EXPERIENCES OF YOUTH AND SERVICE PROVIDERS ON THE INTERNET-BASED APPROACHES FOR DELIVERING SEXUAL REPRODUCTIVE HEALTH INFORMATION AMONG YOUTH IN KINONDONI DISTRICT, DAR ES SALAAM

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By

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A Dissertation submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health of

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled "**Experiences of Youth and Service Providers on the internet-based approaches for delivering sexual reproductive health information among Youth in Kinondoni District, Dar es Salaam"**, in partial fulfillment of the requirements for the Master of Public Health of Muhimbili University of Health and Allied Sciences

…….

Dr. Mangi J. Ezekiel

(Supervisor)

Date:…….

DECLARATION AND COPYRIGHT

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Signature…… Date…….

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DEDICATION

This dissertation is dedicated to my one and only wife Emelda Kifyoga, and my young brother Joe Kaihura, may this work drive ambitions and bring them encouragement so that they can be motivated to achieve great milestones in their life.

ABSTRACT

Background: Despite agreements made globally on youth and adolescents' sexual and reproductive health and rights, youth and adolescents in low and middle-income countries still have poor access to and utilization of these services. Different research has revealed the potentiality of applying internet approaches for sexual reproductive health information, despite the efforts from these researchers, there is limited evidence on the youth and service provider's experiences on internet-based approaches for delivering Sexual Reproductive Health information among youth.

Objective: This study aimed to explore the youth and service providers' experiences on the internet-based approaches for delivering sexual and reproductive health information among youth in Kinondoni district, Dar es Salaam.

Methodology: This qualitative study used a phenomenological study design that was applied among Youth, and Service providers in Dar es Salaam from August to November 2023. In-depth interview (IDI) and Focus Group Discussion (FGD) methods were used. The sample size of 31 participants was selected purposefully. A qualitative thematic analysis method was applied to identify, analyze, and report themes within data.

Results: The study revealed that from their experiences service providers perceive internet-based approaches for SRH information and services to youth to be useful and may lead to positive impacts. Moreover, youth shared their experiences with the existing internet-based approaches that they use to access various SRH information including social media and mobile applications. Furthermore, the youth mentioned that their preferred platform should be on WhatsApp but also linked to other platforms such as Instagram, Facebook, and TikTok pages, the content should be in the form of edutainment and presented by a health professional and youth for it to be trusted.

Conclusion and recommendation: The study has shown that more youth-friendly services should be introduced at physical facilities so that the internet-based approaches can be used as a complement by referring its beneficiaries to facilities for services. The study recommends that stakeholders should invest in internet-based approaches when addressing the youth's low access to SRH information and services challenge because these approaches are user-friendly to youth.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
FGD	Focus Group Discussion
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
HRSBs	High-Risk Sexual Behaviors
IDI	In-Depth Interview
LMICs	Low and Middle-Income Countries
mHealth	Mobile Health
MoH	Ministry of Health
MUHAS	Muhimbili University of Health and Allied Sciences
NGO	Non-Governmental Organization
PMTCT	Prevention of Mother to Child Transmissions
SRH	Sexual and reproductive health
SRHR	Sexual Reproductive Health and Rights
STI	Sexually transmitted infections
TCRA	Sexually transmitted infections
WHO	World Health Organization
YFS	Youth-Friendly Services
YSRH	Youth Sexual and reproductive health

DEFINITION OF TERMS

Reproductive Health This is a condition of whole physical, mental, and social well-being and not only the absence of disease or infirmity. A person has to be able to reproduce, have a satisfying and safe sexual experience, and have the freedom to decide whether, when, and how often to do so in order to be in excellent reproductive health.

Sexual Reproductive Health The World Health Organization (WHO) defined sexual and reproductive health (SRH) as " a condition of complete physical, mental, emotional, and social health in all areas pertaining to sexuality, the reproductive system, and its functions"

Youth There is no a general accepted international definition of youth. For statistical purposes, however, The United Nations defines "youth" as everyone between the ages of 15 and 24, disregarding any further classifications given by Member States. *(United Nations, 2013).* In this study, we are referring to youth aged between 18 and 24 years.

Service Providers In this study service provider are of two categories, one is the health care workers (HCWs) who provide sexual and reproductive health services to youth at health facilities while the second category are the Non-Governmental Organization Staffs from organizations implementing SRH interventions targeting youth.

Internet It is a massive computer network that links networks and offers a variety of communication and information services. It does this by using established communication protocols.

Digital platforms Are the online spaces providing a room for exchanges between the consumer and producers of products, contents, services, and information. Example of types of platforms include social media platforms, and websites.

Telemedicine	It refers to the use of electronic communication to transfer medical information across locations.
Internet-based intervention or services	Refers to interventions whose services are mainly delivered via the internet.
Experiences	Is an intimate familiarity with a phenomenon acquired by participation in frequent instances.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

The government and other implementing partners have made attempts to address the gaps, but youth still lack access to sexual and reproductive health (SRH) information and services. According to the World Health Organization (WHO, 2001), It is recommended that the Global Consultation on Youth Friendly Health Services and SRH services for youth achieve a minimum of one of the following three goals: The first one is to create a supportive environment, to increase the use of health and related services; and enhancing knowledge, attitudes, skills, and behaviors related to reproductive health (1). Youth access to and use of sexual and reproductive health information and services remain limited in low- and middle-income countries, despite worldwide commitments on sexual and reproductive health (2).

Reports have shown youth are practicing High-Risk Sexual Behaviors (HRSBs) such as pre-marital sex, but do not seriously perceive a threat to their health because of HRSBs although pre-marital sex is culturally or religiously forbidden in many Tanzanian communities (3,4).

Only 33% of young men and 20% of young women in Low and Middle-Income Countries (LMICs), according to numerous surveys, have a thorough awareness of HIV, but fewer than half of those surveyed said they used condoms for their most recent sexual activity (2). There is a significant obstacle to achieving optimal reproductive health and welfare for all because, according to the United Nations Programme on HIV/AIDS (UNAIDS, 2017) gaps report, just 10% of young men and 15% of young women were aware of their HIV status (1).

Talking to parents or guardians on matters about their sexual and reproductive health can be difficult for youth because it is considered culturally inappropriate. In addition, disclosing one's HIV/STI status or failing to keep SRH service confidential can result in stigmatization, discrimination, blaming, and new or increased instances of physical or verbal abuse (5,6). Because of their limited financial resources and restricted social mobility, girls from disadvantaged communities are particularly unable to obtain

timely, accurate, and sufficient SRH information from healthcare providers in nearby health facilities. This is because they lack female autonomy (6,7). The other barrier is transport costs and long distances; youth are being limited by these actors to benefit from the youth-friendly services available at the health facilities. According to two studies conducted in different states of Ethiopia, the majority of respondents highlighted the difficulty of the cost of services, (21%) and (41.2%) respectively in the two states had a shortage of money to cover the expense of traveling to health facilities.

The use of the internet by youth has increased, according to research, young people between the ages of 18 and 24 make up 22.8% of all internet users globally when it comes to the distribution of internet users by age group (8). The 2020 USAID/Tanzania Youth Assessment Report states that youth are heavily dependent on social media and the Internet. Of the 250 youth surveyed, 196 reported having access to the Internet and using social media to communicate with their age group, engage with peers, and raise awareness of issues affecting youth. The use of digital platforms, such as the internet, mobile messaging, social media, applications, audio and video messaging, and telemedicine, to offer health care is spreading quickly throughout the world. Since the internet is widely available, offers a high degree of anonymity, can tailor messages to a specific person or group, and is inexpensive, it can enhance the availability of information and support for sexual and reproductive health (5,9).

Even though young people actively utilize and have access to the internet, not enough is known about how youth can use the internet to access and use SRH services and information. To effectively provide SRH information and services, internet-based interventions should take into account the opinions of youth and service providers regarding the best internet-based approaches.

1.2 Problem statement

The existing interventions for youth sexual reproductive health information and services have proven less successful in meeting the needs. Tanzania faces issues with adolescent and youth sexual and reproductive health because it is among the ten nations with the highest incidence of adolescent pregnancy. By the time they turn 19, almost half of all females are either pregnant or have given birth. Additionally, it has been shown that 5% of Tanzanians who are 15 years of age and older have HIV (10).

The government and implementing partners such as NGOs have been working to implement and advocate youth-friendly services. Global adoption of digital platforms for health care delivery is increasing rapidly, including the use of the internet, mobile messaging, social media, applications, audio and video messaging, and telemedicine. Since the Internet is widely available, offers a high degree of anonymity, can tailor messages to a specific person or group, and is inexpensive, it can enhance the availability of information and support for sexual and reproductive health (5).

Data shows that the distribution of internet users by age group identified that youth aged 18-24 cover 22.8% of internet users worldwide (8). Despite the potentiality of internet-based approaches and exposure of youth to the internet, still there is little internet-based programs or interventions for youth SRH in Tanzania, evidence shows that in most cases youth in Tanzania are reported to use mobile phones and the internet for chatting and connecting with friends, studying and entertainment purposes, while few use it for health information (11).

Evidence continues to demonstrate that, despite efforts, young people face a variety of systemic, sociocultural, and individual barriers when trying to find and use resources related to sexual and reproductive health. Adequate sexual and reproductive health information and services are unavailable to young people, which results in the lack of youth-friendly services. This has detrimental effects on young people, including early pregnancy, Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) and sexually transmitted infections (STIs) infection, and abortion.

Some existing studies have been done to assess the use of social media by adolescents and youth in Tanzania, while other generally assesses the Internet as a source of

reproductive health information among adolescent girls, however, there is limited information on youth and service providers' experience on the internet-based approaches for delivering sexual and reproductive health information among Youth in Tanzania. Therefore, this study aimed to explore the experiences of youth and service providers on the internet-based approaches for delivering sexual and reproductive health information among youth. An understanding of their experiences with the approaches may contribute to designing potential avenues for reaching youth with sexual reproductive health information and services in the study area.

1.3 Conceptual Framework

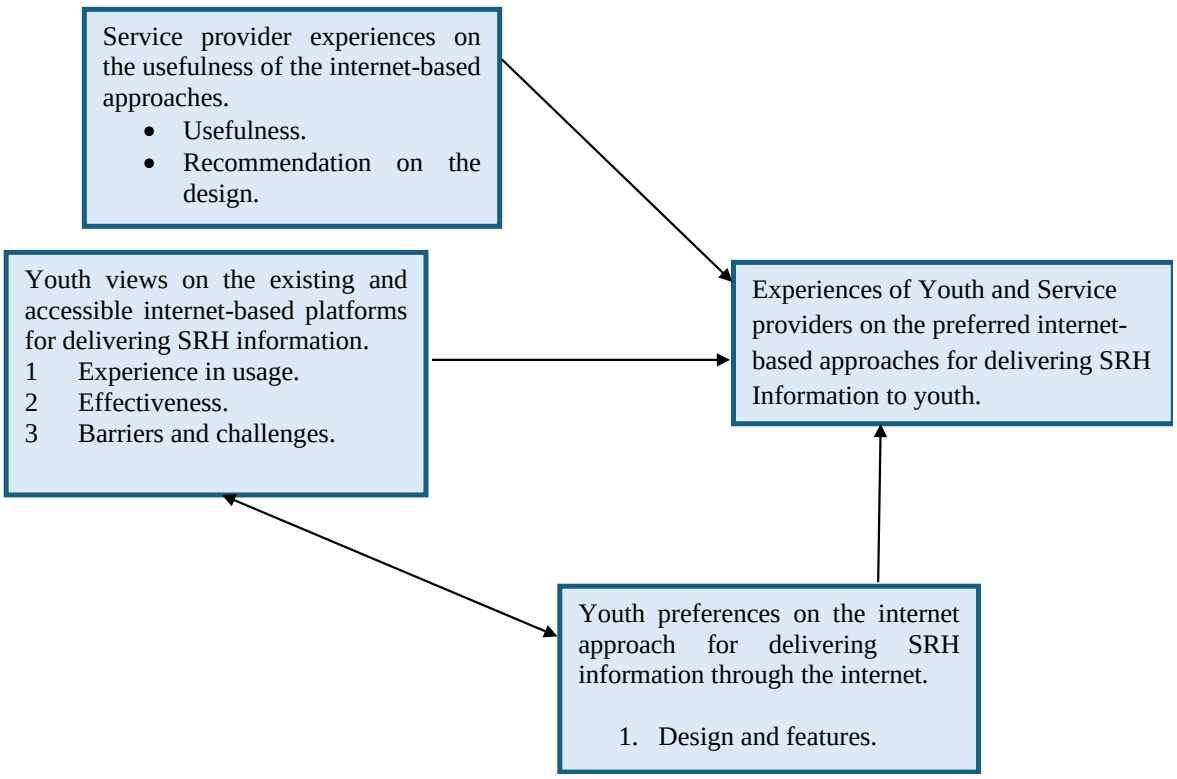


Figure 1 Conceptual framework.

1.4 The Study Rationale

The findings obtained from this study reveal that youth experience various challenges in seeking and accessing sexual and reproductive health information and services. Findings also reveal that enhancing reproductive health information through the internet will result in curbing or reducing various negative aftermaths to youth such as

early pregnancies, HIV/AIDS, and STI infection. These findings are helpful as they can be used to inform the preferred internet-based approaches to enable youth to have effective access and utilization of reproductive health information and services, also it triggers the reasons for stakeholders to invest in SRH information and services to youth through internet solutions.

1.5 Research Questions

1.5.1 Broad question

What are the youth and service providers' experiences on the internet-based approaches for delivering sexual and reproductive health information among youth in Kinondoni district, Dar es Salaam?

1.5.2 Specific questions

1. What are the service provider's experiences on the usefulness of internet-based approaches for sexual reproductive health information among youth?
2. What are the youth's views on the existing and accessible internet-based platforms for the provision of sexual reproductive health information in Tanzania?
3. What are the youth preferences on the internet-based approaches that can successfully be used to deliver sexual reproductive health information?

1.6 Study Objective

1.6.1 Broad Objective

To explore the youth and service providers' experiences on internet-based approaches for delivering sexual and reproductive health information among youth in Kinondoni district, Dar es Salaam.

1.6.2 Specific Objective

1. To explore the service provider experiences on the usefulness of internet-based approaches for delivering sexual reproductive health information among youth.
2. To understand the youth's views on the existing and accessible internet-based platforms for delivering sexual reproductive health information.
3. To uncover the youth preferences on the internet-based approaches that can successfully be used to deliver sexual reproductive health information.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This chapter provides an overview of the youth and service providers' experiences on the internet-based approaches for delivering sexual and reproductive health information among youth.

2.2 Internet and Sexual Reproductive Health Information to Youth

The prevalence of new media across the globe has increased due to internet use, and young people's reactions and sexual decisions, romantic relationships, and sexual activity may be influenced by discussions and representations of sexual behavior in new media (12). Digital platforms can also help with service referrals, promote family planning discussions, and correct myths around specific contraceptive techniques (13).

In the United States, young people mostly use digital media via the Internet to explore and maintain social, sexual, and romantic connections because of its perceived safety, anonymity, and lack of parental supervision. It is constant accessibility and makes peer communication easier. One well-known resource that young people in developed nations utilize to learn about sexual and reproductive health is the Internet (14).

In many African countries, young people's sexual and reproductive health (SRH) needs are often underserved and underestimated, despite their clear need and the urgency of these treatments (2). Considering the context of digital health applications for youth in low- and middle-income countries (LMICs), the World Health Organization (WHO) has put up a methodology for creating and executing digital health interventions for youth (9).

It is evident that youth aged 18-24 cover 23.8% of Smartphone owners in Tanzania (8), which means they can access internet and the online platforms. Online strategies are important because they can quickly promote changes in norms and attitudes related to SRH, such as supporting safe sex practices and condom use. To improve the results, more digital interventions and tactics are needed (9). Despite the ability of young people to be exposed to internet use, there is limited evidence of the adoption

of internet-based interventions for Youth Sexual Reproductive Health (YSRH) in Tanzania.

2.3 Service Providers' Experiences on the Usefulness of Internet-Based Approaches for Delivering Sexual and Reproductive Health Information among Youth

The opinions of healthcare workers globally regarding internet approaches for youth sexual and reproductive health offer a chance to support and progress SRH for youth. The youth SRH information available on the internet is well-received by health care workers (HCWs) worldwide, and they are thought to be especially beneficial for young people in both urban and rural environments. HCP agrees that youth can get sexual and reproductive health care using digital technology (15).

Healthcare workers in Africa also hold varying opinions about internet-based approaches for youth sexual and reproductive health information and linkage to services. The results of a study on healthcare workers in Kenya showed the following perceptions;

Healthcare workers believe that youth can learn about modern contraceptive methods and their benefits and drawbacks, as well as how to protect themselves from STDs. Young people's preferred online platforms include Facebook, WhatsApp, Google, and Hotlines. HCWs also recognize that to preserve privacy, internet-based methods are necessary to make sensitive information easier to access on a personal basis.

Hearth care providers believe that using creativity when creating SRH messages is essential, and they advise that when downloading and installing apps on digital devices, internet-based platforms should be accessible at no cost. Youth who follow several influential persons on social media, according to HCP, could be persuaded to use digital platforms that provide SRH information and services by influential people, including their favorite football players or musicians (16).

The literature also showed that HCWs perceive barriers to youth SRH information and linkage to services are available on the internet. These barriers include the high cost of purchasing internet bundles, the technological know-how that pertains to youths' ability to search for SRH information on digital devices like phones, and HCP's doubts

about youths' comprehension of the SRH information on the internet (16). The literature that evaluates HCWs' opinions on the value of internet based SRH information and service linkage is currently scarce. According to a study by (17), healthcare providers in Tanzania had the following general opinions about youth SRH information and services;

Stigma associated with youth; It has been shown that healthcare professionals have prejudices against young people, which results in inadequate care when they visit hospitals for SRH services. It is believed that older healthcare professionals are more prone than younger ones to exhibit unwelcoming attitudes. Young health professionals are therefore generally viewed as the best counselors because they are more likely to act as peers, keep sexual concerns private, and understand the challenges related to sexual and reproductive health that youth may face. Because of this, stigma is seen as a problem, and some medical professionals are worried that this could influence these young people's future health-seeking behavior.

Bias in the SRH services' priority ranking; According to medical professionals, most sexual and reproductive health treatments have a specific focus. Healthcare practitioners prioritize adolescents who test positive for HIV or who show symptoms of sexually transmitted infections (STIs) in programs related to sexual and reproductive health. Pregnant adolescents are also given attention. Healthcare workers are concerned that focusing on STIs and pregnancy could lead young people to believe that they are not eligible for help with their sexual and reproductive health unless they are pregnant or showing signs of disease.

Male youth's hard involvement: Healthcare practitioners are concerned about male youth's lack of usage of available therapies related to sexual and reproductive health. Because most young men who attend are there primarily to get tested for HIV with their pregnant partner and are consequently not eligible for other sexual and reproductive health services, it is assumed that male youth generally do not comprehend SRH. As a result, the purpose of this study is to explicitly look into how HCWs see internet-based methods for providing SRH information and services to young people.

2.3.1 Implementing Partners' Perceptions (NGOs)

When it comes to digital or internet-based interventions or programs for youth sexual and reproductive health, various organizations and programmers are working hard to design and implement solutions for SRH information and services for young people worldwide. However, in the process, they run into difficulties like a lack of reliable data sources, especially when it comes to young people's use of internet-based approaches for SRH information and services. Program designers and implementers may encounter obstacles due to a lack of clarity regarding potential determinants, such as youth phone-sharing habits, age restrictions on website or service use, and regulatory limitations on young users' data storage. These factors may also make it difficult to understand how young people interact with digital sources (18).

2.3.2 Specific Risks Associated with the Internet-Based SRH Information and Support to Youth

Accessing homes and other private spaces for interventions may put people at risk, even while internet-based platforms and approaches provide more opportunities for SRH information and service delivery. Programs designed to increase young HIV patients' adherence to antiretroviral therapy (ART), for example, maybe the cause of this. Supportive interventions for contraception may inadvertently bring to light a young person's use of contraception, which their parents and other family members may not be in favor of. The following are recommended actions to lessen any risks when offering youth sexual and reproductive health services (5):

1. Consider potential risks before organizing an intervention. With input from important users and stakeholders. To do this, it is possible to develop theoretical frameworks that outline potential harmful effects, comprehend the usage, sharing, and privacy of digital media, and recognize the stigma, sensitivity, and social and power dynamics that affect SRH in the setting of the intended intervention. Mitigate or reduce potential harms during the design phase by discussing privacy goals with potential users, considering the best way to deliver the intervention and what features are necessary to provide privacy and confidentiality when desired, and testing and refining the intervention based on feedback from users who receive it as intended.

2. Determine the negative outcomes. Using research methods to reduce reporting bias, such as using verified, standardized measurements and abiding by ethical guidelines while studying delicate subjects like the sexual and reproductive health of youth.

2.4 Youth Views on the Existing and Accessible Internet-Based Approaches for Delivering Sexual Reproductive Health Information

According to (5), there are currently available and accessible Internet platforms for delivering sexual reproductive health. The use of digital platforms for healthcare delivery, such as the Internet, mobile messaging, social media, applications, audio and video messaging, and telemedicine, is growing rapidly globally. As per (5), there are readily available online platforms that provide linkage to sexual and reproductive health services. The use of digital platforms for healthcare delivery, such as the Internet, social media, applications, audio and video messaging, telemedicine, and mobile messaging, is rapidly expanding globally (9), For instance, a study carried out in the US by (19) found that the Play Store and App Store offer several excellent mobile applications, such as Safe Sex Tips, Get S.M.A.R.T. (which is my personal favorite and was developed to prevent teenage pregnancy). Additionally, Asia (India) found that the artificial intelligence tool SnehAl Chatbot was creative in addressing areas that were difficult to approach with topics related to youth sexual health (20).

A few digital interventions were put into place in Africa during the COVID-19 pandemic. For example, WhatsApp was used by TSHA, an interactive transition support program, to provide services to 15 to 19-year-old South African youth who were living with HIV that had been acquired during pregnancy. There are various digital interventions in East Africa, most of which are carried out in Kenya. These include:

In Kenya, The Sexual Reproductive Health Rights (SRHR) Alliance supports the Youth for Life website, which provides SRHR information and links young people to facilities that offer youth-friendly services (YFS). The platform also features an SMS service to disseminate information and promote discussion about topical issues. A five-month study of the platform showed that digital platforms are effective in reaching adolescents and youth with information and referring them to appropriate

services (96% of the study’s sample). The platform’s ease of use, variety of content, convenience, confidentiality, and interactive nature were credited with its success (21).

Through the NenaNaBinti hotlines, Reproductive Health Network Kenya is implementing the "NENA NA BINTI" initiative, which aims to guarantee that young people, young women, and adolescent girls always have access to SRHR information and services, free from prejudice and stigma. The hotline, "NENA NA BINTI," which translates to "talk to a girl" in Swahili, offers information on safe abortion practices, contraception, and frequently asked questions. Additionally, youth can access a link to support providers and a phone number via the platform in case of an emergency (22).

The Aga Khan Foundation (AKF)'s partner organization in East Africa, Triggerise, developed and introduced the Tiko platform, a smartphone application. Using technology, Triggerize, an international non-governmental organization, connects youth to social networks, health resources, and life skills. Via Triggerise's Tiko platform, girls and women aged 15 to 19 can obtain complimentary SRHR services and goods. Currently, Tiko has over two million subscribers and is one of the most successful health programs in East Africa. Along with FAQs, information about safe abortion practices, and contraception options, kids can access a phone number or link to service providers via the platform, as well as contact information in case of an emergency.

Through TV talk programs and social media platforms like Facebook, Instagram, and YouTube, an NGO named Girl Effect is implementing the TUJIBEBE mobile platform in Tanzania. The Tujibebe platform seeks to provide SRH education to girls and young people in Tanzania's rural and urban areas, as well as connect them to youth-friendly services, so they can fulfill their potential and make a good difference in their communities.

Few online sites primarily target girls, as evidenced by the examples of those that are now in use in Tanzania and East Africa provided above. Thus, it is recommended to support the creation of additional youth-oriented online platforms with youth-preferred approaches where SRH information and links to services can be found.

According to research done in Kenya by (16), some youth opinions about the digital

platforms that are currently available for SRH information and services are as follows; Participants expressed the view that digital technologies enable quick information searches, which helps young people learn about sexual and reproductive health. whereby the challenge of time lost to seek these services at a physical health facility is being solved, young people also believe that digital approaches ensure the effectiveness, efficiency, relevance, and privacy of their information.

According to (23), global research suggests that providing SRH information via digital means like internet-based platforms is highly appealing to youth, and youth themselves believe that these platforms can positively influence their SRH outcomes including improving knowledge, reducing sexual risk behavior, and increasing utilization of health services.

2.4.1 Barriers and Challenges Hindering the Effective Use of Internet-Based Approaches

There are barriers related to individual, technical, and organizational factors as follows;

Individual factors, Lack of privacy; When connecting with SRH material through internet-based means, youth continue to express deep worries, even though they typically view SRH technology services as private and confidential (24). Every mobile phone in the world has unique features designed to improve privacy. In situations involving sensitive personal health information, digital media may transmit confidential sensitive personal information. This is especially true if phone features like password protection and notification settings are off. On the other hand, privacy concepts and limitations on access to mobile devices differ based on the individual and the circumstance. Youth in developed countries have greater access to mobile phones than do those in developing countries like Tanzania, However, young people in poor nations might not have the same rights to privacy as those in industrialized nations; in certain situations, family phone sharing may make it more difficult to send sensitive personal data. In some situations, parents and other family members may limit a young person's usage of digital media (5).

The request for socio-demographic information to the users of internet-based platforms could break anonymity, Information such as name, date of birth, and place of living that are usually required when a user is registering for an account in a given

digital platform creates a threat to a breach of privacy, therefore the internet-based intervention should make it clear to users the reason or collecting the social demographic information and ensure confidentiality to them (25).

Digital divides, Socioeconomic divisions between the rich and the poor, men and women, rural and urban areas, and educated and uneducated people are the root causes of the presence of digital divides. These divisions impede youth in various ways, including;

High costs of internet bundles, in several studies conducted on youth it was revealed that they face challenges with the costs of internet bundles, this hinders them from accessing health information available on the internet as soon as they need it (12,25).

Living places with no internet connection and places with internet coverage are few in low and middle-income countries compared to the developed countries. There is many youths with a need for sexual and reproductive health information and services who live in the interior part where the internet is not accessible.

Not being able to purchase digital devices, The WHO reports that 81% of people in developed countries use the Internet, compared to 40% in developed countries and just 15% in the least developed countries. This indicates that youths are unable to pay the expenditures for purchasing digital gadgets (12,18,26).

Individual personality and beliefs, there are existing beliefs that may limit youth from using these platforms and guide their decisions on using the internet-based platforms for SRH and may guide. Individual personality and beliefs are the results of the socio-cultural beliefs using phones and the internet is a sign of being in a sexual relationship, a young girl using the internet or digital device may be considered that she is chatting with her boyfriend, therefore this creates an inferiority complex among them, and they feel like digital solutions are not or them (25).

Technical factors, poor technological literacy, and the caliber of their online experiences determine their digital skills and online information searching skills. The lack of these skills due to poor technological literacy to those who do not have exposure to internet use may limit youth from accessing the SRH information and services provided through internet-based platforms (12,18).

Organizational factors, lack of comprehensiveness of information, not every online platform or website focused on sexual health is comprehensive and all-inclusive, Sometimes, they talk about using condoms and abstaining, but they leave out other safer sexual practices like reducing the number of partners, cutting back on casual sex, or not having sex at all (12).

Misinformation, despite their familiarity with the internet, youth still do not use it for information on sexual and reproductive health because in certain cases they find it difficult to rely on the information because of differences in messages, which lowers the content's credibility (27).

Poor marketing and publicity, literature shows that most of the internet-based approaches are not used by youth due to their poor marketing and publicity to the extent that the targeted population lacks exposure to them, there must be more effort in marketing and publicizing these platforms and providing education on how they are used (25).

2.5 Youth Preferences on Internet-Based Approaches for Delivering Sexual and Reproductive Health Information

Literature reveals that to improve screening and follow-up rates and achieve positive SRH outcomes, youth prefer internet-based interventions for sexual and reproductive health that include behavioral change techniques and curricula, educational storytelling, video messaging, psychosocial support and counseling, and being able to exchange questions and answers (9,28). Given that a fraction of young people globally are exposed to pornographic content via the internet, this could help transform the youth by encouraging them to seek out health information and help them cease consuming dangerous content (29).

However, because social media is so widely used by young people worldwide, it was also noted that this would make it a better approach for educating young people about sexual and reproductive health. But as young people see social media mostly as platforms for self-representation and communication with friends and individuals who share their interests, caution must be exercised in its application. In one study, participants suggested using approaches like cartoons, picture novels, songs, real-life stories, and celebrity interviews to entice young people to engage with health-related social media material (27).

The literature shows a need for more research, and mostly in the context of Tanzania because there is not enough information on the preferences of youth on the internet approaches for SRH information and linkage to services.

2.6 Research Gap

Based on the available literature, various studies have been conducted addressing the area of youth and SRH information through Internet. (12) studied "*Digital Technologies and Adolescent Sexual Health",* whereas (17) conducted a study on *"Negotiating social norms, the legacy of vertical health initiatives and contradicting health policies: a qualitative study of health professionals' perceptions and attitudes of providing adolescent sexual and reproductive health care in Arusha and Kilimanjaro region, Tanzania*". However, very few insights have been revealed on the experiences of youth and service providers on the preferred internet-based approaches for delivering SRH information and linkage to services for youth globally and specifically in Tanzania, therefore this study was conducted to play a valuable role in making this information available.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

This study employed a qualitative descriptive study design. Descriptive study design enabled us to study and describe the phenomena under study and to answer the questions of who, what, where, and how. Through descriptions provided by participants, experiences were examined. Therefore, the description of the youth and service providers' experiences enabled the researcher to get insights on the internet-based approaches for delivering sexual and reproductive health information among youth.

3.2 Study Area

The study was conducted in Kinondoni District, Dar es Salaam, Kinondoni district constitutes 20 wards located in both urban and peripheral areas in which a sample of youth was obtained. 1,375,562 people are living in the district, 19% of them are youth aged 18 to 24 years old. The interviews with NGO staff were conducted at their respective offices, while the interviews with HCWs were conducted at their facilities. The interviews with youth were conducted in different areas of Kinondoni districts, while the FGDs were conducted at Magomeni Health Center.

3.3 Study Population

This study included two study populations, whereby the youth living in Kinondoni Municipal Council were the first study population, Youth were designated by the United Nations as anyone between the ages of 15 and 24. Participants in this study were youth between the ages of 18 and 24. The service providers based in the districts of Kinondoni comprised the second category of study participants which included the health care workers (HCWs) from public and private health facilities were Mwananyamala Regional Referral Hospital, Magomeni Health Center, St. Joseph Hospital Mbweni, and Marie Stopes Mwenge Hospital. The second service provider population included staff from NGOs that implement programs on youth sexual reproductive health and mostly through digital approaches, the NGOs were TAYOA, FEMINA, and Girl Effect.

3.4 Sample Size and Sampling Techniques

The non-probability sampling technique was used in this qualitative research. Participants were selected purposively to gain a richly detailed understanding of phenomena. By using a maximum variation sampling to collect data from the wider scope of experiences and perspectives possible about this topic, a total of 31 individuals were included as a study sample. Among 31 participants, 24 were Youth who were segregated by sex (males and females), and age (18-24 years old). A study also involved a total of 7 service providers whereby 4 of them were HCWs from public and private facilities located in Kinondoni district, with experience working in RCH and with experience varying levels of experience providing Sexual and Reproductive Health information and services among youth, the other 3 were staff from organizations implementing Youth SRH programs.

3.5 Data Collection Methods

The data collection was conducted from August to November 2023. In this qualitative study, the data collection involved In-depth interviews (IDIs) and Focus Group Discussions (FGDs) methods, the FGDs were conducted to inform the IDIs on the collective experiences of youth on the phenomena under study. IDIs were conducted for the service providers who were recruited from given health facilities, Non-Governmental Organizations (NGOs), and youth who were recruited by community health workers (CHWs) in Kinondoni district. To gather their shared perspectives on the phenomenon under research, two Focus Group Discussions (FGDs) were held, one with male youth and the other with female youth.

3.6 Data Collection Procedures

The ethical clearance and introduction letter from the MUHAS was used to seek approval from the Dar es Salaam regional authority, and then the approval from Kinondoni district authority was sought and introduced the researchers to the health facilities through the DMO's office. Request for interview letters and ethical clearance certificates were addressed to the NGOs for their approval for interviews. The IDIs took an average duration of thirty minutes, while the FGDs took an average duration of forty-five minutes, and the interviews were audiotaped. The in-depth interviews with service providers were all conducted at their working areas, while the in-depth

interviews with youth were conducted in different areas such as at the playground, around their place of work, and university surroundings, the FGDs were conducted at Magomeni health center. To maintain confidentiality participants' names were not recorded or linked with any data, interviews were conducted on a setting were other people could not hear or interrupt. The open-ended questions were used to produce the key informants and FGD interview guides. The interview guides were created in English and then translated into Swahili to improve communication during the interview process. The data were collected by the principal investigator and one skilled assistant researcher.

3.7 Validity and Reliability Issues

Credibility, conformability, and dependability were taken into consideration in this study to improve the qualitative approach's level of trustworthiness. By using a member-checking technique, which involved cross-referencing the transcript with a second person, credibility was established, and the person was also asked to review transcribed information from the audio record (Nowell *et al*., 2017). Furthermore, pilot interviews for youth were conducted in Tegeta ward, Kinondoni district, also an additional healthcare worker from Magomeni Health Center was interviewed as part of the pilot to pretest the tools.

3.8 Data Management

A tape recorder was used to capture the data, and the audio files were then transcribed and translated. A hard drive backup of all the audio files was made while the audio data was exported to a laptop. Transcribing data was stored on a computer with secrecy maintained for privacy and backup.

3.9 Data Analysis

The collected data were analyzed by using the thematic analysis method (Shannon, 2014) to explore the experiences of youth and service providers on the internet-based approaches for delivering SRH information among youth in Kinondoni district. To find, examine, understand, and present themes in the data, a thematic analysis approach was used, whereas Nvivo version 10 was used for analysis. Braun and

Clarke (2006) outlined six processes that guided this thematic analysis: familiarizing oneself with the data, generating initial codes, uncovering themes, reviewing themes, defining, and naming themes, interpretation, and report writing. Familiarization of data was done through reading the transcripts before the coding process, a descriptive-focused coding strategy was employed because the findings were directly addressing the research questions. The coding process started by creating containers for all three specific research questions whereby the research questions were assigned labels that were considered parent codes. In the next step codes were generated under each of the research questions, the generated codes were based on all the significant information for the respective research question. After that, the codes were sorted by grouping them based on their shared relationship which helped to form clusters that were labeled to form themes.

3.10 Ethical Considerations

Ethical clearance to conduct the study was sought from the Muhimbili University of Health and Allied Sciences ethical review board through the Directorate of Research and Publication by submitting the study proposal forreview, and approval was granted (MUHAS-REC-06-2023-1768). Permission to conduct the study at Kinondoni District was provided by the Dar es Salaam Regional Administrative Secretary and Executive Director of Kinondoni District Council. Specifically, the permission to conduct the study in health facilities was provided by the District Medical Officer (DMO), while the permission to conduct the study at NGO offices was provided by their Program Leads. Every step to protect human rights, such as the right to confidentiality, privacy, and protection from harm of any kind, was taken into consideration through conducting interviews in safe and comfortable settings and explaining to participants that participation is voluntary. Participants were given a written consent form to review and ask questions. If they agreed, they signed the forms to give their informed consent.

3.11 Dissemination Plan

The final research report will be delivered to MUHAS, the School of Public Health and Social Sciences. Abstracts will be submitted for presentation to conferences and seminars.

CHAPTER FOUR

4.0 RESULTS

4.1 Overview

The study explored the youth and service provider's experiences on the preferred internet-based approaches for delivering sexual and reproductive health information and linkage to services for youth in Kinondoni district, Dar es Salaam. The study explored these experiences on the angles of usefulness, perceptions on the already existing, and preferences on the preferred internet-based approaches.

4.2 Characteristics of Study Population

A total of 31 participants were enrolled in this study in the form of two categories which were Youth (n=24), and Service Providers (n=7), Where the service providers category included 4 health care workers and 3 officials from NGOs. Table 1 below shows the distribution of research participants from each category.

Table 1: Distribution of Interview Participants From Each Category and Per Type of Interview

YOUTH					
		Males	Females	Age	Total
	IDI	6	6	18-24	12
	FGD (2)	6 (FGD 1)	6 (FGD2)	18-24	12
SERVICE PROVIDERS					
		Type of facility			
1. HCWs	IDIs	Private facility			2
	IDIs	Public facility			2
2. NGO Staffs	IDIs				3
			Grand Total		31

Table 2: Demographic Characteristics of In-Depth Interview Participants

S/N	Participant ID YOUTH	Sex	Age	Level of Education	Marital status
1	Youth 1	Male	24 Years	Bachelor Degree	Single
2	Youth 2	Male	23 Years	Standard Seven	Single
3	Youth 3	Male	18 Years	Form four	Single
4	Youth 4	Male	22 Years	Diploma	Single
5	Youth 5	Male	20 Years	Form four	Married
6	Youth 6	Male	19 Years	Form six	Single
7	Youth 7	Female	23 Years	Bachelor Degree	Single
8	Youth 8	Female	24 Years	Bachelor Degree	Married
9	Youth 9	Female	21 Years	Form six	Single
10	Youth 10	Female	20 Years	Form four	Married
11	Youth 11	Female	18 Years	Form four	Single
12	Youth 12	Female	24 Years	Standard seven	Single
	SERVICE PROVIDERS	Sex	Type of facility	Work Experience	
13	HCW 1	Female	Private	10 Years	
14	HCW 2	Male	Private	4 Years	
15	HCW 3	Female	Government	20 Years	
16	HCW 4	Female	Government	7 Years	
17	NGO 1	Female	N/A	4 Years	
18	NGO 2	Male	N/A	15 Years	
19	NGO 3	Male	N/A	11 Years	

Table 3: Parent Codes, Child Codes, and Themes

Parental Code	Child Codes	Themes
Service provider's experiences on the usefulness of internet-based approaches for SRH information among youth	Sources of SRH information to youth	Internet through digital health platforms such as social media, websites, and apps
		friends and colleagues
		Media such as Radio and Television
	Usefulness of internet-based approaches	High exposure to digital technologies among youth

		Youth smartphone ownership and access
		Development of science and technology
		Internet approaches are user-friendly to youth
		Reduction of HCW's workload due to pre-information obtained online by youth
		It is a good compliment to other non-digital interventions for youth SRH Information
	Design of the preferred internet platform	Ticktock or Instagram account with video contents and comment/feedback section
		A website with SRH information and provide youth with link to the nearby health facilities
Youth's views on the existing and accessible internet-based platforms for the provision of SRH information in Tanzania	Experience using the existing internet-based approaches for SRH information	Using Applications available in the Play Store for menstrual cycle management
		Joined WhatsApp groups for SRH information
		The use of google search engine to search for cervical cancer, issues of HIV testing, and SRH information
	Effectiveness and usefulness of existing internet-based approaches	The world right now wants people to connect through the internet
		The internet is more user-friend for accessing SRH information

		It saves time
		It ensures confidentiality
		High rate of phone ownership among youth
	Challenges while using existing internet-based approaches for SRH information	Cost issues
		notifications-interaction
		language barrier
		lack of technological know-how
		multiple and misinformation
Youth preferences on the internet-based approaches that can successfully be used to deliver SRH health information	Youth Recommendations on The Type of Internet Platforms	designing a new application
		SRH accounts on Instagram, TikTok, and Facebook platforms
		Creating a WhatsApp group
	Content Delivery Approaches	The video and audio contents are more preparable than the text contents
		(Edutainment) the combination of education with entertainment captures their attention
		The use of pictorial presentations to deliver a message
	Audience Engagements Approaches	Access to commenting and asking questions

		Youth participation into content creation
		Access to share contents with other fellows
		Being able to navigate through different sections or categories of the platform
	Trustfulness	Being recognized by the Ministry of Health (MoH)
		Using influential or famous people in content delivery
		Using recognized health professionals and youth themselves to deliver content
		Consistency of information
		Digital platform to be licensed by TCRA
		The use of testimonials and success stories in content
	Linkage to services	Availability of contact numbers to access service providers
		Receiving SMS for referral
		Suggestion of the nearest facilities for youth, the list of service providers and their facilities should also mention locations for youth to choose

4.3 The Service Provider's Experiences on the Usefulness of Internet-Based Approaches for Sexual Reproductive Health Information to Youth

The first objective of the study was to access the service provider's experiences on the usefulness of internet-based approaches for sexual reproductive health information to youth. In achieving these objectives various questions were asked as presented below.

4.3.1 Understandability of Sexual Reproductive Health

Service providers were asked to explain their understanding of sexual reproductive health. A participant from a Non-Governmental Organization articulated that sexual reproductive health is the whole cycle which includes education or the understanding of a youth about their reproductive system in general. They further illustrated that this includes planning for SRH and protection against diseases. He was quoted explaining that;

> *"SRH is the whole cycle which includes education or the understanding of a youth about their reproductive system in general; which means the diseases, relationships and everything related to reproduction, planning for the reproduction they have or expecting to have and everything that can affect their reproductive system in general (NGO 1)"*

Additionally, the health care workers illustrated the SRH as the health area that focuses on a mother and father's reproduction plan including family planning as well as associated issues such as diseases notable being HIV. One participant was quoted explaining that;

"*SRH is the health that focuses on a mother or father, to check either his/her reproduction plan or family planning. Also, you can have SRH when it comes to issues like HIV because it also affects reproduction. In addition to that, SRH relates to carrying pregnancies. When you say someone has a good SRH, that means s/he is mentally fit, physically fit, and social well-being which is related to his or her reproductive system (HCW 4)."*

Other healthcare worker participants digested the concept of SRH as the information they provide to youths regarding family planning methods and how youth can protect themselves from various infections and early marriages. One participant was quoted illustrating that;

> "*From what I understand, it is the information we provide to youths with regards to family planning methods, how to protect themselves against infections, how to avoid teenage pregnancies, and provision of family planning methods such as condoms, pills, implants, IUD and injections (HCW 3).*"

The services providers from NGO articulated sexual reproductive health as the condition of someone's well-being particularly in areas of reproduction, relationships as well as sexually transmitted diseases. One participant (NGO 3) was quoted explaining that,

> *"Sexual reproductive health includes someone's wellbeing, especially with reproduction, relationships and other things such as sexually transmitted diseases, the ability to conceive, the ability to have a safe delivery and even goes far to things like gender violence"(NGO 3).*

The above responses indicate various perspectives in which participants understand the term sexual reproductive health. Although participants have digested it from different angles, however, they all associated SRH with the right areas which the SRH addresses, hence it indicated that the participants have a rich understanding on what SRH is.

4.3.2 Most Interesting Sexual and Reproductive Health Topics for Youth

Participants were asked to indicate interesting SRH topics for youth based on their experience with the provision of sexual reproductive health information and services to youth. It was provided by most service provider participants that the most asked information about SRH is family planning particularly on the area of unexpected pregnancies. One NGO staff participant was quoted explaining that;

> *"One of the types of information that is been requested/asked the most at our call center is about Family planning and unexpected pregnancies. If you look at it, most youths are concerned about becoming pregnant and how to do family planning. (NGO 3)"*

Furthermore, healthcare workers also mentioned that male youth mostly seek information on condom use, which is also connected to family planning and protecting them against sexually transmitted infections. One HCW was quoted saying;

> *"We also provide services to youths in the communities through outreach services, male youth are most interested on the issue of condom use, and we normally provide them with condoms and testing services"(HCW 2).*

The above response indicates that the most sought-after sexual and reproductive health service is family planning which implies that the youth are much concerned about unexpected pregnancies and sexually transmitted infections (STIs) in the SRH area because the majority of these youth tend to not be in the family responsibilities, and some are even in the education process at various stages hence pregnancy or STIs may act as a stumbling block to their progress.

4.3.3 Sources of SRH Information and Services to Youth

Service providers were requested by the researcher to provide apart from the health facility, what are other places where youth can access SRH information and services. The participants indicated that apart from health facilities there is the internet, there are websites that deal with health issues directly, and there are also different teaching online done by experts on the sexual and reproductive health area.

One participant from NGO was quoted explaining that;

> "*Apart from health facilities, there is an internet, which means, there are websites that deal with health issues directly. For example, WHO is amongst those places, websites of different organizations including ours and other organizations that deal with this subject" (NGO 1).*

A healthcare worker mentioned that youth have access to websites or pages of different hospitals where they can have access to sexual reproductive health information. She was quoted saying;

"*Through the internet, if they can visit websites for particular health facilities such as Marie Stopes website, they would be able to obtain health teachings for youths"(HCW 2)*

Another participant added that in the program they are implementing as an NGO they have an SMS service where youth send questions and receive answers, but for the issues that need more health professional responses they normally refer the youth to a nearby health facility, it was also revealed that parents and community members with SRH knowledge are also sources of this information.

> *"There is also different teaching online, there are also different experts just like me who are involved with health issues through programs implemented by organizations, and there are also parents or community members who have a different understanding about SRH as well. In our SMS services, we normally receive a lot of things, so many messages and so many questions and those we can answer we normally answer them but for those that need more expertise and knowledge, we normally advise them to visit the nearest health facility to receive services and such things"(NGO 2)*

The use of social media was also elaborated by the service providers as the means through which sexual and reproductive health information and services are provided. One participant from an NGO was quoted explaining that;

> "*Because many of them own smartphones search on the internet or others like following someone on social media platforms"(NGO 3)*

On the other hand, when asked apart from the health facility, what are other places where youth can access SRH information and services, the service provider participant indicated that youths obtain sexual and reproductive information from their friends and colleagues. One HCW participant was quoted explaining that;

> "*I also learned from youths that most times, these young youths obtain information from their friends and colleagues, and they claim that they are the easier people to approach and share with them" (HCW 1).*

The use of radio and television shows and programs for delivering sexual and reproductive information was explained to be among channels where youth access SRH information and services apart from the health facility. One healthcare worker was quoted explaining that;

> "*Most times, for us here at the hospital, there are times when shows are aired on the radio, TVs informs of talk shows. The thing is, that education being provided there will go to everyone listening but the majority of those who would listen will be youths. If s/he is experiencing a challenge or if s/he needs something privately, s/he must go to a health facility where they provide services"(HCW 4).*

The above findings indicate that healthcare workers and service providers also consider internet platforms as one of the sources of SRH information to youth, this may be attributed to the fact that this platform provides youth with the freedom to access any information they need without fearing they may be wrongly interpreted by the HCWs and also offers privacy.

4.3.4 Sexual Reproductive Health Services Available at the Facility

Health care workers participants were asked to explain their experience with the provision of sexual reproductive health information and services to youth particularly the available SRH services at the facility. It was explained that protection from STIs and family planning are common available SRH services at the facility. One participant was quoted explaining that;

> *"For those who have not gotten into marriage, we advise them to protect themselves from STIs, we also advise them to protect themselves from HIV infections and teach them to protect themselves from unexpected pregnancies"(HCW 4)*

Another HCW participant added on the family planning information and services they offer to pregnant youth and their partners so that they can put space between pregnancies and be able to take good care of their children. The HCW was quoted saying that;

> "*Another thing is when pregnant women come to the anti-natal clinics and children clinic, the SRH services fit for this group is family planning" (HCW 2).*

In signifying the dominant SRH services available at the facility, another HCW participant added that;

> "*Among the services are family planning service, and anti-natal clinic services. For the case of girls, we educate them mostly on family planning such as using condoms and other methods such as implants, IUD, injections, pills so that they can protect themselves from becoming pregnant" (HCW 3).*

The above results imply that family planning and counseling on how youth can protect themselves from STIs such as HIV are predominant sexual and reproductive services at many health facilities in Tanzania settings. This may be associated with the fact that these are the common issues that youth are facing.

4.3.5 Understanding of the Youth-Friendly Services

Services providers participants were asked to elaborate on what are the SRH youth-friendly services. They digested the concept as the service that involves a youth or puts a youth in an environment of being able to express what s/he has.
A service provider participant was quoted explaining that;

> *"Youth-friendly services are any services that involve a youth or put a youth in an environment of being able to express what s/he has. For example, if it's a health facility, that is a place where s/he can be free to express what s/he has or receive information about what s/he needs without withholding anything from him/her, for example, if a youth goes to the health facility in a need for family planning, that is a place which makes youths free to visit and receive that particular service without feeling bad or being judged" (HCW 2)*

Moreover, other service provider participants defined the SRH youth-friendly services as services provided in places where youth feel warm, and welcomed, and will not be judged;

> *"Those services that allow a youth to share his ideas or fears or what s/he feels insecure about sexual reproductive health in general" (NGO 1).*

Other service providers participants defined the SRH youth-friendly services as the services that are according to youth needs, that they can obtain whenever they need

them and according to how they need them without been discriminated, despised, or miss them while they need them. One participant was quoted explaining that;

> *"Youth friendly services I think it those services that are according to youth needs and those that they can obtain whenever they need them and according to how they need them without been discriminated, despised or miss them while they need them. I know some facilities arranged a separate time for them and I think it should be around evening because as you know youths normally analyzes things and they would say 'if I go at this particular time, I will meet with a lot of people there and then go to doctor and explain to him about my problem, I am not going" (NGO 3)*

Furthermore, other HCWs addressed the youth friendly services as the way of isolating a youth from the elderly people, that is, preparing a place where its only youths who meets together there. One HCW participant was quoted explaining that;

> "*Youth friendly services is the way of firstly isolating a youth from the elderly people, that is, preparing a place where its only youths who meets together there. Placing youths in one group. That's when you will be able to speak with them and let them cooperate with you, if s/he wants services, other facilities have separated elderly services from children services; so, they just write it 'youth services and youths clearly know where they consultation room is" (HCW 4).*

The findings from the study above imply that health care works and services providers have comprehensive understating of youth friendly services, hence may consider provision of these services to youth accordingly to meet youth expectation and needs for seeking sexual and reproductive health services and information.

4.3.6 Service Provider's Opinion on Usefulness of The Internet-based Approaches for Delivering SRH Information to Youth

The service providers were asked about the usefulness of the internet for SRH information and services to youth. They indicated that youth use social media for SRH and the use of the internet by youth is of benefit.

HCW participants explained that youth nowadays have exposure to digital technologies which make it easy for them to seek information through the internet platforms. She was quoted saying;

> "*Youth nowadays have become technically active, and they can just Google on the internet and read it. They google it and obtain it because, even when we are teaching, some already have the information. It is easy to use social media platforms to reach out to a larger group of youths. For example, if Facebook were providing such information; the moment s/he obtains a phone, s/he would run to Facebook, or Instagram and must also have a WhatsApp account" (HCW 3).*

In addition to that service provider participants from NGO added that

> "*There are benefits because currently we are living in a digital world and so many youths are in this digital tide and that's why you see many messages (information) passing through this channel" (NGO 3)*

On the other hand, service providers also explained that the majority of youth own or have access to smartphones hence putting SRH information on the internet platforms would be ideal thing.

"It would be a good thing and an easy thing for the majority of people to obtain information through their phones because nowadays most youths own smartphones" (NGO 2)

Another participant added that;

"*It is possible because the majority of youths nowadays are using smartphones and they like getting things from the internet, others like following influential people on social media platforms"(NGO 3)*

Service providers also mentioned the development of technology and globalization to be among the factors that make internet solutions more valid for delivering SRH information to youth. One HCW said;

> *"It is easy to use social media platforms to reach out to a larger group of youths. For example, if Facebook were providing such information; the moment s/he obtains a phone, s/he would run to Facebook, or Instagram and must also have a WhatsApp account" (HCW 4)*

Complementing the above finding another service provider mentioned that the internet approaches are potential because currently, the world is focusing on digital solutions, he was quoted saying;

> *"To me, the internet is the talk of town, the world is currently focusing much on digital or online solutions" (HCW 1)*

Service providers also said the internet approaches are useful because they are user-friendly, and youth find it challenging to seek SRH information at the physical health facilities due to fear of lack of privacy and unfriendly environment; A service provider from NGO said;

> *"There are benefits and that's why you see a lot of youths getting that confidence of sharing their information in the internet platforms believing that no one will be able to see it or s/he won't be seen" (NGO 1).*

It was also revealed that if SRH information will be accessible through the internet it will reduce the workload on healthcare workers, because youth will have prior information, and they will gain confidence to attend the health facilities for SRH services while they have already obtained most answers of their questions through the internet; One HCW said;

> *"So, it is a good strategy because it would enlighten them a bit and make them confident to come from home to hospital seeking for such information because at least they know some information" (HCW 2).*

On the other side, service providers mentioned that the internet approaches should not stand alone, but they should be accompanied by other non-digital solutions as in Tanzania not all youth have access to digital devices and the internet; a participant was quoted as saying;

> *"The internet solution must be accompanied by non-digital solutions to reach both with and without internet access" (NGO 2).*

The findings from the study above indicate that healthcare workers have agreeable opinions on the usefulness of the internet approaches for SRH information for youth. This may be because most of the youth have an interest in using the internet and it is a friendly approach for them to get SRH information they need with few limitations. The above responses also indicate that most of the youth are currently owning smartphones hence addressing SRH information via internet approaches would create a good catchment area for the target group.

4.3.7 Service Providers' Recommendations on Preferred Internet Approaches for SRH Information

The service providers recommended the use of Instagram and Tick Tock platforms' approaches such as video content and feedback sections for effectively reaching the youth on sexual and reproductive health information. This was suggested by participants from NGOs. One participant was quoted explaining that;

"I would utilize approaches like video content and feedback sections used in the existing platforms such as Instagram, Facebook, and Tick Tock" (NGO 2).

The healthcare workers participants proposed the use of Facebook and Instagram internet approaches for the dissemination of sexual and reproductive health information to bring about the desired effects. One participant was quoted proposing that;

> "*I think I would put it into these existing platforms because everyone has his/her own choice, some like Instagram and some like Facebook. So, s/he will be able to obtain information through the platform s/he likes using" (HCW 3).*

Contrary to what others suggested, other healthcare workers recommended that the use of the Website addressing SRH information and linking youth to available services would be appropriate to effectively reach the youth. One participant was quoted suggesting that;

> *"If it's a website where a youth would be able to open his/her account, the platform would be designed with approaches such as a certain website with contents or writings like family planning including all other information"(HCW 2).*

The above findings from the study imply that the service providers suggest the use of websites, Facebook, Instagram, Tick Tok internet platforms in which approaches like the use of written content, and sections with a variety of family planning information to youth as impactful approaches to reach the youth on SRH information and linkage to services.

4.4 Youth's Views on the Existing and Accessible Internet-based Approaches for Delivering Sexual Reproductive Health Information

The second objective of the study was to explore youth's views on the existing and accessible internet-based approaches for delivering sexual reproductive health information. In achieving this the researcher asked various questions to the participants. Their responses were as it is reported below.

4.4.1 Understandability of Sexual Reproductive Health

Youth were asked to explain their understanding on sexual reproductive health. Participants elaborated that SRH refers to how the youth are protecting themselves from early pregnancies and sexually transmitted diseases through the use of protection methods.

In quoting one participant, the participant clarified that;

> "*SRH is how we are using such things (protections) and how we are protecting ourselves from teenage pregnancies and sexually transmitted diseases*", whereas another participant elaborated that *"It is the totality of all issues about health in*

terms of reproductions. Issues such as clinic, using protection during sex and it also includes family planning" (Youth 8)

In another perspective, male youth related SRH with the use of family planning methods by female youth to protect themselves from pregnancies and sexual diseases and were able to list those family planning methods such as pills, implants, and condoms.
One participant was quoted explaining that;

"*You are talking about unprotected sex, avoiding unexpected pregnancies, and avoiding different sexually transmitted diseases. For the case of our sisters, I understand there are things they use such as pills and implants and condoms*" (FGD 1)

On the other hand, female youth digested SRH as the services or the education someone is given about reproduction, testing to know their health status, and how to protect themselves from diseases.
One participant was quoted clarifying that;

"*SRH is the services or the education someone is given about the whole issue of reproduction which includes testing to know their health status and other information about the testing such as how to protect ourselves from different diseases" (Youth 7).*

Moreover, other female youth asserted that the SRH includes education and services women are given on how to protect themselves, especially from unexpected pregnancies and other influences, the use of protection such as condoms for protection against diseases such as HIV, to avoid getting into things that may cause them fail to achieve their dreams.
One participant was quested explaining that,

"*What I understand is that SRH is the service a woman is given on how to protect themselves, especially from unexpected pregnancies even though men are also responsible for it. Method of reproduction that is used by youths to avoid teenage pregnancies and other influences, So, you can use condoms to avoid diseases such as HIV" (FGD 2).*

The above responses indicate that both male and female youths are aware of sexual reproductive health and could well associate it with the related components of education and services it addresses.

4.4.2 Purposes of Youths Utilization of Internet

The youth participants were inquired about what they do with the internet. They explained that they utilize internet platforms like Facebook and Google to gain benefits coming from these internet platforms, the benefits included having access to entertainment content and information they need. One male participant was quoted explaining that;

> "*If you get on the internet, either on Facebook or Google about something, you will obtain information you need, such as entertainment news and content"(Youth 5)*

Female youth participants explained that they use the internet to search for reproduction-related information. One participant explained that;

> "*If I want to read anything related to reproduction, I can just go to Google and search and obtain enough information including different professionals talking about reproduction, and even if I need some advice and everything else (I can just get it there)" (Youth 10).*

The above findings from the study imply that the youth use internet platforms such as Facebook and Google to gain benefits that come with these platforms such as networking, information accessibility particularly entertainment, and information on sexual and reproductive health-related information.

4.4.3 Internet Approaches Used by Youth in Tanzania for SRH Information

The female participants reported to be using Applications available in the Play Store for SRH information. They identified these Apps to be "Flow" and "My Calendar" which help them to manage their menstruation cycle and period, WhatsApp group platforms formulated to educate female youth on various SRH information, and

One female participant was quoted explaining that;

> "*I used WhatsApp. There was a female youth's group on WhatsApp which was about the whole issue of providing education to adolescent girls and female youths. So, someone managed to add me to that group, and I learned a lot of things related to testing, STIs, Family planning, the use of condoms and so many other things. I benefited from that group because I managed to create my group and I am also educating my fellow female youths because I gained knowledge from that group" (FGD 2).*

Another female youth participant added that;

> "*There is a certain application called 'Flow' I downloaded on the App Store. It is a good App. When you start your menstrual cycle, you just log in and indicate that 'you have started' and then you can even fill in the information about how you feel, and later on you can even know about the days you have already spent" (Youth 7).*

Moreover, another female youth participant added that;

> "*The first one is an App called 'My Calendar' which is on Play Store and you can install it and use it, it provides directives that can help a female child to avoid unexpected pregnancies. It provides information about the dangerous days and the safe days and it also provides a message daily making sure that the user of this particular App becomes notified" (Youth 8).*

Furthermore, another female participant reported the use of Google search engine to search for cervical cancer, issues of HIV testing, and SRH information. She was quoted that;

> "*It was Google. I was searching for testing and the kind of services someone gets after testing. I also checked about reproductive health, especially the reproductive organs, I wanted to know how someone gets to have uterus cancer and other issues. If you go to Instagram and Facebook use the Hashtag '#' and write the word 'reproductive health' and search, you will get SRH information. I also use YouTube to listen to videos from different doctors explaining different issues related to sexual and reproductive issues" (FGD 2).*

On the other hand, male participants were asked whether they have ever used the existing internet approaches for seeking SRH information or services, and to share which approaches they use. The male participants explained that had used the SRH application available in the Play Store of their smartphones, Google search engine, and WhatsApp groups to access SRH information, they mentioned searching for information about condoms condom use, and other SRH information. One male participant was quoted explaining that;

> "*I once did that (searching SRH information) through the internet. There is a certain Application that was shared through a certain group (WhatsApp) that explains reproductive health. You can ask any question and they would give you some explanations, it is like a system they created to get such information" (FGD 1).*

Another male participant added that;

> "*I once searched on Google about the uses of condoms. You know condoms are available but there are steps on how to use it, that is what I wanted to know. So, I searched because some people say that it busts, and it doesn't help. The truth is, it helps but the challenge is how to use it. I am in a certain group (WhatsApp) and I normally see such information being shared but I don't get the time to follow up on it" (Youth 4).*

Moreover, one male participant added that;

> *"The internet platforms are doing well and those are the simplest methods for our youths. There is a certain page called 'Naweza', and they can follow that. I also follow, Gea Habib (a radio presenter) from Clouds FM because she likes posting issues about reproductive health*" *(Youth 5).*

Other male youth participants expressed that they use WhatsApp for sharing social reproductive health information. He was quoted saying that;

> "*When it comes to my phone, when I switch on data, all those I am following will start coming. So, it is a very crucial and good method of delivering a message because I can just share on my WhatsApp status and more than 30*

people can view it at the same time. The world is now on your hands, you no longer need to go to the hospital" (FGD 1).

Male participants also mentioned the same as it was reported by female participants that they use Google for searching and obtaining information regarding sexual and reproductive health. One participant expressed that;

"if I want to read anything related to reproduction, I can just go to Google and search and obtain enough information including different professionals talking about reproduction, even if I need some advice and everything else (I can just get it there) because of the advancement of technology, it is much easier" (Youth 2).

The above findings from the study imply that the Google search engine, social media, and WhatsApp groups are the commonly used platforms approaches by youth for sexual and reproductive health information as vindicated by both the male and female youth participants. Hence for effective SRH awareness and demand creation programs results achievement by healthcare workers and service providers, these platforms should be priority internet channels.

4.4.4 Youth Opinion on the Usefulness of Existing Internet-Based Approaches to Deliver SRH Information among Youth

Participants were asked to express their opinions based on their experience on the internet approaches regarding SRH information among youth. They explained that it was a good thing because the world right now wants people to connect through the internet.

A male youth was quoted explaining that;

"*For me I think it is a good thing because the world right now wants people to connect through the internet and something can come from the USA and within a few minutes get to us, if such information is available there, it will be easy for other youths (to get the message)" (Youth 3).*

Also, during their responses participants explained that the internet is more user-friendly for accessing SRH information, this is because youth are not confident to go

directly to a physical facility due to fear and lack of privacy. One male participant explained that;

> "*I would like to talk more about us youths; if you just tell a person to go to the hospital to be informed about SRH, it will just end thereby agreeing but in reality, she won't go; but if you tell him/her 'go to your smartphone and go do Google and type 'sexual reproductive health' and start reading it, this is the simplest way s/he can use without any problems" (FGD 1).*

Another female participant added that,

> *"To be honest it's hard to go to a physical facility. So, the simplest way is through the internet because s/he won't be feeling shy and s/he can do it on his/her own time. in following such things on the internet, s/he can even hide somewhere and start searching for it and gain something. So, it's easy when it comes to the internet (FGD 2)"*

On the other hand, both male and female youth elaborated that they use the internet as a means of obtaining information regardless of any setting they are in, and is so fast which enables them to obtain as much abundance information as possible.

One youth asserted that;

> "*For us youths to find a simple way of obtaining the information even by just reading somewhere while sitting at home (Youth 11)"*

The use of the internet was also highlighted to be helping those with shyness to gain information about their interests, contrary to when they visit health facilities and meet with health care providers, they can be feeling shy to express themselves. One youth participant clarified that;

> "*The first thing I can say is there are people who don't have the confidence to face people and tell them 'I am passing through a reproductive health challenge', they feel shy. So, you are alone on the Internet, and you can search*

for things and learn. S/he will be using his/her phone and obtain information rather than coming to the hospital and meeting with elderly people and start feeling shy meanwhile s/he can receive all the answers s/he has on the internet (FGD 2)"

High rate of phone ownership among youth, during their interview session youth participants responded that smartphone ownership among youth is currently higher than it used to be previously. One participant was quoted explaining that;

"It will be a very easy thing because, in a group of 5 to 6 youths, you will find 2 or 3 using a smartphone, if they manage to put in the internet it will make many youths come together" (Youth 7).

The above findings from the study specify that the use of internet approaches such as WhatsApp groups and other platforms' approaches may help youth especially those with shyness to gain information about their interests particularly sexual and productive health information and share with other group members their thoughts on the same hence being able to reach many peers without a face-to-face interaction. Also, the above findings indicate that most of the youth currently own smartphones hence it makes it a nice platform to provide SRH information on it, and to converse with the youth about various information of their interests.

4.4.5 Challenges Encountered by Youth while using the existing Internet-Based Approaches for SRH Information and Service

Participants were asked what challenges they encountered while using the internet-based approaches for SRH information and service. They reported on various challenges including cost issues, notifications-interaction, language barrier, and lack of technological know-how challenges and multiple and misinformation. One female participant elaborated that;

Regarding the presence of multiple information and misinformation on the same topic on the internet, a participant said;

"*So, there are so many different pieces of information speaking about the same thing that puts in a dilemma. I don't know which one to follow and whom I should trust... someone might tell you 'This is the best method to use to avoid unexpected pregnancies, but another one would come and say 'That is not the best one'. So, it brings some kind of confusion unless you confirm with professionals themselves (Youth 8)"*

Explaining on cost issue one female participant was quoted clarifying that;

"*The first challenge for youths is about economy… What I mean by the economy is the whole issue of internet bundle when searching for information on the internet, the internet tends to bring a lot of information and you must go through a lot of things until you get what you were searching for, meanwhile, you have just bought a 500 Tanzania shillings internet bundle" (Youth 12).*

The cost issue was also echoed by a male participant who explained that;

"I don't use the internet so much currently although I used to use the internet a lot in the past. Nowadays the cost of MBs is very high and I just get into some people's statuses and after that, I would switch off the data because I am trying to save the internet bundle" (FGD 1).

Notifications-interaction challenges, one male participant elaborated that;

"For most youths, when you go to the internet and start reading some stuff and immediately you see a notification about a beautiful lady being posted, you just open it and start following it and instantly you forget what you were searching for" (FGD 1).

On lack of technological know-how, one participant was quoted explaining that;

"The challenge I see when it comes to searching for things on the internet is lack of education to youths. If you need to have certain information, until you come to realize that you can just go to Google and search for it is very hard because of lack of education (Youth 2)"

Another youth participant elaborating on the language barrier explained that;

"The challenge I faced was with the internet itself because there are some Apps that provide information very briefly such that you don't understand the whole issue. You might be searching and come across a language you don't understand" (Youth 9).

The study findings above reveal that youth encounter various challenges when they are using internet-based approaches for SRH information and service. The cost issues, notifications-interaction, language barrier, and lack of technological know-how challenges are predominantly challenges. Their perspectives on the preferred internet-based approach in the next section have provided mitigation measures to these challenges.

4.5 Youth Preferences on the Internet-based Approaches that can successfully be Used to deliver Sexual Reproductive Health Information through the Internet.

The third objective of the study was to scrutinize the youth preferences on the internet-based approaches that can successfully be used to deliver sexual reproductive health information through the internet. In comprehending this various questions were inquired as discussed below.

4.5.1 Youth Recommendations on The Type of Internet Platforms

Participants were asked if they were given a chance to design an internet-based approach on SRH information and linkage to services for people of their age, and what could it look like. They provide various responses such as designing a new application, SRH accounts in Instagram, TikTok, and Facebook platforms, but also creating a WhatsApp group. One participant was quoted suggesting that;

"*There are applications you can create, and the goal of such application is SRH to youths and you might even give it a name 'study about reproductive health and make money'. There should be a certain application that functions like a game such that when you get the question right you gain some money in your account, and there should be certain questions about reproductive health, and you answer them as you would be answering exams" (FGD 1).*

Another participant added that;

> "*The government should prepare a procedure whether it's an app or a page which will be called something like 'youth and reproductive health' and there should be specific programs to be posted on Instagram, Facebook, and YouTube showing youths discussing different issues about health" (Youth 4).*

Whereas a female youth participant suggested that;

> *"I would have designed an application that deals with SRH in general and for all age groups. Then, I would have gone into these existing platforms such as Instagram, and created an account for that application and then put a link to that App in the Instagram bio" (Youth 9).*

Both the female and male youth also proposed the formulation of WhatsApp groups for SRH information provision via the Internet. Female participants asserted that;

"We thought of having a platform that would be motivating youths and make them attracted to visit and know what is happening, so, we decided to create a WhatsApp group" (FGD 2).

The findings above from female youth participants imply that they suggest the designing of an application, SRH accounts on Instagram, and Facebook internet approaches for the provision of sexual and reproductive health information. This may be attributed to the fact that these are the commonly used internet platforms' approaches by youth especially in urban areas like Kinondoni, in Dar es Salaam city.

Whereas a male participant proposed the formulation of a WhatsApp group, he was quoted saying;

"Because many youths who use smartphones use WhatsApp, I think I would create a WhatsApp group" (Youth 1).

The use of Ticktock was also recommended by both the male and female participants for effectively delivering sexual and reproductive health information and linkage to services to youth as youth are now interested in these platforms which use video content approaches and utilize them regularly. One participant explained that;

"*YouTube was those past days but now it is Tick Tock, this is because most of us youth are now using this internet service" (Youth 6).*

The findings above from the study indicate that youth propose various internet channels and apps to be used for the effective dissemination of sexual and reproductive health services and information to youth. The use of websites, applications, WhatsApp, Facebook, TikTok, and Instagram channels.

4.5.2 Content Delivery Approaches

Participants were asked to recommend the modes of delivering content in the designed platforms, Participants reported that the video and audio contents are more preparable than the text contents**.** One youth said;

"You know for our youths, when you search for such a thing on the internet and a whole paragraph comes up with lots of explanations, it becomes very hard to read about it. For us youths, we just pass through the headlines and go away" (FGD 1).

In the same case they also added that the video and audio contents are even appropriate for youth with disabilities such as blindness, who might miss the intended message if it was only addressed through text. One female youth said;

"I would make it more engaging by reducing a lot of information because it's not many who like reading or paying attention to details, also the recorded voice so that if someone cannot see or write could listen" (Youth 8).

The use of an edutainment approach was also strongly recommended, youth believe that the combination of education with entertainment captures their attention. One male youth reported that;

"So, we should use the existing platforms. For example, if someone gets on Tick Tock and comes across a song but just a vocal related to reproductive health and a very short video with someone speaking about reproductive health, definitely this person would waste his/her few seconds watching it, You can create short video clips, You can also use Superstars or famous people and come up with those clips" (FGD 1).

Youth also proposed the use of pictorial presentations to deliver a message, they said a step-by-step pictorial story showing a youth receiving SRH services may be attractive;

> *"Contents should include pictures showing the way someone is receiving services and the way s/he is completing that service" (Youth 11).*

Another youth added that;

> *"I can write and put a picture of that thing that which I wrote about so that when others see it, can understand it more clearly, You can just record a video of yourself explaining while showing them pictures" (Youth 5).*

4.5.3 Audience Engagements Approaches

Participants were asked to suggest how the audience should be engaged in the preferred approaches in the internet platforms, most of them mentioned the access to commenting, asking questions, participation in content creation, having access to share content with other fellows, and being able to navigate through different sections or categories of the platform.

On the access to commenting and asking questions youth were reported saying;

> *"Mostly s/he will have access to ask questions and receive feedback and in case s/he needs a referral, she will be referred to facilities that are close to him/her" (Youth 2).*

Another youth said;

> *"S/he will be able to comment and provide suggestions" (Youth 7).*

Participants recommended youth participate in content creation (User-generated content), In this case, they were reported saying that;

> *"All of us like stories. So, if we can have a platform that has user-generated content of which its source is from the users themselves such that, if its youths, the source of the stories in the platform should be the youths themselves" (FGD 1).*

For more engagement participants also recommended that in the platform there should be access to a sharable link so that they can invite and share content with others, they said;

"So, you must create a link which deals with SRH directly and share it and when someone goes there, s/he will specifically know that 'this is specifically created for" (FGD 2).

Another male youth gave an example of a common link called Uniport that has been sent to youth on WhatsApp, he said;

"For example, there is something called Uniport which is normally sent to your phone through WhatsApp asking, 'Do you want to know about SRH and HIV?' If you press 'Yes' it gives you the information and then it tries to test your understanding by asking you questions about HIV. Then, if you answer those questions, it briefly gives you explanations" (FGD1).

Also, it was noted that, for a preferred internet platform to be more engaging, it should provide a room for users to navigate through different sections; participants were noted saying;

"For example, if s/he wants to know about family planning, s/he would go to FP section and read" (Youth 6).

Another youth added that;

"When you get there, you will see that specific category such as contraceptives, and click it and obtain the information. In addition to that, s/he will be able to ask questions and receive the answers" (FGD 2).

4.5.4 Trustfulness

Participants were asked what should be done for their platforms with preferred approaches to be trusted by youth since misinformation was mentioned to be among the things that limit youth when searching for health information online. Among the mentioned considerations for the digital platform to be trusted was mentioned to be; being recognized by the Ministry of Health (MoH), using influential or famous people in the content delivery, using recognized health professionals and youth themselves to deliver content, consistency of information, the digital platform to be licensed by TCRA, and the use of testimonials and success stories in contents.

In the case of using famous people youth said;

"Just because they saw someone famous posting something, they tend to follow that page and start watching" (FGD 1).

Another female participant added that a famous person should also be an age mate of these youth so that they take the message as relevant to them, she said that;

> *"Use famous music artists who are in their style because you might put some music artists and judge them like 'this one has already given birth or has advanced too much. They need someone who is in the same life stage for example Zuchu" (FGD 2).*

The internet platform should be recognized by the Ministry of Health (MoH) of Tanzania, according to youth this is important because it reduces doubts, one youth said:

> *"We can also share such information and explain that it was approved by the Ministry of Health so that they can understand that the Ministry of Health is aware of what is happening there. Most people especially us Tanzanians, if we see any website or any page linked with the Ministry of Health we tend to trust it the most" (Youth 1)*

It was suggested by youth that MoH itself should also have its own internet platform for delivering SRH information and services, one participant said;

> *"There is a need for the Ministry of health to create a specific page on the internet which will be there to provide health education to youths and it should be well known to all the youths" (FGD 1).*

Using professional HCWs and Youth to present contents, on this case participant said;

> *"There would be a possibility of having a service provider in order to help youths obtain right information and there will be pictures showing some youths who have already benefited from the services they received in the health facilities" (FGD 1).*

Youth mentioned that for a platform with preferred approaches to be trusted and sound genuine, it should be registered and licensed by TCRA, one youth said;

> *"A platform should be registered and licensed - people uploading such information on the internet should be licensed by TCRA." (Youth 4).*

Consistency of information was mentioned to be a key thing for a digital approach to be trusted, youth said there should be consistency between information available at the

internet platform and the information received when they visit physical health facilities, One youth said;

> *"The same information I would be able to obtain at health center A should be the same information I will receive at the online platform" (FGD 2).*

Lastly was the use of testimonials or success stories, this youth said;

> *"You can even use some examples of those who did it and benefited from it" (Youth 8).*

Another youth added that;

> *"There can be a service provider and a youth who is well informed about it and explain how it helped him/her and how s/he is helping others and advise them" (Youth 10).*

4.5.5 Linkage to services

While designing their preferred internet-based approaches and platforms for delivering SRH information and services to Youth, the participants were also asked to recommend how youth should be linked to available services at physical facilities and their recommendations were as follows;

Availability of contact numbers to access service providers, one youth said;

"Contacts should appear there for users to make direct calls to health care providers" (Youth 6).

Another youth added about receiving an SMS for referral, she said;

> *Youth would be reminded in an SMS format for referral to the nearest facility for such services" (FGD 1).*

Also, there should be the suggestion of the nearest facilities for youth, the list of service providers and their facilities should also mention locations for youth to choose the nearby one, one youth said;

> *"if s/he wants to contact the service provider of his/her choice, it should be possible as well and s/he can go through the list of all the service providers from different facilities such as St, Joseph's facility or any other facility and s/he will be able to choose from amongst them and if s/he is told to physically visit the facility, s/he will go" (FGD 2).*

On the issue of linkage to services, the youth mentioned that for it to be effective there should be youth-friendly services so that when linked they feel comfortable and be able to recommend to their fellows to follow SRH services available at that given facility. One youth was noted saying that;

> *"it should be ensured that the health care provider that we will be linked to contact, has received training on how to provide a youth-friendly service, and the environment of suggested facilities should be comfortable for youth to attend" (FGD 1).*

4.5.6 Name of the Platform with Preferred Approaches

Youth were also asked to suggest a name for their preferred internet-based approaches for delivering SRH information and linkage to services for youth, the mentioned names by both male and female youth include:

Names suggested by male youth,

> *'Afya Bomba', 'Afya Imara', 'Afya Bora', 'Uzazi Bora', 'Afya ya uzazi kwa Vijana' (sexual reproductive health to youths)*

Names suggested by female youth,

> *'Vijana Afya Kwanza' (Health First for Youths'), 'Vijana na Afya' (Youth and health), and 'Kijana Star' (Star Youth).*

In this study, In-depth Interviews were used to gather the experiences of individual participants, but to get shared experiences and collective opinions among male and female youth Focus Group Discussions were used, for example on the last objective through the FGD participants were able to design their preferred internet based approaches as a group.

CHAPTER FIVE

5.0 DISCUSSION OF THE FINDINGS

5.1 The Service Provider's Experience on the Usefulness of Internet-Based Approaches for Sexual Reproductive Health Information for Youth

The findings from the study indicated that from their experiences, healthcare workers have an agreeable opinion on the use of the Internet for delivering SRH information to youth. This may be because most youth in Tanzania have now woken up on health matters that are of concern hence takes time to learn more about them via various platforms including the Internet. In supporting this, (15) assert that health workers perceive internet approaches for SRH information and linkage to services to be a positive thing. They view that it may be helpful, particularly for youth living in rural and urban settings. Health workers agree to the fact that internet approaches are appropriate to be used for linking youth to available sexual reproductive health services.

Moreover, the findings from the study disclosed that service providers perceive misinformation, lack of youth interest in health information, and multiple-information provision challenges to be notable challenges facing youth in using the internet for sexual and reproductive health information and linkage to services. Literature shows that most of the internet-based approaches are not used by youth due to their poor marketing and publicity to the extent that the targeted population lacks exposure to them, there must be more effort in marketing and publicizing these platforms and providing education on how they are used (25).

The findings from the study disclosed that the health care workers and services suggest the use of website, Facebook, Instagram, Tick Tok internet platforms' approaches as impactful ways to reach the youth on SRH information and services. In line with this, in reviewing literature (16) assert that, "Youth who follow several influential persons on social media, according to HCP, could be persuaded to use digital platforms that provide SRH information and services by influential people, including their favorite football players or musicians."

5.2 Youth's Views on the Existing and Accessible Internet-based Approaches for Delivering Sexual Reproductive Health Information among Youth

The study results disclosed that female youths are aware of sexual reproductive health. This can be attributed to the fact that there have been various SRH awareness and demand creation programs facilitated by the government in cooperation with various stakeholders such as Girl Effect, TAYOA, and FEMINA. The findings from this study indicate that youth use SRH applications available in the Play Store of their smartphones such as My Calendar and Flow, Google search engine, WhatsApp groups, Facebook, Instagram, and YouTube for accessing SRH information. This provides the SRH implementer with the understanding of which channels to utilize to bring about desired change results on SRH. In Tanzania, TUJIBEBE brand under an organization called Girl Effect Tanzania uses internet-based approaches through social media including Instagram, YouTube, and Facebook to disseminate SRH information to young people and link them to available services.

It was also discovered that the responses from male youth implicated that the male youth understand what sexual reproductive health (SRH) all is about and hence could be an industrious source of information to provide insightful knowledge on other SRH areas that the study was interested in comprehending. Contrary to these findings, (17) reported that male youth are on a position to lack awareness of SRH at large because they attend health facilities for HIV testing when their partners are pregnant, they are excluded from other SRH information, and services provided not during the prevention of mother to child transmission (PMTCT). This difference of findings may be associated with the fact that these studies were conducted in different regions which may have affected male youth of one setting to the other. The findings from the study also revealed that most male youth use the Google search engine, Naweza platforms, following famous people on social media, and WhatsApp groups for accessing SRH information. This implies that male youth utilize various channels for accessing SRH information hence it is important to keep SRH information available on all these platforms.

The findings from the study also revealed that family planning methods are the most sought SRH services among both female and male youth when utilizing internet platforms for SRH information. This can be associated with the fact that at this age, the majority of youth are not ready to bear significant family responsibilities hence taking care of conceiving pregnancies is of high priority to the youth. Moreover, the study findings revealed that youth encounter various challenges when they are using the internet-based platform for SRH information. The cost issues, notifications-interaction, language barrier, and lack of technological know-how challenges are predominantly challenges. This can be attributed to the fact that many youths are in one way or another dependent on parents or caregivers hence economic issues when it comes to buying internet bundles may persist. In vindicating this (12) highlighted the "High costs of internet bundles, in several studies conducted on youth it was revealed that they face challenges with the costs of internet bundles, this hinders them from accessing health information available on the internet as soon as they need it." The further reported challenge of various advertised notifications brings unnecessary inference to the youth. The lack of education may bring about a language barrier to utilize some SRH apps, in line with this finding, the WHO (18) reported that "poor technological literacy to those who do not have exposure to internet use may limit youth from accessing the SRH information and services provided through internet-based platforms."

5.3 Youth Preferences on the Internet-based Approaches that can successfully be used to deliver Sexual Reproductive Health Information to Youth

The findings from the study showed that the youth use internet platforms such as Facebook and Google to gain benefits that come with these platforms such as networking, and information accessibility particularly information on sexual and reproductive health-related information. In emphasizing, (9), stresses that "the internet approaches can improve the provision of information and support for sexual and reproductive health because of its extensive coverage, high level of privacy, ability to deliver messages in a way that favors a targeted individual or group, and low cost." It was also found out that the use of internet platforms such as WhatsApp platforms especially WhatsApp groups helps youth with shyness to gain sexual and productive

health information and share with other group members their thoughts on the same hence being able to reach many peers without a face-to-face interaction. The study findings also revealed that the majority of the youth own smartphones which makes this platform attractive for promoting SRH information on it, and to interact with the youth about various information of their interests. In stressing this finding, (11) indicated that "in Tanzania, evidence shows that in most cases youth in Tanzania are reported to use mobile phones and the internet for chatting and connecting with friends, studying and entertainment purposes, while few use it for health information".

The findings from the study also showed that female youth participants suggested the use of a WhatsApp group, designing of an application, and SRH accounts on Instagram, and Facebook internet platforms for the provision of sexual and reproductive health information. This may be attributed to the fact that these are the commonly used internet platforms by youth especially in urban areas like Kinondoni, in Dar es Salaam city. In line with this, (23) report that "global research suggests that providing SRH information via digital means like internet-based platforms is highly appealing to youth, and youth themselves believes that these platforms can positively influence their SRH outcomes including improving knowledge, reducing sexual risk behavior, and increasing utilization of health services." The findings of the study also disclosed that male youth propose various internet channels and apps to be used for sexual and reproductive health services and information to youth dissemination, such as the use of websites, applications, WhatsApp, Facebook, and Instagram channels. In reviewing the literature, (16) clarify that, "youth also views that the digital platforms ensure efficiency and effectiveness, relevance, and privacy of their information".

The findings also indicated that youth prefer the internet-based platform for delivering SRH info and linkage to service to use approaches such as edutainment content, the use of videos, audio, and less text to deliver content and engage youth by commenting or asking questions and their participation into content delivery. A study by (9) in LMIC also revealed that youth prefer internet-based interventions for sexual and reproductive health that incorporate educational storytelling, video messaging, psychosocial support and counseling, and question-and-answer bidirectional texting to increase screening and follow-up rates and produce positive SRH outcomes.

5.4 Limitation of the Study

The study experience various limitation during its conduction. Notably, the study involved participants from different categories, which led to two limitations. The first was a long process to acquire approvals, especially for health facilities such as Mwananyamala National Referral Hospital which is not under the municipal council, and a second limitation was a tight schedule of participants from NGOs but at the end of the day all limitations were mitigated.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In conclusion, the study has revealed that youth have limited access to sexual and reproductive health information and linkage to services, the existing mode of provision of those services which is mostly based at the physical health facilities has seem to contain several barriers that leads to low access to SRH information and services among youth in Kinondoni district, Dar es salaam. The study has also revealed the potentiality of internet-based approaches for delivering SRH information and services among youth, whereby the majority youth and service providers in this study mentioned that the internet-based approaches or platforms are user friendly, fast transfer of information, easy to maintain confidentiality, and it is of youth interests. Youth proven to have their preferred internet based platforms and they were able to define how it should be, mostly WhatsApp group was mentioned to be the most appropriate platform where you could get many youth, but also they advised the interconnectedness or linking of different platforms such as having both WhatsApp, Instagram and TikTok accounts which may help to gain more audiences from different angles as someone who accessed an Instagram page may find a direct link to a WhatsApp group on the Instagram profile bio.

6.2 Recommendations

The following are the recommendations from the study findings to address the youth and service providers' perspectives on the preferred internet-based approaches for delivering sexual reproductive health information and linkage to services among youth in Kinondoni district, Dar es Salaam.

- More youth friendly services should be introduced and maintained at physical facilities so that youth linked to services may feel comfortable attending.
- Internet approaches and platforms for SRH information and services should not be a standalone approach but a complementary to SRH services available at the health facilities.
- Stakeholders such as NGOs and the government are encouraged to invest on

designing and implementing the internet-based approaches for delivering of SRH information and linkage to services for youth because the study has proven its potential.

- For the internet-based approaches for delivering SRH information and linkage to services to be trusted and interesting to youth, content should be delivered by a health professional, and youth themselves in the form of testimonials for those who have successfully mitigated their SRH challenges through online solutions. But also, an edutainment approach should be used to attract more youth.

6.3 Areas for Further Studies

This study was based on the urban setting, therefore the findings are more relevant and applicable to urban youth, but it is recommended that further studies which will base on the rural settings to look on the how the access to SRH information and services can be increased to youth in the rural settings, because studies shows that they also face challenges accessing such services at physical health facilities.

7.0 REFERENCES

1. Mazur A, Brindis CD, Decker MJ. Assessing youth-friendly sexual and reproductive health services: A systematic review. BMC Health Serv Res. 2018 Mar 27;18(1).
2. Ninsiima LR, Chiumia IK, Ndejjo R. Factors influencing access to and utilisation of youth-friendly sexual and reproductive health services in sub-Saharan Africa: a systematic review. Reprod Health. 2021 Dec 27;18(1):135.
3. Mcharo RD, Mayaud P, Msuya SE. Where and how do young people like to get their sexual and reproductive health (SRH) information? Experiences from students in higher learning institutions in Mbeya, Tanzania: a cross-sectional study. BMC Public Health. 2021 Dec 1;21(1).
4. Nkata H, Teixeira R, Barros H. A scoping review on sexual and reproductive health behaviors among Tanzanian adolescents. Public Health Rev. 2019 Dec 3;40(1):4.
5. Bacchus LJ, Reiss K, Church K, Colombini M, Pearson E, Naved R, et al. Using Digital Technology for Sexual and Reproductive Health: Are Programs Adequately Considering Risk? Glob Health Sci Pract. 2019 Dec 23;7(4):507–14.
6. NURHI. Adolescent& Youth-Friendly Services. TCI University. 2018;
7. Saha R, Paul P, Yaya S, Banke-Thomas A. Association between exposure to social media and knowledge of sexual and reproductive health among adolescent girls: evidence from the UDAYA survey in Bihar and Uttar Pradesh, India. Reprod Health. 2022 Dec 1;19(1).
8. Statista. Statista.com . 2021. Distribution of internet users by worldwide age .
9. Huang KY, Kumar M, Cheng S, Urcuyo AE, Macharia P. Applying technology to promote sexual and reproductive health and prevent gender based violence for adolescents in low and middle-income countries: digital health strategies synthesis from an umbrella review. BMC Health Serv Res. 2022 Dec 1;22(1).
10. MoHSW. National Adolescent Reproductive Health Strategy. Ministry of Health and Social Welfare. 2011;
11. Heron Z. Onditi. Tanzanian Adolescents in the Digital Age of Cell Phones and the Internet: Access, Use and Risks. University of Dar es salaam . 2018;7.

12. Linzi. Digital Technologies and Adolescent Sexual Health: A Literature Review Digital Technologies and Adolescent Sexual Health: A Literature Review Digital Technologies and Adolescent Sexual Health. 2015.
13. TCI University. TCI University. 2017. Social and Behavior Change for Youth Sexual & Reproductive Health | The Challenge Initiative.
14. Robin Boyar. Youth sexuality and reproductive health in the digital age . TECHsex USA. 2011;
15. Logie C, Okumu M, Abela H, Wilson D, Narasimhan M. Sexual and reproductive health mobile apps: results from a cross-sectional values and preferences survey to inform World Health Organization normative guidance on self-care interventions. Glob Health Action. 2020 Dec 31;13(1):1796346.
16. Ochieng BM, Smith L, Orton B, Hayter M, Kaseje M, Wafula CO, et al. Perspectives of Adolescents, Parents, Service Providers, and Teachers on Mobile Phone Use for Sexual Reproductive Health Education. Soc Sci. 2022 Apr 29;11(5):196.
17. Bylund S, Målqvist M, Peter N, Herzig van Wees S. Negotiating social norms, the legacy of vertical health initiatives and contradicting health policies: a qualitative study of health professionals' perceptions and attitudes of providing adolescent sexual and reproductive health care in Arusha and Kilimanjaro region, Tanzania. Glob Health Action. 2020 Dec 31;13(1):1775992.
18. WHO. Youth-centered digital health interventions. A framework for planning, developing and implementing solutions with and for young people. ISBN 978-92-4-001171-7. 2020;
19. Chen E, Mangone ER. A Systematic Review of Apps using Mobile Criteria for Adolescent Pregnancy Prevention (mCAPP). JMIR Mhealth Uhealth [Internet]. 2016 Oct 1 [cited 2024 Apr 14];4(4). Available from: https://pubmed.ncbi.nlm.nih.gov/27833070/
20. Cornelius JB, Smoot JM. The Impact of Technology on Adolescent Sexual and Reproductive Needs. Int J Environ Res Public Health. 2022 Jul 17;19(14):8684.
21. AFIDEP. 1st Adolescent Health Symposium. 2015.
22. Nena na Binti. https://nenanabinti.org/. 2023. Your Confidential, Non-Judgemental SRHR support.
23. Ippoliti NB, L'Engle K. Meet us on the phone: mobile phone programs for

adolescent sexual and reproductive health in low-to-middle income countries. Reprod Health. 2017 Dec 17;14(1):11.

24. Rea S, Zynda A, Allison B, Tolleson-Rinehart S. Adolescent Perceptions of Technology-Based Sexual and Reproductive Health Services: A Systematic Review. Journal of Adolescent Health. 2022 Nov;71(5):533–44.
25. Feroz AS, Ali NA, Khoja A, Asad A, Saleem S. Using mobile phones to improve young people sexual and reproductive health in low and middle-income countries: a systematic review to identify barriers, facilitators, and range of mHealth solutions. Reprod Health. 2021 Dec 16;18(1):9.
26. Osei Asibey B, Agyemang S, Boakye Dankwah A. The Internet Use for Health Information Seeking among Ghanaian University Students: A Cross-Sectional Study. Int J Telemed Appl. 2017;2017:1–9.
27. Pfeiffer C, Kleeb M, Mbelwa A, Ahorlu C. The use of social media among adolescents in Dar es Salaam and Mtwara, Tanzania. Reprod Health Matters. 2014 Jan 4;22(43):178–86.
28. NURHI. Nigerian Urban Reproductive Health Initiative: Impact on Adolescents and Youth Ages 15-24. NURHI. 2017;
29. Arulogun OS, Ogbu IA, Dipeolu IO. Influence of internet exposure on sexual behaviour of young persons in an urban district of Southwest Nigeria. Pan African Medical Journal. 2016;25.

APPENDICES

Annex 1: Consent Form (English Version)

Title: Experiences of Youth and Service Providers On the Internet-Based Approaches for Delivering Sexual and Reproductive Health Information among Youth in Kinondoni District, Dar es Salaam

Foreword

My name is Jacques Kaihura. I am a researcher from Muhimbili University of Health and Allied Sciences. I am conducting a study to explore the youth and service provider's experiences on internet-based approaches for delivering sexual and reproductive health information among youth in Kinondoni district, Dar es Salaam.

How to participate in this study

You are asked to participate in this study because you are one of the key participants of this study. If you are willing to participate in this study, I will conduct an in-depth interview / Focus Group Discussion with you to get your experience on the internet-based approaches for delivering sexual and reproductive health information and services among youth.

Purpose and Rationale of the Study

Enhancing reproductive health information and linkage to services through the internet will result in curbing or reducing various negative aftermaths to youth such as early pregnancies, HIV/AIDS, and STI infection, it is paramount that the findings will be helpful to enable youth to have effectively access and utilization of reproductive health information. The current study, therefore, seeks to assess the youth and service providers' experience on the internet-based approach for SRH information among youth in Kinondoni district, Dar es Salaam.

Confidentiality

Everything will remain confidential and will be used only for research purposes. The research team will compile a report that will contain information about all participants in this study and information will be treated confidentially and anonymously as no person links (name, form, etc. will be documented.

Risks

I do not expect that any harm will happen to you as a result of participating in the study.

Right to participate in the study

Taking part in this study is voluntary. You have the right to participate or decide otherwise without giving any reason for your decision. Once you have decided to participate you are also free to terminate your participation at any time.

Who to contact

If you have any questions about this study, you are free to contact, the principal investigator, **Jacques Kaihura (0768880047), Email: jacqueskaihura.jk@gmail.com**

If you have any questions/concerns about your rights as a participant you may contact **Dr. Nahya Salim Masoud**, Director of Research and Publications MUHAS P.O.BOX 65001 Dar es Salaam.

Do you have any questions concerning the information above?

If you agree to participate in this study, please sign this consent form.

I …… have read and understood the contents of this consent form and my questions have been sufficiently answered. I, therefore, consent to participate in this study.

Signature of the respondent ……..... Date ……

Signature of the interviewer ……..…… Date ……

Annex 2: Fomu ya Ridhaa (Toleo la Kiswahili)

Kichwa : Utafiti kuhusu mitazamo na uzoefu wa vijana na watoa huduma za afya juu ya njia za kimtandao kwa ajili ya kufikisha taarifa na huduma za afya ya uzazi katika wilaya ya Kinondoni, Dar es Salaam.

Utangulizi

Habari, naitwa Jacques Kaihura. Mimi ni mwanafunzi na mtafiti kutoka chuo kikuu cha Muhimbili, Nina fanya utafiti kuhusu uzoefu wako juu ya njia pendwa za kimtandao kwa ajili ya kufikisha taarifa na huduma za afya ya uzazi kwa vijana.

Namna ya kushiriki

Unaombwa kushiriki katika utafiti huu kwa sababu wewe ni mmoja kati ya walengwa wakuu wa utafiti huu. Kama upo tayari kushiriki katika utafiti huu, nitashiriki katika mahojiano ya kina / majadiliano ya kikundi ili tuweze kupata mtazamo wako kuhusu mitazamo yako juu ya njia pendwa za kimtandao kwa ajili ya kufikisha taarifa na huduma za afya ya uzazi kwa vijana.

Dhumuni na sababu za utafiti huu

Kuimarisha taarifa na huduma za afya ya uzazi kwa vijana kupitia njia za kimtandao itapelekea kupunguza madhara yanayowapata vijana kutokana na kukosa huduma au taarifa hizo, madhara hayo ni pamoja na mimba zisizotarajiwa, maambukizi ya ukimwi na maginjwa ya zinaa, pamoja na utoaji wa mimba. Ni wazi kwamba matokeo ya utafiti huu yatasaidia kutoa mapendekezo yatarahisisha upatikanaji wa taarifa na huduma hizi kwa vijana.

Usiri

Kila taarifa katika utafiti huu zitabaki kuwa siri na zitatumika kwa lengo la utafiti tu. Timu ya watafiti itaandika ripoti iliyojumuisha taarifa za washiriki wote bila kuhusisha taarifa binafsi kama majina.

Hatari

Hakuna hatari yoyote inayotegemewa kutokea sababu ya ushiriki wako katika utafiti huu.

Haki ya kushiriki katika utafiti huu

Ushiriki wako katika utafiti huu ni wa hiari, unahaki ya kuamua kushiriki au kutokushiriki bila haja ya kutoa sababu yoyote. Wakati ukishaamua kushiriki pia bado unahaki ya kusitisha mahojiano wakati wowote

Mawasiliano

Kama utakua na swali lolote kuhusu utafiti huu, kuwa huru kuwasiliana na mtafiti mkuu, **Ndugu, Jacques Kaihura (0768880047)**, Barua pepe: jacqueskaihura,jk@gmail.com

Kama una swali au jambo lolote kuhusu haki yako kama mshiriki unaweza kuwasiliana na **Dr. Nahya Salim Masoud**, Mkurugenzi wa utafiti na machapisho Chuo Kikuu cha afya na sayansi shirikishi Muhimbili. P.O Box 65001 Dar es Salaam.

Je, una swali lolote kuhusu taarifa ulizopewa hapo juu?

Kama unakubali kushiriki katika utafiti huu, tafadhali weka sahihi katika fomu hii ya ridhaa

Mimi…… nimesoma na kuelewa yaliyomo katika fomu hii ya ridhaa na maswali yangu yote yamejibiwa kikamilifu. Hivyo ninatoa idhini yangu kushiriki katika utafiti huu.

Sahii ya mshiriki ……. Tarehe ……

Sahihi ya muhojaji ……....…….Tarehe …….

Annex 3: Interview Guides English version

Youth – In-Depth Interview Guide

Participant Demographic Characteristics

Participant ID	Sex (Male/Female)	Age (18-24)	Level of Education	Marital Status

Objective	Question
A. Setting the stage	First I would like to ask you some questions about SRH to youth. 1. What do you understand by Sexual Reproductive health? • What comes into your mind when you hear about SRH? 2. Have you ever spoken to or told any of your friends, partners, or relatives about SRH? If yes what did you speak about? 3. What are the places you can access sexual and reproductive health information and services? • Have you ever sought sexual and reproductive health information and services at that place? If yes, what can you say about the services you received?
B. Youth views on the existing internet platforms for SRH	Now I would like to know about your experience using the Internet, ➢ What sorts of things are you doing with it? ➢ Are you using the phone or other device? (i.e. mobile or laptop/desktop? 4. What are the existing internet-based platforms

	that you use most? Please mention. 5. Have you ever used the existing internet approaches for seeking SRH information? If yes what platform did you use? • Based on the experience what is your opinion on these platforms and its approaches concerning SRH information to youth? • What challenges did you encounter while using the internet-based approaches for SRH information? 6. What must be done by youth to get SRH information on the internet? Assuming he/she has a phone with an internet bundle
C. Perception on the preferred Internet-based approaches	7. If you were given a chance to design an internet-based platform (i.e. app, hot mail, website..) with your preferred approaches for delivering SRH information and services to people of your age, what would it look like? • Would you use the available platforms such as WhatsApp and Facebook or you will design a new platform? • Would it be an app, website, or what? • Tell me what would you call this platform. • Who would it be for? Who wouldn't it be for? • What sort of things would people be able to do on this site? (Probe: Share content, get information, and watch SRH educational videos, Linked to Care… etc. • What would be unique about your approaches in terms of effectiveness and trustworthiness in delivering SRH information and linkage to services to youth compared to existing approaches?

Youth – Focused Group Discussion Guide

Participant Demographic Characteristics

Participant ID	Sex (Male/Female)	Age (18-24)	Level of Education	Marital Status

Objective	Question
D. Setting the stage	You are all welcome to this discussion, First, I would like to ask you some questions about SRH to youth. 8. What do you understand by Sexual Reproductive health? • What comes into your mind when you hear about SRH? 9. Have you ever spoken to or told any of your friends, partners, or relatives about SRH? If yes what did you speak about? 10. What are the places you can access sexual and reproductive health information? • Have you ever sought sexual and reproductive health information at that place? If yes, what can you say about the information you received?
E. Youth views on the existing internet platforms for SRH	Now I would like to know about your experience using the Internet, ➢ What sorts of things are you doing with it? ➢ Are you using the phone or other device? (i.e. mobile or laptop/desktop? 11. What are the existing internet-based approaches that you use most? Please mention. 12. Have you ever used the existing internet approaches for seeking SRH information or linkage to services? If yes, what approaches did you use?

	• Based on the experience what is your opinion on these approaches concerning SRH information for youth? • What challenges did you encounter while using the internet-based approaches for SRH information? 13. What must be done by youth to get SRH information on the internet? Assuming he/she has a phone with an internet bundle
F. Perception of the preferred Internet-based approaches	14. If you were given a chance to design an internet-based platform (i.e. app, hot mail, website..) with your preferred approaches for delivering SRH information and linkage to services for people of your age, what would it look like? • Would you use the available platforms such as WhatsApp and Facebook or you will design a new platform? • Would it be an app, website, or what? • Tell me what you would call this platform. • Who would it be for? Who wouldn't it be for? • What sort of things would people be able to do on this site? (Probe: Share content, get information, and watch SRH educational videos, Linked to Care… etc. • What would be unique about your platform in terms of effectiveness, and trustworthiness in delivering SRH information and linkage to services to youth compared to existing platforms?

Service Providers – In-Depth Interview Guide

Participant Demographic Characteristics

Participant ID	Sex (Male/Female)	Type of Facility (For HCWs)	Work Experience (Years)

Objective	Question
A. Setting the stage	First I would like to ask you some questions about SRH for youth 1. What do you understand by Sexual Reproductive health? • What are the SRH youth-friendly services? 2. What is your experience with the provision of sexual reproductive health information and services to youth? 3. Apart from the health facility, what are other places where youth can access SRH information?
B. Existing internet platforms for SRH information and services to youth.	4. How is the internet being used for SRH information and linking youth to services? • In what ways you have already experienced the youth-targeted SRH information being provided through internet-based approaches? 5. Are you using internet approaches to deliver SRH information to youth in your place of work? If yes, what platform and approaches do you use? • What are the challenges you face in providing SRH information to youth through internet-based approaches?

	If No, how do you provide SRH information and services? • What is the potentiality of using internet-based approaches to avoid the challenges faced by youth to access SRH information at the health facility?
C. Experiences on the usefulness of internet-based approaches	D. What can you say about the usefulness of internet-based approaches for delivering SRH information to youth? (Probe on reliability, accessibility, affordability, and potentiality) E. If you were given a chance to design an internet-based platform (i.e app, hot mail, website..) with your preferred approaches for SRH information and linkage to services for youth, for it to be more useful what could it look like? • Would you use the available platforms such as WhatsApp and Facebook or you will design a new platform? • Would it be an app, website, or something else? • Tell me what would you call this platform. • Who would it be for? Who wouldn't it be for? • What sort of things would people be able to do on this site? (Probe: Share content, get information, watch SRH educational videos, Linked to Care, etc. • What would be unique about your platform in terms of effectiveness in delivering SRH information and services to youth compared to existing platforms?

Annex 4: Miongozo wa mahojiano matoleo ya kiswahili

Vijana – Muongozo wa Maojiano ya Kina na Mtu Mmoja
Taarifa za Mshiriki

Utambulisho wa Mshiriki	Jinsia (Me/Ke)	Umri (18-24)	Kiwango cha Elimu	Hali ya Ndoa

Lengo	Swali
A. Kufungua mjadala	Kwa kuanza ningependa kukuuliza maswali kuhusu Afya ya uzazi kwa vijana? 1. Unaelewa nini kuhusu Afya ya Uzazi? • Nini kinakujia kichwani ukisikia kuhusu afya ya uzazi? 2. Je ulishawahi kuzungumza au kumwambia rafiki, mwenza, au ndugu yako kuhusu afya ya uzazi? Kama ndio mlizungumzia nini? 3. Ni sehemu gani ambapo unaweza kupata taarifa za afya ya uzazi? • Je ulishawahi kutafuta taarifa za afya ya uzazi katika sehemu hizo? Kama ndio unazungumziaje taarifa ulizopata?
B. Maoni ya vijana kuhusu majukwaa yaliyopo yanayotoa taarifa na huduma za afya ya uzazi	Sasa ningependa kujua kuhusu uzoefu wako katika matumizi ya intaneti ➢ Je wewe hutumia intaneti kwa ajili gani? ➢ Je unatumia kifaa/vifaa gani? (mf, simu. Laptop…) 4. Je ni majukwaa gani ya mtandaoni ambayo unatumia mara kwa mara?, tafadhali taja 5. Je ulishawahi kutumia mbinu za kimtandao zilizopo kwa lengo la kutafuta taarifa za afya ya

	uzazi? • Kutokana na uzoefu wako wa matumizi, unazungumziaje matumizi ya mbinu hizi katika kutoa taarifa za afya ya uzazi? • Je ni changamoto gani ulikumbana nazo wakati ukitumia mbinu za kimtandaoni kutafuta taarifa za afya ya uzazi? 6. Je vijana mwenye simu na bando la intaneti, anatakiwa kufanya nini ili kuzipata taarifa za afya ya uzazi mtandaoni?
C. Mtazamo katika njia/mbinu pendwa za kimtandao	7. Kama ungepewa nafasi kubuni jukwaa la kimtandao (mf, aplikesheni, tovuti, njia nyingine katika intaneti..) lenye mbinu pendwa za kufikisha taarifa na kuwaunganisha vijana na huduma za afya ya uzazi je lingekuaje? • Ungetumia majukwaa yaliyopo kama whatsapp na facebook au ungebuni jukwaa jipya? • Je itakua aplikesheni, tovuti au nini? • Je utalipa jina gani jukwaa hilo? • Je litakua linamlenga nani hasa? • Je ni mambo gani watu wataweza kufanya katika jukwaa hilo? (Dodosa: Kutuma maudhui, kupata taarifa,kuangalia video fupi zenye ujumbe wa afya ya uzazi kwa vijana, kuunganishwa na huduma rafiki… n.k) • Je mbinu za kimtandao utakazotumia zitakua na upekee gani tofauti na majukwaa yaliyopo ili kuhakikisha zinaufanisi katika kufikisha taarifa na kuwaunganisha vijana na huduma za afya ya uzazi?

Vijana – Muongozo wa Majadiliano ya Kikundi

Taarifa za Washiriki

Utambulisho wa Mshiriki	Jinsia (Me/Ke)	Umri (18-24)	Kiwango cha Elimu	Hali ya Ndoa

Lengo	Swali
D. Kufungua mjadala	Karibuni sana katika majadiliano yetu, Kwa kuanza ningependa kuwauliza maswali kuhusu Afya ya uzazi kwa vijana? 1. Unaelewa nini kuhusu Afya ya Uzazi? • Nini kinakujia kichwani ukisikia kuhusu afya ya uzazi? 2. Je ulishawahi kuzungumza au kumwambia rafiki, mwenza, au ndugu yako kuhusu afya ya uzazi? Kama ndio mlizungumzia nini? 3. Ni sehemu gani ambapo unaweza kupata taarifa za afya ya uzazi? • Je ulishawahi kutafuta taarifa za afya ya uzazi katika sehemu hizo? Kama ndio unazungumziaje taarifa ulizopata?
E. Maoni ya vijana kuhusu majukwaa yaliyopo yanayotoa taarifa na huduma za afya ya uzazi	Sasa ningependa kujua kuhusu uzoefu wenu katika matumizi ya intaneti ➢ Je wewe hutumia intaneti kwa ajili gani? ➢ Je unatumia kifaa/vifaa gani? (mf, simu. Laptop…) 4. Je ni majukwaa gani ya mtandaoni ambayo unatumia mara kwa mara?, tafadhali taja 5. Je ulishawahi kutumia mbinu za kimtandao zilizopo kwa lengo la kutafuta taarifa za afya ya uzazi? • Kutokana na uzoefu wako wa matumizi, unazungumziaje matumizi ya mbinu za kimtandao katika kutoa taarifa za afya

	ya uzazi? • Je ni changamoto gani ulikumbana nazo wakati ukitumia majukwaa ya mtandaoni kutafuta taarifa za afya ya uzazi? 6. Je kijana mwenye simu na bando la intaneti, anatakiwa kufanya nini ili kuzipata taarifa za afya ya uzazi mtandaoni?
F. Mtazamo katika njia/mbinu pendwa za kimtandao	7. Kama mngepewa nafasi kubuni jukwaa la kimtandao (mf, aplikesheni, tovuti, njia nyingine katika intaneti..) lenye mbinu pendwa za kufikisha taarifa na kuwaunganisha vijana na huduma za afya ya uzazi je lingekuaje? • Ungetumia majukwaa yaliyopo kama whatsapp na facebook au ungebuni jukwaa jipya? • Je itakua aplikesheni, tovuti au nini? • Je utalipa jina gani jukwaa hilo? • Je litakua linamlenga nani hasa? • Je ni mambo gani watu wataweza kufanya katika jukwaa hilo? (Dodosa: Kutuma maudhui, kupata taarifa,kuangalia video fupi zenye ujumbe wa afya ya uzazi kwa vijana, kuunganishwa na huduma rafiki… n.k) • Je mbinu zilizotumika katika jukwaa hilo zitakua na upekee gani tofauti na majukwaa yaliyopo ili kuhakikisha linaufanisi, na kuaminika katika kufikisha taarifa na kuwaunganisha vijana na huduma za afya ya uzazi ?

Watoa huduma – Muongozo wa Mahojiano ya Kina na Mtu Mmoja

Taarifa za Mshiriki

Utambulisho wa Mshiriki	Jinsia (Me/Ke)	Aina Ya Kituo (Kwa HCWs)	Uzoefu wa Kazi (Miaka)

Lengo	Maswali
A. Kufungua mjadala	Kwa kuanza ningependa kukuuliza maswali kuhusu Afya ya uzazi kwa vijana 1. Unaelewa nini kuhusu Afya ya Uzazi? • Je huduma za afya ya uzazi rafiki kwa vijana ni zipi? 2. Je unauzoefu gani katika kutoa taarifa na huduma za afya ya uzazi kwa vijana? 3. Tofauti na katika kituo cha afya ni wapi kwingine ambako kijana anaweza kupata taarifa za afya ya uzazi?
B. Majukwaa yaliyopo ya kimtandao na matumizi yake katika kutoa taarifa na huduma za afya ya uzazi kwa vijana	4. Je intaneti inatumika vipi kufikisha taarifa za afya ya uzazi kwa vijana? • Ni kwa namna gani umewahi kuona taarifa za afya ya uzazi zikiwasilishwa kwa vijana kupitia intaneti? 5. Je wewe unatumia mbinu za kimtandao kufikisha taarifa au kuwaunganisha vijana na huduma za afya ya uzazi? Kama ndio, ni mbinu au majukwaa gani ya kimtandao unatumia? • Je ni changamoto gani unakumbana nazo wakati wa kufikisha taarifa za afya ya

	uzazi kwa vijana kwa njia za intaneti? Kama hapana, ni kwa namna gani unatoa taarifa za afya ya uzazi kwa vijana? • Je kuna manufaa gani ya kutumia njia za kimtandao kuepuka changamoto ambazo vijana wanakumbana nazo wakati wa kutafuta taarifa na huduma za afya ya uzazi katika vituo vya afya?
C. Uzoefu juu ya utumikaji wa mbinu za kimtandao	6. Unazungumziaje utumikaji wa mbinu za kimtandao kwa ajili ta kuwasilisha taarifa za afya ya uzazi kwa vijana? 7. Kama ungepewa nafasi kubuni jukwaa la kimtandao (mf, aplikesheni, tovuti, njia nyingine katika intaneti..) lenye njia au mbinu zako pendwa za kufikisha taarifa na kuwaunganisha vijana na huduma za afya ya uzazi, je lingekuaje? • Ungetumia majukwaa yaliyopo kama whatsapp na facebook au ungebuni jukwaa jipya? Je itakua aplikesheni, tovuti au nini? • Je utalipa jina gani jukwaa hilo?Je litakua linamlenga nani hasa? • Je ni mambo gani watu wataweza kufanya katika jukwaa hilo? (Dodosa: Kutuma maudhui, kupata taarifa,kuangalia video fupi zenye ujumbe wa afya ya uzazi kwa vijana, kuunganishwa na huduma rafiki… n.k) • Je mbinu au njia za kimtandao katika jukwaa lako zitakua na upekee gani tofauti na majukwaa yaliyopo ili kuhakikisha zinaufanisi katika kufikisha taarifa na huduma za afya ya uzazi kwa vijana?

Annex 5: Ethical letters

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR OF RESEARCH AND PUBLICATIONS

P.O. Box 65001
DAR ES SALAAM
TANZANIA
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Ref. No.DA.282/298/01.C/ Date: 28/06/2023

MUHAS-REC-06-2023-1768
Jacques Kaihura
Shool of Public Health and Social Sciences
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: PERSPECTIVES ON PREFERED INTERNET BASED APPROACHES FOR DELIVERING SEXUAL AND REPRODUCTIVE HEALTH INFORMATION AND SERVICES

Reference is made to the above heading.

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

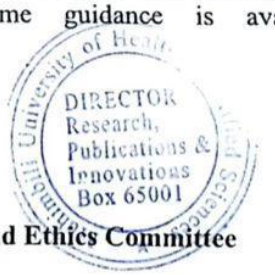
APPROVAL DATE: 28/06/2023
EXPIRATION DATE OF APPROVAL: 28/06/2024

STUDY DESCRIPTION:
Purpose:
The purpose of this phenomenological study is to explore the perspectives of Youth and Service providers on preferred internet-based approaches for delivering sexual and reproductive health information and services among unmarried youth in Kinondoni district, Dar es Salaam.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided:
https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%2014745.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain Data Transfer Agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain Material Transfer Agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country.
8. Apply for and obtain permission to publish the results from National Institute for Medical Research. The application should be before submitting to a publisher and not concurrently through the email publications@nimr.or.tz.
9. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
10. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
11. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.



Dr. Nahya Salim Masoud,
Chairperson, MUHAS Research and Ethics Committee

Annex 6: Introduction letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;

Ref. No. Ref. No. HD/MUH/T.479/2021 10th July, 2022

The Regional Administrative Secretary,
P.O. Box 5429,
DAR ES SALAAM.

Re: INTRODUCTION LETTER

The bearer of this letter is Jacques Kaihura, with Reg. No. HD/MUH/T.479/2021 a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MPH-Distance Learning.

As part of her studies she intends to do a study titled: "**Perspectives on Preferred Internet Based Approaches for Delivering Sexual and Reproductive Health Information and Services."**

The research has been approved by the Chairman of University Senate.

Kindly provide her the necessary assistance to facilitate the conduct of her research.

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Jacques Kaihura

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz