HIV services required by traders in markets and other similar settings. However, this study suffers some limitations; The research was undertaken at a time when the world was being heavily hit by the first wave of Covid-19 which affected the routine conduct of businesses and health services and that may have impacted our findings. Furthermore, this study was conducted in a market setting which is not quite representative of all informal economies' settings. Lastly, since the questionnaires used

in this study were researcher-led there is a possibility, that they were subject to social desirability bias.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Traders are knowledgeable about HIV testing, Antiretroviral Therapy, Condom dispensation, and HIV sensitisation campaigns as among HIV services currently offered in Malawi public health facilities. However, much as these services are acceptable by traders, none is available and accessed from within the market setting yet the achievement of HIV epidemic control by 2030 requires the inclusion of hard-to-reach populations like traders who are rarely reached by mainstream health services.

Differentiated HIV services offer an opportunity for the inclusion of traders and other subgroups in the HIV response. They include the underserved groups by reorienting health services towards markets and other related settings with a construct to counter the many challenges which limit their access to HIV services. Some of these challenges include competing priorities, fear of unintended HIV status disclosure, lack of knowledge about the availability of HIV services, lack of support from employers, long queues in public clinics, inadequate health workers, poor attitude of health workers, and inadequate funding.

Therefore, there is a need to implement additional approaches to bridge these gaps, to ensure that traders and other similar groups are included in the HIV response. For traders in this setting, such approaches include, shifting health services away from facility-based to market-based, providing them every day and throughout the day, task shifting the HIV services to lay or peer providers with minimal supervision from healthcare care workers, and providing these services in mobile integrated care settings to mitigate stigma.

6.2 Recommendations

Our findings demonstrate the need for the state to address structural challenges in the informal economy as a way of addressing the many challenges which limit the HIV response among traders including implementation of HIV and workplace policies. Policies aiming at taking services closer to markets and other related settings need to be strengthened because they are essential in ensuring the inclusion of the underserved groups who are key in the achievement of epidemic control. While promoting differentiated services to underserved subgroups, there is a need for facility and community providers to network together to facilitate the referral of patients for services that may not be available at a community level. This necessitates efforts to make sure that facility-based services remain relevant while differentiating health services.

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Appendices

Appendix 1A: Informed Consent Form in English

Informed consent form English version 2.0

Study Title: Explore HIV services needs of people at Lilongwe Central market

Principal Investigator: James Jere, Master of Public Health Student, College of Medicine

Research Supervisor: Dr. Linda Nyondo- Mipando, Lecturer, College of Medicine

PI Version Date: June 2020

What you need to know about this study.

You are being asked to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. Your participation is voluntary basis. This means you may choose to participate or not You also have the right to withdraw from the study at any time. In the event, you choose to withdraw from the study all information you provide will be destroyed and omitted from the final paper.

Purpose of the Study.

The purpose of your participation in this research is to help the researcher assess HIV services needs of people in informal workplaces. You were selected as a possible participant in this study because you are doing business at Lilongwe Central market

Study Procedures.

If you agree to participate in this research study, the following will occur: You will be asked to respond to an interview guide. This will take approximately an hour of your time. All the questions on the questionnaire are about the HIV services needs of people at Lilongwe Central market.

Risks and or discomforts.

We do not anticipate major risks. You may decline to answer any or all questions and you may terminate your involvement at any time if you choose to do so. However, we encourage you to answer all questions because it will help us to understand the HIV services needs of people in the informal workplaces.

Potential Benefits

There will be no direct benefit to you from participating in this research study. However, we hope that the information obtained from this study may help to guide Malawi government on what needs to be done to ensure availability, accessibility, and utilisation of HIV and AIDS services in the informal sector.

Reasons why you may be withdrawn from the study without your consent.

You may be removed from the study without your consent whenever the study is stopped or cancelled by the Malawi Ministry of Health, the Malawi College of Medicine Research Ethics Committee

Costs and Compensation

There is no cost associated with this study and you will not receive payment for participation. There will not be transport reimburse since the study will take place at your workplace premises. You are free not to participate in the study. This will not affect your welfare.

Confidentiality

Your Responses to this interview will be anonymous. Every effort will be made by the researcher to preserve your confidentiality including the following: No individual identities will be used in any reports or publications resulting from the study. All records will be given codes and stored separately from any names or other direct identification of participants. Research information will always be kept in locked files. Only research personnel will have access to the files and only those with an essential need to see names or other identifying information will have access to that file.

Problems or Questions

For questions about this study or a research-related injury, contact:

- Principal Investigator Mr. James Jere, Located at Lilongwe District Health Office, . phone number **0888581888.**

- The research supervisor, Dr. Alinane Linda Nyondo-Mipando, situated at the College of Medicine, Department of Health Systems and Policy. Phone number: **0999 44 12 12**

For questions about your rights as a research subject, contact

- The Secretariat, College of Medicine Research Ethics Committee

  Located at the Malawi College of Medicine, phone: **01 874 377.**

SIGNATURE PAGE

Version 2.0, 15th June 2020

You are deciding whether to participate in a research study. Your signature below indicates that you have decided to participate in the study after reading all of the information above and you understand the information in this form, have had any questions answered, and have received a copy of this form for you to keep.

_____	_____
Participant Name (print)	Participant Signature and Date
_____	_____
Researcher Name (print)	Researcher Signature and Date
_____	_____
Witness Name (print)	Witness Signature and Date

Appendix 1B: Informed Consent Form in Chichewa

Chilolezo chotenga nawo mbali mu kafukufuku.

Mutu wa kafukufuku: Kuunikilapo pa ma selevisi a HIV amene anthu opanga malonda pa nsika waukulu wa Lilongwe amafuna

Wofufuza: James Jere: wophunzira ku sukulu ya College of Medicine

Woyang'anira kafukufuku: Dr Linda Nyondo- Mipando, mphunzitsi ku College of Medicine

Zomwe mukuyenera kudziwa zokhudza kafukufukuyi

Mukufunsidwa kutengapo nawo mbali mu kafukufuku. Musanapange chisankho chotengapo mbali mu kafukufuku ameneyu, pakufunikila kuti mumvetsetse bwinobwino cholinga cha kafukufuku ameneyu komanso zimene zifunikile pa kafukufuku ameneyu. Chonde werengani uthenga wotsatilawu mosamalitsa. Chonde ngati pali china chili chonse chimene sichikumveka bwino bwino kapena ngati pali zina zimene mufuna mutadziwa afuseni amene akupangisa kafukufukuyu. Kutengapo mbali mu kafukufuku ameneyu zitengela chisankho chanu. Izi zikutanthauza kuti muli ndi ufulu osankha kutengapo mbali kapena kusatengapo mbali. Ngakhale mutayamba kutengapo mbali mu kafukufuku ameneyu mulinso ndi ufulu olekela panjira nthawi iri yonse yomwe mwafuna. Dziwani kuti pamene mwasankha kusapitiliza kutengapo mbali mu kafukufukuyi, uthenga onse umene mwaupeleka kale udzaonongedwa ndipo siuzasindikizidwa mu ma malipoti omaliza okhudza kafukufuku ameneyu

Cholinga cha kafukufuku ameneyu

Mukutengapo mbali mu kafukufukuyi ndi cholinga chothandiza Kuunikilapo pa ma selevisi a HIV amene anthu opanga malonda pa nsika waukulu wa Lilongwe amafuna. Inuyo mwasankhidwa kutengapo mbali mu kafukufukuyi chifukwa chakuti ndinu mmodzi mwa anthu opanga malonda munsika muno.

Ndondomeko ya kafukufukuyi

Mutasankha kutengapo mbali mu kafukufukuyi, yembekezerani Zinthu izi: Mufunsidwa kuti mutengepo mbali yoyankha mafunso angapo. Kuyankha mafunsowo kukutengelani pafupifupi mphindi makumi asanu ndi limodzi. Mafunso onse amene muyankhe ndiokhudzana ndi nkhani younikilapo pa ma selevisi aa HIV amene anthu ogulisa malonda pa nsika waukulu wa Lilongwe amafuna.

Chiopsezo mu kafukufuku ameneyu

Sitikuyembekezera chiopsyezo chodesa nkhawa. Ndinu omasuka kusayankha mafunso ena kapenanso onse, komanso mukudziwitsidwa kuti ngakhale pamene mutayamba kutengapo nawo mbali mu kafukufukuyi ndinu omasuka kulekela panjira ngati mwafuna kutero. Ngakhale muli ndi ufulu oterewu tikukulimbikisani kuti muyankhe mafunso onse pakuti izi zithandizila kumvesesa pa ma selevisi a HIV amene anthu opanga malonda pa Lilongwe amafuna.

Phindu potengapo mbali mu kafukufukuyi

Palibe phindu lililonse lomwe mupezepo kamba koti mukutengako nawo mbali mu kafukufukuyu. Ngakhale zili choncho tili ndi chiyembekezo choti zotsatira za kafukufukuyu

zitha kuthandiza boma la Malawi Kuunikilapo pa ma selevisi a HIV amene anthu opanga malonda pa nsika wa Lilongwe amafuna.

Zifukwa zomwe mungachotsedwere mu kafukufukuyi

Mutha kuchotsedwa mu kafukufukuyu musanafunsidwe maganizo pamene kafukufuku waimisidwa ndi a unduna wa za umoyo ndi chiwelengelo cha anthu kapena Woyang'anira za Kafukufuku ku sukulu ya ukachenjede ya College of Medicine

Malipilo

Palibe malipilo aliwonse chomwe mulandire kamba kotengako mbali mu kafukufukuyi. Simubwezeredwa ndalama yoyendera iriyonse malingana ndi kuti kafukufukuyi azichitikila munsika mmene inu mumapezeka. Ndinu omasuka kusatengako mbali mu kafukufuku ameneyi. Izi sizisokoneza chilichonse chokhudzana ndi inu.

Kusunga Chisisi

Mayankho onse amene mupeleke saululidwa kwa wina aliyense. Amene akutsogolela kafukufukuyu aonetsetsa kuti zonsse zimene munene zikhale zachinsisi popanga zinthu izi: Dzina lanu kapena chizindikilo chanu chilichonse sichizasindikizidwa mma kalata ena aliwonse okhudzana ndi kafukufuku ameneyu. Pa mapepala pomwe mupeleke mayankho anu palembedwa zizindikilo zina osati maina anu. Uthenga uliwonse okhudzana ndi kafukufuku ameneyi usungidwa mmalo motetezedwa ndinso mosafikilaa aliyense. Okhawo amene ali okhudzidwa ndi kafukufuku ndi amene akhale ndi mwayi wotha kufikila chilichonse

chokhudzana ndikafukufuku ameneyu

Mafunso ndi zina

Ngati pali funso lililonse kapena vuto limene lingapezeke kamba kakutengapo mbali mu kafukufuku ameneyi, lankhulani ndi:

- Wopanga kafukufukuyi, James Jere, amene amapezeka pa chipatala cha boma cha Machinga pa nambala iyi: **888- 581-888**
- Woyang'anira kafukufukuyi, Dr Linda Nyondo-Mipando, amene amapezeka ku sukulu ya College of Medicine pa nambala iyi: **999-441-212**

Ngati pali mafunso ena okhudzana ndi ufulu wanu ngati mmodzi otengapo mbali mu kafukufuku ameneyu, lumikzanani ndi:

- Bungwe lowona ufulu wa otenga mbali mu kafukufuku la College of Medicine Research Ethics Committee, lomwe limapezeka ku College of Medicine. Nambala ya foni**: 01 874 377**

TSAMBA LOSAINILA

Version 2.0 15th June 2020

Panthawi ino mukupasidwa mwayi osankha kutengapo mbali pa kafukufuku ameneyu kapenanso ayi. Kusainila kwanu tsamba iri zikusonyeza kuti mwasankha kutengapo mbali mu kafukufuku ameneyu mutawerenga komanso kumvesesa uthenga wonse mchikalatachi komanso mafunso anu onse atayankhidwa komanso mutapasidwanso chikalatachi

_____ _____

Dzina la wotenga nawo mbali (lembani) Saini ya wotenga nawo mbali ndi tsiku

_____ _____

Wopangitsa kafukufuku (lembani) Saini ya wopangitsa kafukufuku ndi tsiku

_____ _____

Dzina la mboni (lembani) Saini ya mboni ndi tsiku

Appendix 2A: Participant In-depth Interview Guide in English

My name is James Jere, a student at the Malawi College of Medicine. This study is being conducted to explore HIV services needs of people at Lilongwe. To conduct this study, there is a need for your participation. I will ask you some questions which will take at least 60 minutes and will be audio recorded to make sure that I don't miss anything in this interview. Are you ready for the interview?

If the participant agrees we will proceed as follows

Part A: Respondent characteristics

At this point I would like to know your details as follows:

1. Participant gender……
2. How old are you…….
3. What is your level of Education……
4. What is your marital status……
5. What do you trade in here?
6. How long have you been trading?

Part B: HIV Services Required by People at Lilongwe Central Market.

Having known each other at this point let us now discuss HIV services needs of people at this

1. Explain to me in detail the type of HIV services that you know about?

2. Explain to me any HIV services currently available at this market? [Probe on**:** providers, when patronage]

3. What are the HIV services that you would like to access within this setting? [Ask why for each service mentioned by the participant]

Part C: Delivery Methods of HIV Services at Lilongwe Central Market

Now that we have discussed on HIV Services required by people in this market let us now discuss methods of delivering these services in this market.

(i). Time of delivering HIV services. [*Under this building block ask the following question*]

1. If we were to have _____, services explain to me.

   when each service should be provided? Ask why for each service mentioned by the participant. [Probe on: Time Specific day, Frequency]

(ii). **Place of delivering HIV services** [*Under this building block ask the following question*]

1. Explain in detail **where** the _____service, should be delivered in this. market? (Ask for each service mentioned by the participant) [**Probe on**: Location, infrastructure]

(iii). **Providers delivering the HIV services [** *Under this building block ask the following question]*

1. Outline for me who should be providing these services. (Ask why for each provider listed) [Probe on Health Care workers, Lay providers, Peer Providers]

(iv). Package of delivering HIV services [*Under this building block ask the following question*]

1a. Can you explain to me your opinion on the package of HIV services you would want at this market? **[**Probe on Standalone HIV services, integrated HIV services]

1b. Why have you chosen the mentioned package? [Probe on: Stigma, discrimination, Private and confidentiality]

Part D: Factors which Influence the Delivery of HIV Services at Lilongwe Central Market.

As we are now going towards the end of our discussions let us now finish by looking at Factors that influence the delivery of HIV services in this market

1. What are the challenges of providing services in this market? [Ask why for each Challenge]
2. Describe to me how we can overcome each of the challenges?
3. Describe in detail the factors that will facilitate the delivery of these services smoothly [Probe on: When, Where, What Who]. Ask why for each response where

END OF THE INTERVIEW

Appendix 2B: Participant In-depth Interview Guide in Chichewa

Namulondola wa mafunso ofusa anthu opanga malonda pa nsika wa waukulu wa Lilongwe.

Mutu wa Kafukufuku: Kuunikilapo pa ma selevisi a HIV amene anthu opanga malonda pa nsika waukulu wa Lilongwe Central Market amafuna.

Mawu Oyamba:

Kafukufuku uyu akupangidwa ndicholinga chofuna Kuunikilapo ma selevisi a HIV amene anthu opanga malonda pa nsika waukulu wa Lilongwe Central Market. Kuti tipange Kafukufuku amenei pakufunikila kuti inu mutengepo mbali. Ndikufunsani mafuso angapo amene atenge pafupifupi ola limodzi komaso tikhala tikujambula ncholinga choti ndisataye kena kalikonse kamene mulankhule. Mwakonzeka kutengapo mbali?

Gawo Loyamba: Zokhudza Woyankha Mafuso

Panthawi ino ndifuna ndikudziweni

1.Ndinu mwamuna kapena mkazi……...

2.Muli ndi zaka zingati?.....

3.Maphuziro anu munafika pati ?……

4.Muli pa banja?.....

5.Mumagulisa chani…….

6.Mwakhal mukugulisa nthawi yaitali bwanji…….

Gawo Lachiwiri: Ma selevisi a HIV Amene Anthu Opanga Malonda pa Nsika Waukulu wa Lilongwe Central Market Amafuna.

Titatha kudziwana tsopano tikambiraneko nkhani yokhudzana ndi ma selevisi a HIV amene anthu opanga malonda pa nsika uno mumafuna

1. Ndifotokozeleni mwatsatanetsatane ma selevisi a HIV amene mukudziwapo?

2. Tandifokozereni ma selevisi a HIV amene amapezeka munsika muno? [Fufuzani:

   Amene amapereka ma selevisi, Nthawi, unyinji wa anthu]

3. Mumafuna mutamapeza ma HIV selevisi anji munsika muno? [**Fufuzani**: pa selevisi ina iriyonse imene oyankha mafuso watchula]

Gawo Lachitatu: Njira Zoperekela ma HIV Selevisi pa Nsika wa Lilingwe Central Market

Titatha kukambirana pa za ma HIV selevisi amene anthu munsika muno mumafuna tsopano tikambiraneko njira zoperekela ma service amenewa

(i) **Nthawi yoperekera ma selevisi a HIV** [*Pansi pa nzati uwu fusain mafuso otsatila*]

1. Tikanati tikhale ndi ma selevisi a HIV tandifotokozereni nthawi imene ma selevisi wa angamaperekedwe? [Fusitsani pa: Nthawi, Tsiku, Kawirikizidwe kake] Funsani zifukwa zosankhira nthawi imeneyo?

(ii) **Malo operekera ma selevisi a HIV** [*Pansi pa nzati uwu fusain mafuso otsatila*]

1. Tandifotokozereni mwachindunji malo amene mungakonde mutamalandilako ma selevisi a HIV? Funsani Zifukwa pa selevisi iriyonse yaatchulidwa [Fusitsani pa: Malowo, Nyumba]

(iii). **Anthu Opereka ma selevisi HIV** [*Pansi pa nzati uwu fusain mafuso otsatil*]

1.Tandionetseni tsatane tsatane wa amene mungakonde kuti azipereka ma selevisi a HIV munsika muno? Funsani chifukwa pachisankho chimenechi [Fufuzani: madotolo, Aliyense amene waphunztsidwa, Anzathu a munsika muno atalandila ukadaulo]

(iv). Phukusi la ma service a HIV [*Pansi pa nzati uwu fusain mafuso otsatil*]

1.Tandiuzeni maganizo anu pa kasakanizidwe ka ma selevisi a HIV amene mumafuna mutamapeza munsika muno? [Fufuzani pa: HIV selevisi poyokha, HIV selevisi kuperekedwa limodzi ndi ma selevisi ena monga kulela]

2.Nchifukwa ninji muli kuganiza choncho? [Fusitsani: mchitidwe wosalana, nkhani yachinsisi]

Gawo Lachinai: Zinthu Zomwe Zimalephelesa kapena Kuthandiza Kaperekedwe ka Ma selevisi a HIV mu Nsika.

Titakambirana zokhudzana ndi ma selevisi a HIV omwe anthu a nsika uno amafuna komanso njira zimene zingathandizire kuti ma selevisi a HIV athe kufikila anthu a mu nsika muno, tsopano tikambiranepo pa zinthu zomwe zimakhudza kaperekedwe ka ma selevisi a HIV munsika uno:

1.Ndimavuto anji amene amakhudza kapezedwe ka ma selevisi a HIV munsika muno? [Funsani mmene vuto lililonse latchulidwa likukhudzila ma selevisi a HIV]

2.Mukuona ngati tingathane nalo bwanji vuto lililonse mwatchula?

3.Ndizinthu ziti zimene mukuona kuti zingathandizire kaperekedwe ka ma selevisi a HIV munsika muno? [Nthawi, Malo, Phukusi la ma selevisi, Opereka selevisi]

MAFUSO ATHERA PAMENEPA

Appendix 3: Key Informant Interview Guide in English

My name is James Jere, a student at the Malawi College of Medicine. This study is being conducted to explore HIV services needs of people at Lilongwe Central market. To conduct this study, there is a need for your participation. I will ask you some questions which will take at least 60 minutes and will be audio recorded to make sure that I don't miss anything in this interview. Are you ready for the interview?

If the participant agrees we will proceed as follows

Part A. Respondent Characteristics.

Thank you very much for allowing me to participate in this important study. I would like to ask a few questions so that I know you

1. How old are you ……
2. Note the Sex of the Key informant……
3. What is the name of your institution…….
3. What is your position at this institution? ……
4. How long have you been working here…….

Part B. HIV Services Required by People at Lilongwe Central Market.

Having known each other at this point let us now discuss HIV services needs of people at Lilongwe Central market

1. Explain to me in detail the type of HIV services that you know about?

2. Explain to me any HIV services currently available at this market? [Probe on providers, when patronage]

2. What are the HIV services that you would like to access within this setting? [Ask why for each service mentioned by the participant]?

Part C: Delivery Methods of HIV Services at Lilongwe Central Market

Now that we have discussed on HIV Services required by people in this market let us now discuss on methods of delivering these services in this market.

(i). **Time of delivering HIV services. [***Under this building block ask the following question***]**

2. If we were to have _____, services explain to me when each service should be provided? [Probe on Time Specific day, Frequency] Ask why for each service mentioned by the Key informant.

(ii). Place of delivering HIV services (*Under this building block ask the following question***)**

2. Explain in detail **where** the _____service, should be delivered in this market? Ask for each service mentioned by the Key informant. [Probe on Location, availability of Infrastructure]

(iii). Providers delivering the HIV services (*Under this building block ask the following question***)**

1. Outline for me who should be providing these services. (Ask why for each provider listed) [Probe on Health Care workers, Lay providers, Peer Providers]

3. Can you describe to me in detail on task shifting of health services to non-health providers in the market? [Probe on Training needs, Supervision]

(iv). Package of HIV services (*Under this building block ask the following question***)**

1a. Can you explain to me your opinion on the package of HIV services you would want for people at Lilongwe market? **[**Probe on Standalone HIV services, integrated HIV Services]

1b. Why have you chosen the mentioned package? [Probe on Stigma and discrimination, Privacy, and confidentiality]

Part D: Factors which hinders or facilitate the delivery of HIV Services at Lilongwe Central Market.

As we are now going towards the end of our discussions let us now finish by looking at Factors that influence the delivery of HIV services in this market

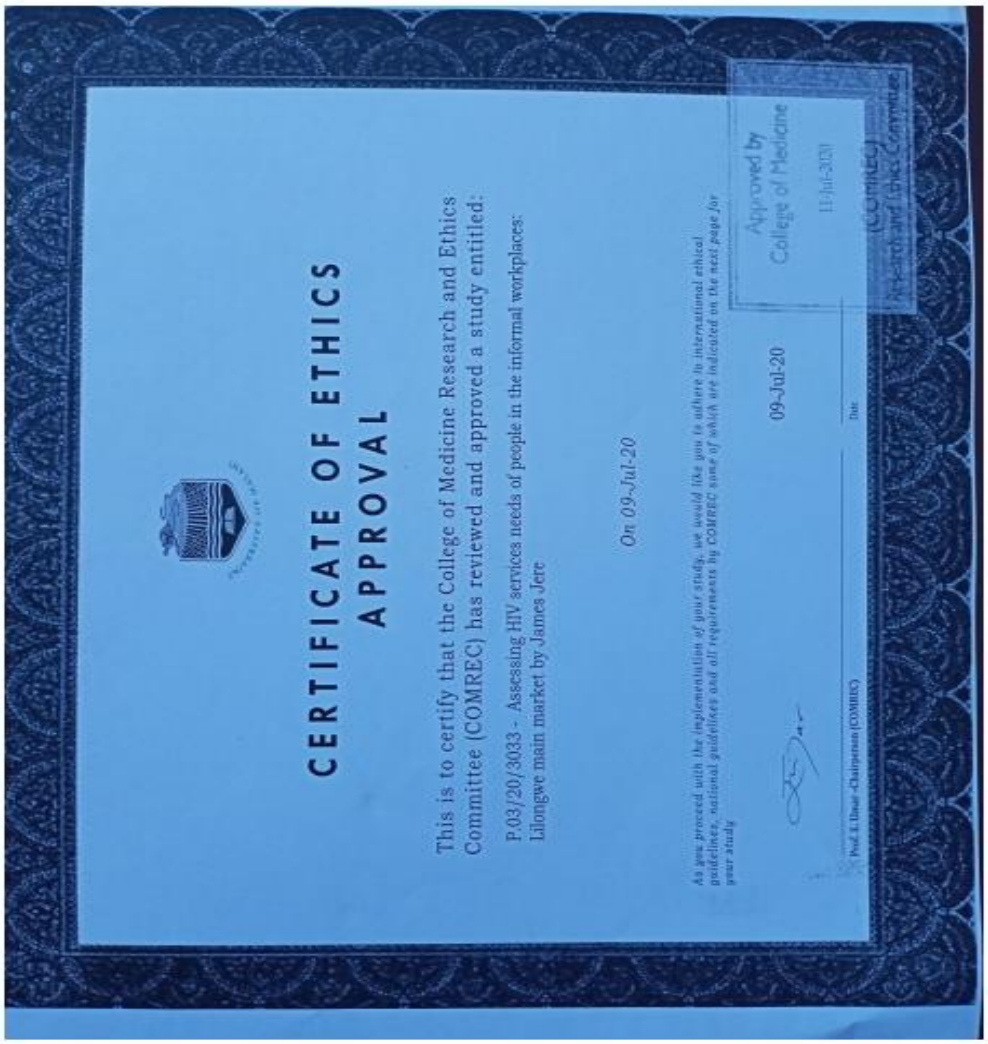
2. What are the challenges of providing HIV services at Lilongwe Central Market? [Ask why for each challenge]

2. Describe to me how we can overcome each of the challenges?

3. Describe in detail the factors that will facilitate the delivery of HIV services smoothly to this market [Probe on: When, Where, What Who] [Ask why for each response where necessary

END OF THE QUESTIONS

Appendix 4: COMREC Approval Letter



CERTIFICATE OF ETHICS APPROVAL

This is to certify that the College of Medicine Research and Ethics Committee (COMREC) has reviewed and approved a study entitled:

P.03/20/3033 - Assessing HIV services needs of people in the informal workplaces: Lilongwe main market by James Jere

On 09-Jul-20

As you proceed with the implementation of your study, we would like you to adhere to international ethical guidelines, national guidelines and all requirements by COMREC some of which are indicated on the next page for your study

09-Jul-20

Approved by College of Medicine

11-Jul-2020

(COMREC) Research and Ethics Committee

Prof. E. Dzamalala (Chairperson, COMREC)

Date

NB COMREC suggested that my earlier study tittle wording "Assessing HIV services needs of people in the informal workplace-Lilongwe main market" be changed to reflect "Exploring HIV services needs of people at Lilongwe Central market". However, upon approval COMREC maintained the earlier study tittle as is seen on this approval certificate.

Appendix 5: Letter of Support from the Public Health Department

COLLEGE OF MEDICINE
Public Health Department

TO: Chairperson, COMREC

FROM: MPH Coordinator

DATE: March 04, 2020

SUBMISSION OF MPH RESEARCH PROPOSAL

Please find enclosed research proposal from our MPH student James Jere, version I, entitled, **"HIV services needs of people in the informal sector (market place) in Lilongwe."**

The proposal was reviewed by the Public Health Research and Postgraduate Committee and was approved for submission to COMREC. The thesis supervisor of this student Dr. Linda Mipando has endorsed the submission.

Thank you.

Asante Anne Sajiwa
MPH Coordinator

Appendix 6: Study Permission Letter from Lilongwe City Council

LILONGWE CITY COUNCIL

ALL CORRESPONDENCE TO BE ADDRESSED TO THE CHIEF EXECUTIVE OFFICER

Our Ref: LCC/ ADMIN/7

P.O Box 30396
Lilongwe 3
Malawi
Tel: (265) 773 144
Fax: 01 770 885

9th March, 2020

Mr. James Jere,
College of Medicine
Private Bag 360
Lilongwe

Dear Mr. James Jere

RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH IN THE CITY OF LILONGWE

We acknowledge receipt of your letter, dated 2nd March 2020 requesting permission to conduct a research in the city of Lilongwe in partial fulfillment towards the award of a Master of Science in Public Health Degree.

We wish to inform you that permission has been granted and you can proceed with your planned program. and in any case, conform to research ethics in the course of your data collection.

Kindly note that this approval is granted on condition that your findings will be used for your research purposes only.

Yours faithfully

John Chome
CHIEF EXECUTIVE OFFICER

Cc; The Director of Health and Social Welfare Services

Appendix 7: Curriculum Vitae for the Principal Investigator

1. PERSONAL DETAILS

Surname:	Jere
First name:	James.
Date of Birth	12 January 1984.
Gender:	Male.
Language(s):	Tumbuka.English, Chichewa
Country:	Malawi.
Cell No:	(+265)888581888/0999364465
Email Address:	**jhjere@gmail.com.**

2. EMPLOYMENT HISTORY

Dates:	2007 – Present
Designation:	Medical Laboratory Technologist.
Organisation:	Local Government-Lilongwe
Functional area:	District Hospital Laboratory

Responsibilities	• Performing medical laboratory tests on patient samples to aid in disease diagnosis, disease monitoring and Surveillance. • Ensuring that corrective action is documented on all equipment by the users. • Review all laboratory results before they are sent to the requesting clinicians. • Advise hospital management on the purchase and service contracts for laboratory equipment and machines. • Ensuring that all equipment are working within a standardised range using controls. • Instruct students from learning institutions during their practical sessions.

4. ACADEMIC QUALIFICATIONS

Secondary School: Dedza Secondary School

Year Graduated: 2001

Highest Std/Grade Passed: Malawi School Certificate of Education

5. TERTIARY EDUCATION.

Institution	From-To	Qualification	Subjects	Year
College of Medicine	2011-2015	B.Sc. (Hons) Medical Laboratory Sciences	• Microbiology • Medical Laboratory Management. • Haematology • Communication • Research • Medical Ethics.	2016

6. EXTRA-MURAL ACTIVITIES, INTERESTS

- Watching international News

7. REFEREES

Joseph Diele Light House Trust P.O Box 104, Lilongwe jdiele@lighhouse.org.mw **Cell**: 0999954486	Dr Linda Nyondo-Mipando, College of Medicine, Bag 360, Chichiri, Blantyre, lindaalinane@medcol.mw **Cell**: 0999441212	Dr Alinafe Mbewe Lilongwe D.H.O. P.O Box 1274, Lilongwe nafekmbewe@gmail.com **Cell:** 0888911185