SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA- LEGON

MHEALTH AS A TOOL FOR ACCESSING SRH AMONG YOUNG PEOPLE IN THE GREATER-ACCRA REGION OF GHANA

BY

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THIS DISSERTATION IS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS OF PUBLIC HEALTH (MPH) DEGREE

OCTOBER 2020

DECLARATION

I, Dorcas Manortey, the author of this dissertation, do hereby declare that except for references to the literature and work of other researchers, which have been duly cited, the work in this dissertation is the result of my original work. I also declare that this work has not been accepted in full or part for any other degree nor is it currently being submitted in candidature for another degree

…….. 20th November, 2020

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…….. 20th November, 2020

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DEDICATION

This work is dedicated to God, my Godparents, and all my colleagues at the United Nations Population Fund (UNFPA) most especially Mr. Niyi Ojuolape (the country representative), and everyone at the ASRH & RHN unit for all the support and words of encouragements they gave me during my study.

My profound appreciation also goes to key stakeholders in my life: Mrs. Anita A. Osei, George Ofori, Stanley Armah, Faustina Ammah, Adolf Armah, Rudolf Collinwood-Williams, Deborah Ofori, Alberta Armah, Edward Ofori, and Dinah Boateng.

I would also like to appreciate my friends Henry Okorie Ugorji, Michael Aggrey, Maud Donkor, William Nii-Tackie, and all for their constant support and encouragement in completing this project.

ACKNOWLEDGMENT

This work was done with support from some individuals and institutions. Firstly, my thanks go to the Almighty Father for enabling me to complete this project successfully. I acknowledge with gratitude the guidance and supervision of my Academic Supervisor, Prof. Amos K. Laar. My special thanks go to Dr. Adu Manu for his invaluable contributions, suggestions, and support, which cannot be overemphasized. I cannot adequately thank my supervisor at work, Mad. Dela B. Gle for her contribution to this work. Finally, to my friends – Catherine, Maud, Courage, Henry, Nii-Tackie, and my husband Michael, I say, thank you and God richly bless you all.

ABSTRACT

Background: Innovations and Mobile technologies have become new dimensions and trends for many young people in recent times. The total population of Ghana is gradually on the increase with youth and adolescents being the major. These groups of people are often faced with needs, most especially sexual and reproductive health needs, in the form of information and services. Hence their points of call are usually the clinics and hospitals. However, due to challenges and hindrances such as attitudes of healthcare providers, proximity, and cost, innovative ways of receiving health care were provided with help of mHealth platforms such as the You Must Know app by the Ghana health service (GHS) and many others.

Objectives: The study is to assess mHealth as a Tool for SRH access among Young People in the Greater-Accra Region of Ghana

Methodology: Across-sectional descriptive design was employed in the study. Following informed consent, a structured questionnaire was used to obtain information on socio-demographic and background characteristics, sources of SRH information, and level of knowledge of mHealth and Challenges to access. The study adopted the quantitative research method utilizing structured questionnaires. Questionnaires were distributed through google forms.

Results: This study explored the usage of mobile health applications. Majority representing 108(53.5%) reported that they have never used such applications before. On the other hand, 87(43.1) stated that they have ever used mobile health applications in their life while 7(3.5%) of the respondents did not know if they have ever used the applications or not. Moving forward, respondents were presented with an example of a mobile health application which is known as You Must Know (YMK). From the 202 samples, 65(32.2%) reported that they have heard about the App while 135 (66.8%) stated they haven't heard of its existence. On the other hand, about 2 (1.0%) revealed that they do not know whether it exists or not, thus, I don't Know. The above shows that there is a lack of sensitization about mHealth Platforms and a majority of people may not be aware of these applications. Additionally, in establishing the user experience of using these

mHealth applications or platforms, the research sought to identify respondents' responses on their experience while using these apps. However, a total of 27 (13.4%) of them reported that using the app was quite very easy compared to 34 (16.8%) who claimed it was easy. On the other hand, a total of 2 (1.0%) established the fact that it was quite difficult compared to 1 (0.5%) who reported that it was very difficult. Overall, out of the 202, 138 (68.3%) reported none of the above, stipulating they have no idea whether those apps were difficult to use or not. The study concludes that the majority of the respondents in this study have prior knowledge about mHealth, although not everyone applies usage of it. Those who do, use it effectively in the development of reproductive health and knowledge.

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LIST OF ABBREVIATIONS

CHPS	Community-Based Health Planning Services
ITU	International Telecommunication Union
MHEALTH	Mobile Health
HIV	Human Immune Deficiency Virus
LMIC	Lower and Middle-Income Countries
NCA	National Communication Authority
RH	Reproductive Health
SMS	Short Messaging System
SRH	Sexual and Reproductive Health
SRH	Sexual Reproductive Health
STI	Sexually Transmitted Infections**.**
STD	Sexually Transmitted Diseases
TAM	Technology Acceptance Model
WHO	World Health Organization
YMK	You Must Know

CHAPTER ONE

1.0 Introduction

This chapter presents the introduction of the study and it would comprise the background of the study, the problem statement, the aims and objectives, the significance of the study, and the organization of the study.

1.1 Background

Innovations and Mobile technologies have become new dimensions and trends for many young people in recent times. MHealth is simply defined as the use of wireless multimedia and mobile telecommunications to integrate as well as develop health care delivery systems that are successful. MHealth simply denotes mobile health (EZTalks, 2020). Adolescents are an important group of the world's population. The World Health Organization defines young people as those aged 10–24 years, while adolescents are defined as those aged 10–19 years (WHO, 2018). This group of young people is often considered the greatest source of a national human resource as they have many potentials that could lead to economic growth and development (Lancet, 2016). Despite the great potential of these young people, there remain some identified dreadful challenges that they face as growing up.

Research has indicated that most young people have high unmet needs and access to sexual and reproductive health and rights (SRH) due to many challenges (Santhya & Jejeebhoy, 2015). Among these hindrances are the unfriendly attitude of healthcare providers and the unavailability of healthcare facilities (Braeken & Rondinelli, 2012). Health care providers are known to consider numerous factors such as the economic status of patients, as well as the age of the young people to decide whether to offer Reproductive Health (RH) service to them. Studies documented that one-half to two-thirds of professionals were unwilling to provide contraceptives to adolescents (Braeken & Rondinelli, 2012). Again, most young

people are faced with the issues of stigma and discrimination from health service providers, due to their economic constraint when accessing SRH services or information hence, they resort to friends and family for health information and support (Bankole & Malarcher, 2010). These attitudes of service providers make young people vulnerable, and be particularly reluctant to seek SRH services where extensive physical examination is performed if confidentiality and privacy are not assured (Agampodi et al, 2008).

However, it is evident that with the inception of technology, sources of information for adolescents and young people, in general, have taken a different trail. The internet has been the most convenient and vital source of information for most young people as most mobile health (mHealth) platforms prevent a lot of hurdles associated with young people's access to SRH information and services (Ippoliti & L'Engle, 2017). Over the years, mobile technology adoption and usage have been on the rapid increase across the world and Ghana remains one of the leading countries with access to, and use of mobile phone technology in Africa (Silver & Johnson, 2018). With the gradual shift of the world to becoming a global village, and with the introduction of technology, many innovative approaches have been adapted to facilitate healthcare and service delivery for young people.

Again, there have been numerous initiatives that seek to leverage the digital space to address many health issues, education, and economic well-being of young people (WHO, 2018). A review concluded that short message service (SMS), also known as text messaging, can be used successfully to promote short-term behavior change for a variety of health behaviors, including sexual and reproductive health. In their review of text-messaging interventions, they found documented evidence of SMS effectiveness in changing behaviors (Cole-Lewis & Kershaw, 2010). The numerous benefits that SMS presents can, therefore, be harnessed by Lower and Middle-Income Countries (LMIC) where about three-quarters of the nearly 7 billion mobile phone users reside (International Telecommunication Union, 2014).

Most young people are continuously faced with unlimited SRH issues, as they have limited access to healthcare despite increasing demand. More so, young people are particularly in Ghana an important section of the population that uses mobile phones in the country for text messaging, talking, and browsing (Bain et al, 2019). Following the issues of privacy and non-judgmental environment, mobile phone text messaging presents, many innovative interventions where mobile phone-based text messages are used to empower young people to adopt safer sex behaviors such as consistent condom use during sex, partner(s) notification about existing STI and regular texting to help reform youth's sex behavior has been developed (French et al, 2016). Among these mHealth channels and SRH platforms in Ghana is the 'You Must Know (YMK) App by the Ghana Health Service, the Flow App, the ReproTalk bulk messaging, WAWA ABA, and Marie Stopes Call and helplines.

1.2 Statement of the Problem

Behavioral, biological, and cultural characteristics put sexually active young people at greater risk of negative sexual issues such as unwanted pregnancies, Sexually Transmitted Infections (STIs) contraction among others, than older adults (Center for Disease Control and Prevention, 2010).

For instance, young people are most likely to report having two or more sexual partners in the last year without condom use (Mercer et al., 2013; Sonnenberg et al., 2013). Though 15–24-year-olds represent only one-quarter of the sexually active population, they acquire nearly half of all new STDs (Cates & Wasserheit, 1991). Condom use, partner notification about existing infection, and testing are safer sex behaviors that reduce the risk of STIs, unwanted pregnancies, and the likes; yet lack of knowledge, skills, and confidence among young people prevent them from adopting these behaviors (Free et al., 2016).

Existing health systems often fail young people. Many young people lack access to essential

preventive and treatment programs (WHO and UNAIDS, 2015). Early birth, sexual abuse, unsafe abortion, and sexually transmitted infections (STIs), such as HIV/AIDS, are all preventable issues that young people in developing countries face (WHO, 2013). If these health issues of young people are not resolved, they are likely to have serious health effects later in life. Although health practitioners often identify these issues and encourage them to pursue health care, they do not seek the necessary assistance due to stigmatization at health centers, which is why they depend on apps or Google applications for knowledge. Without the availability of a sexual reproductive health service app that provides more people with friendly health services, such as suitable, acceptable, affordable, inclusive, reliable, and successful to meet the health and behavioral needs of these young people, they may never seek professional counseling and guidance during this crucial time of their lives.

Young people's access to sexual and reproductive health information and services in Ghana has usually been at health facilities, youth-friendly corners, counseling centers, and peer counselors (Zuurmond et al, 2012). Young people in Greater are known to resort to many alternatives such as available youth-friendly corners, health care facilities, and Community-Based Health Planning and Services (CHPS) however, due to identified hindrances related to service access, they no longer patronize these services even when it is being offered for free (Bankole & Malarcher, 2010). Thus, although the government has in place needed health system structures like free health care on the Health Insurance scheme, the unmet healthcare needs are still on the increase.

In the phase of technological enhancements and the shift from the traditional means of access, different dynamic and innovative approaches have been developed to promote young people's access to SRH solutions. According to recent evidence, mHealth initiatives can improve average health awareness and are generally well-received by youth (Rokicki et al, 2016; Vahdat et al, 2013; Mitchell et al, 2011). As a result, the Ghana Health Service, the

primary implementer of health activities in the country introduced the You Must Know (YMK) mobile application to provide young people the privacy and confidentiality they need in accessing SRH services as well as address the issue of service availability.

However, little is known about the degree of awareness among young people about mobile health as a tool for SRH (Heerden et al, 2012). While cell phone ownership and usage among young people has increased dramatically in many areas (Porter et al, 2016) studies show that youth from key communities may face additional mHealth barriers, such as a lack of technical literacy, poor network coverage, and linguistic competency (Aranda et al, 2014; Gurman et al, 2012).

As a result, the research aims to dissect data collected from youth in Greater Accra in order to determine their level of understanding and impact of the mHealth tool.

1.3 Research Aims and Objectives

The objective of this study is to provide a comprehensive review of literature while assessing the level of knowledge and how mHealth is used among young people in Greater Accra to access SRH information. Particularly the study has the following objectives;

i. To ascertain whether young people in Greater Accra are knowledgeable about mHealth tools
ii. To examine the level of awareness and access of young people on mHealth tools
iii. To identify the challenges associated with the usage of the mHealth tool among young people

1.4 Research Questions

For the purpose of this research, the following questions will be asked in order to help in the final resolution:

i How do young people in Greater Accra have access to mHealth tools?

ii What is the level of awareness by young people on mHealth tools?

iii What are the challenges associated with the usage of mHealth tools?

1.5 Justification

According to the National Communications Authority (NCA), there are more than 35.8 million mobile phone subscribers which translates into a 130% penetration rate in Ghana (NCA, 2016). This figure for Ghana far exceeds the estimated global mobile phone penetration rate of 97% (International Telecommunication Union, 2014). Out of these subscribers, the youth remains a significant proportion of the users as young people are early adopters of new technology. The primary function of talking and texting can, therefore, be used in the country to promote healthy sexual behavior among the youth who are disproportionately at risk of STI.

mHealth is known to bring a new path to enhance access and delivery models that bring better results and reduced healthcare costs (S. M. Burwell (2015)).

Adolescents and Youth-friendly services are important for breaking the obstacles to access quality sexual and reproductive health care services, likewise mHealth platforms. Young people are known to be the vibrant group of every population; hence, their health is critical for social and economic development. Given this, various strategies have been implemented by government and non-profit making organizations to promote their health and wellbeing among young people.

Finally, this study brings to light the existing gaps and challenges young people are facing when using available mHealth platforms as a source of SRH information and also provide key innovations that can be implemented to ensure that the identified challenges of young people accessing SRH information in Greater Accra region and communities in Ghana as a

whole.This study, therefore, seeks to assess mHealth usages and to also understand the various channels used by young people to access their SRH information in the Greater-Accra region of Ghana.

1.6 Conceptual Framework

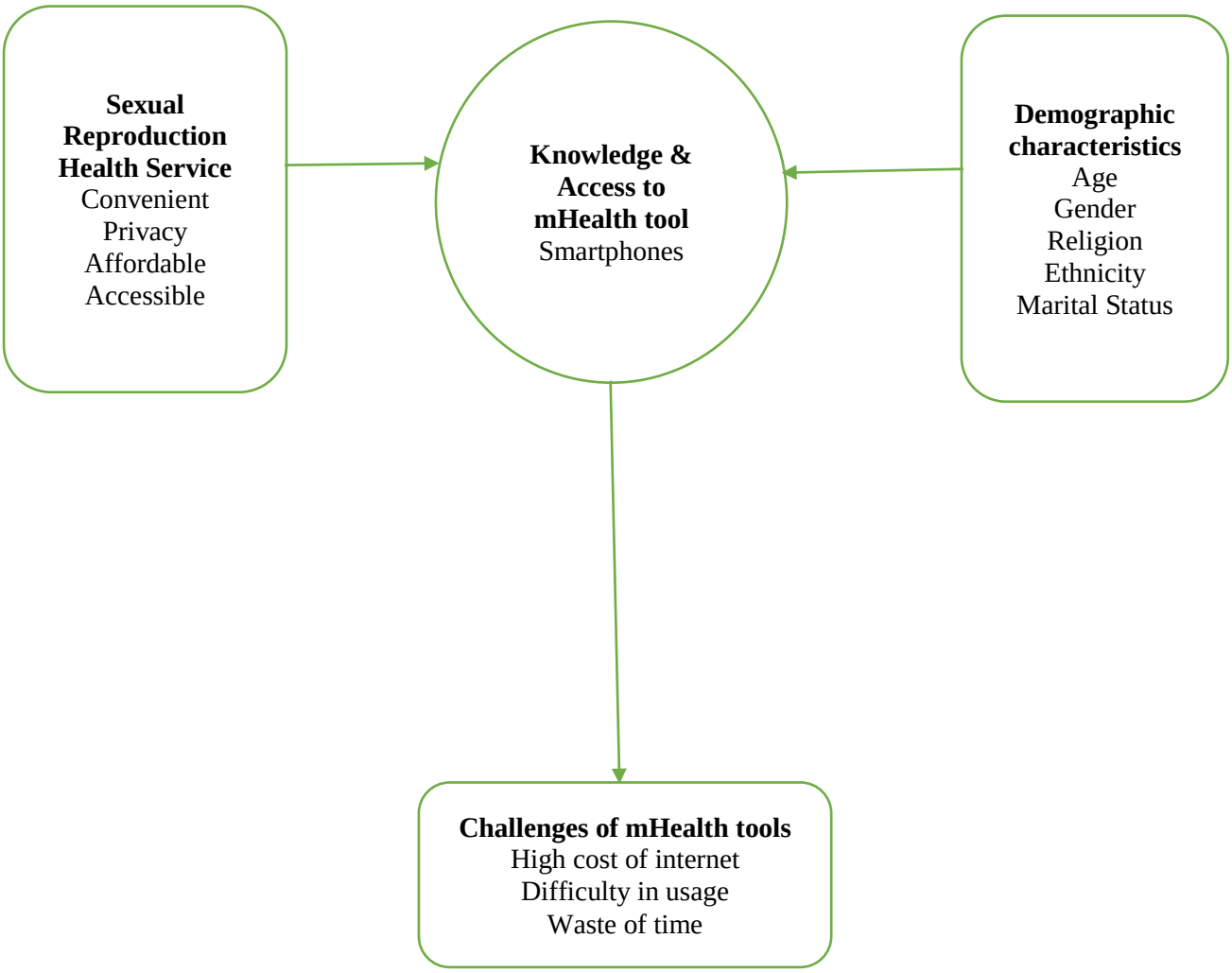

Figure1. Conceptual framework of young people's access to mHealth Platforms.

Author's Construct

The above conceptual framework was used for this analysis based on the available data. It was built on the premise that awareness, access, and use of mobile health resources can be

directly affected by a variety of factors, both positively and negatively.

Beginning with age, it is significant in all aspects of life and influences reproductive health decisions. As a result, the study believes it is important to evaluate the age structure of respondents who participated in the study in order to determine the age categories of young people who are aware of and using mHealth resources. It also shows whether their newfound awareness and use of resources resulted in a noticeable reduction in their health issues. The respondents' ethnicity may or may not have an effect on the mHealth tool.

Marital status is also a significant consideration. In a situation where a higher percentage of young people are unmarried but sexually active, sufficient awareness of the available mHealth resources, as well as their access and use, is needed to help minimize and possibly prevent health problems.

Religion can have an impact on how people use mobile health apps. According to the 2010 population census, Islam was the most common religion in the Northern area (60.0%). (Ghana Demographic and Health Survey, 2010). It was necessary to determine their religious affiliations and whether or not they limit the adolescent's capacity or opportunity to learn as well as access and use certain health resources that they need.

Sexual and Reproductive Health Services is a system that also defines the relationship between different frameworks and organizations that should be involved in policy advocacy, formulation, and implementation in order to enable young people to access and use mHealth resources. According to the model, the Ministry of Health (MOH) and the Ghana Health Service (GHS) are responsible for formulating and enforcing policies aimed at encouraging adolescents to understand, access, and use these resources. Thus, many mHealth resources use information, education, and communication approach to provide awareness to young people. As a result, the usefulness of these tools will assist young people in learning about the resources and, as a result, accessing and using them.

In terms of challenges, when the cost of the service or internet is prohibitively high, young people would be discouraged from using them, even though they are fully aware that such facilities exist. Even though most young people are not working or receiving much money, they have a long list of things they consider necessary to spend the money on. They do not prioritize seeking health care services because they feel they are at low to no risk of developing health problems. They cannot return for services if the services are complicated and time-consuming.

It is thought that if young people can get the friendly health services they need, such as information, counseling, and so on, they will be more likely to learn about their health. Access to and use of mhealth could lead to, among other things, access to family planning approaches, a reduction in unintended pregnancies, the ability to save abortions, and a reduction in birth injuries.

Also, the use of mHealth apps like the Agoo App, YMK App, flow app, or any other platform is dependent on young people's ownership of a smartphone, and again, access to an uninterruptible internet supply. This study, therefore, sought to assess the means of gaining access to SRH services among young people, and the following are the determining factors to the use of the mobile health application.

1.7 Organization of the Study

This study is organized into six chapters. Chapter one is an introduction which contains the following; background of the study, the statement of the problem or situation analysis, the aims and objectives of the study, the research questions, the significance of the study, the studies, the limitations, literature review or definition of terms and organization of the study.

Chapter two is a review of existing literature. It will include a theoretical and conceptual framework. Chapter three describes the methodology of the study. It focuses on the research

design, instrumentation, data collection, population sample, sampling procedures, and procedures for analyzing data. Chapter four will focus on the findings of the study. Chapter five will present the discussions of the findings as evidence in chapter 4 Finally, chapter six will include discussions on the findings, conclusions, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter seeks to explore literature that best explains and supports the research objective. It would further review other research works that have been done in the area of young people's health and access to reproductive health.

2.1 Access to Technology and Use of Mobile Phones

The Discovery of technology and the invention of mobile phones can be considered a great advancement to development. This is because the technology did not only lead to a change in the modes of communication, with wide use of advanced mobile technology and subscriptions but also contributed to the advancement of Universal health. Globally, there has been an increase in mobile phone usage at 6.8 million, with an 89% rate at which mobile phones are used in developing countries (Bankmycell, 2020). This shows that the majority of people worldwide which includes young people are now using mobile phones ("Mobile Phone Usage among Youth," 2016).

Generally, mobile phones are becoming increasingly less expensive, hence many people are heavily relying on them, and there has been an increase in mobile phone usage, even in the most resource-poor settings.

Data on mobile phone penetration among younger populations is limited, however recent findings indicated an increasing rate of mobile phone acquisition in low- and middle-income countries like Ghana. In Ghana, the mobile phone penetration rate is 88.8% (Ghana Communication Authority, 2018). This suggests that the majority of Ghanaians, especially young people use mobile phones. With the rapid spread of mobile communication, there has been an equal rise of interest in research on the possible leverage of mobile phone usage for

health benefits. Mobile Health (mHealth) refers to how mobile communication is used for the provision of health services through various means, including short message service (SMS) and applications (apps) (Thirumurthy & Lester, 2012; Vital Wave, 2009).

According to literature, mHealth is a novel field that has helped address health needs ranging from "treatment, health promotion, and disease prevention, awareness-raising over health issues, health monitoring, disease surveillance, communication, data collection, mobile telemedicine, point of care and decision support, and emergency medical response" (Marschollek, 2017). In effect, the relevance of mobile phones to behavior change interventions for chronic diseases and SHR has been revealed (Fjeldsoe, Marshall, & Miller, 2009). In low- and middle-income countries, mHealth is considered as a major way of tackling some health system challenges, reaching hard-to-reach groups, reducing inequity, and increasing access to quality health care. Studies have revealed the willingness of young people to access SRH information through mobile phones. This can be beneficial to young people in developing countries with limited access to SRH services (van Benijma, 2007; Akinfaderin-Agarau, Chirtau, Manre, & Ekponimo, 2012).

2.2 Sources of Reproductive Health Information

Adolescents, as a result of their curiosity, are often caught in the search for information about their bodies, the way they look, and some of the changes they experience including their sexuality (Cheak-Samora et al, 2019). Meanwhile, some adolescents in Ghana, on the other hand, lose the ability to speak about what they know, see, feel, and the experiences of their sexuality which is evident in childhood and as they come under cultural norms (Ahonsi, Nai, Goldson, et al 2019). There is, therefore, a worrying lack of a credible source of information for some of these adolescents and young people when it comes to their access to reproductive

health information (Ahonsi, Nai, Goldson, et al 2019). On the other hand, curious adolescents are usually seen to rely on their immediate source of reach which happens to be parents, teachers, friends, and the internet hardly a health service provider (Cheak-Samora et al, 2019).

Interestingly, the most explored medium for SRH knowledge and information among the majority of adolescents is the internet. This was made evident in the studies by Nwagwu, 2007. The purpose of the study was to understand how in-school and out-of-school adolescent girls in Owerri, Nigeria use online resources to meet their reproductive health information needs. In doing this, a questionnaire was used to collect data from 1011 adolescent girls in selected secondary schools in the communities, and also from 134 out-of-school girls selected from the same communities. Findings indicated that 73% of the girls had ever used the Internet; more than 74% and 68% of them being in-school and out-of-school respectively. The in-school girls (43.9%) reported having home access more than the out-of-school (5.6%) although the out-of-school have used the Internet for finding reproductive and related information more than the in-school. While parents (66.22%) and teachers (56.15%) were the two sources most used to the in-school girls, friends (63.18%) and the Internet (55.19%) were reported by the out-of-school youth as the two most used sources of information to them (Nwagwu, 2007).

Another study by Wurtele, 2017 has confirmed that with the onset of technology, most adolescents and young people spend about 74% of online using the internet to find health information and 44% look up sexual health information like pregnancy, birth control, and HIV/AIDS or other STI's given that the internet offers privacy and access to unlimited information.

2.3 Knowledge of mHealth Platform

The Internet is widely used by young people for sexual health information and bears the potential to increase knowledge and positively affect behavior (Nurmi, 2013). A study conducted by Peprah et al 2019 at the Kwame Nkrumah University of Science and technology to determine their knowledge, attitude, and use of mHealth technology among students in Ghana: A university-based survey revealed that Knowledge on mHealth was moderately high. Specifically, more than half of the sample reported awareness of the mHealth platforms, for instance, the You Must Know platform.

Another cross-sectional study conducted among young people to ascertain their perception and preference for internet users to access ASHR services stated that young people prefer easily understandable online resources on information related to SRH (Tinnemann, & Müller-Riemenschneider, 2017). A cross-sectional study conducted among university students in the use of mobile application showed that students considered the use of the mobile application (which were mobile phones) as a useful medium of imparting knowledge, convenient to access information, educational purposes, enhance communication, and a quicker method to give feedback in learning (Iqbal, Shakeel, Khan, 2017).

2.4 Other Determinants of Young People's Access to MHealth Platforms

Young people's access to reproductive health information and services is greatly determined by many factors which include social factors, economic factors as well as knowledge, and proxy (HIarlaithe, 2014). The social factor which includes cultural norms, coupled with taboos are major factors that influence young people's willingness to access SRH information and services or otherwise as they have a stipulated way for young people and adolescents to behave (WHO, 2010).

Again, the economic factor is another determinant of access to mHealth care. Per the WHO 2010 report on health behavior in school-aged children (HBSC), it was posited that young people living in low-affluence households are less likely to have adequate access to health resources. A study conducted by (Hampshire et al 2011) also indicated that most young people in Ghana have the desire to access healthcare via mHealth platforms however they are unable to do that as a result of the cost involved in having smartphones, and data to access the platform.

Finally, accessibility and proximity to the healthcare facility is another determinant of young people's access to mHealth. Unlike the pharmacies, the clinics or CHPs are minutes or hours close to the individual who will like to access, unlike the mHealth platforms are just a click of a button away (Hampshire et al, 2015).

Finally, a study by Lester, 2012 also established that the ease to which young people will use a mHealth platform is a key factor influencing continuance intention in the usage of the mobile application. Besides, it was found that satisfaction and habit were mediating variables for mobile application use. The authors specifically found performance expectancy, social influence, enjoyment, incentives, facilitating conditions, trust, and aesthetics as key forces that influence the use of mobile applications (Lester, 2012). Another cross-sectional study on factors influencing the usage intention of mHealth found the time, perceived usefulness, and reliability as the associated factors that had a major influence on young people's intention to use mobile applications. This study found that the mHealth market is still in its early stage and, therefore, many young people lack knowledge about it (Odo et al, 2018).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the procedures that were used in conducting the study. The chapter describes the study design, study site, calculation of sample size, sampling procedure or technique, data management, and analysis, as well as ethical clarification.

3.2 Study Design

The research design refers to the framework, plan, and strategy guide that will be used to organize the research process in order to achieve study goals or address a set of research questions in order to reach a significant conclusion (De Vaus, 2001). The study adopted a cross-sectional design (specifically a descriptive cross-sectional design) to assess the use of the mHealth tool in accessing SRH among young people in Greater Accra. Descriptive research is the research design that investigate,that describes and interprets phenomena. It is focused on conditions that exist, practices and beliefs that prevail, effects that are ongoing, and trends that are being developed (Best & Kahn, 2007).

3.3 Research Method

The study employed a data-gathering survey method specifically the use of online questionnaires to obtain the required information. The survey method was suitable for the work because it was useful in the value of facts which focused on more important things to be reported. A survey is defined as a brief interview with individuals about a specific topic. Surveys include cross-section and longitudinal studies using questionnaires for data collection with the intent of generalizing from a sample to a population (Babbie, 1990). Surveys are very useful in studies that involve people as a unit of analysis and it has proven

to be a very excellent vehicle in gauging attitudes and perceptions in a large population on a subject matter. In this study, the quantitative research method was used because the study was focused on young people in Ghana.

3.4 Study Area

The Greater Accra Region of Ghana was the study area, geographically located in the southern part of Ghana, and the central part of the country. As a region, it shares boundaries with the Central Region which is on the West of the map and the Volta Region which is the Eastern. The region has a total population of 4.9 million inhabitants with a district of ten (10) out of which 23% of the total population in the region constitutes young people. As the nation's capital, Greater Accra has lots of social infrastructure and amenities, including schools, and health facilities that enhance livelihood. The region has records of about 67 private and public schools (Ghana Statistical Service, 2018).

Figure 3.1 Map of Greater Accra

Source: Map data@2020 google

3.5 Study Population

A study population is the entire mass of observations, which is the parent group from which a sample is to be formed (Singh, 2006). Korb (2012) defined a population as a group of people that the researcher wants to draw a conclusion on once the research study is finished. The average population for the study was young individuals between the ages of 15-35 years.

3.6 Inclusion and Exclusion Criteria

3.6.1 Inclusion Criteria

The following inclusive criteria index were used:

Participants who are recognized as citizens of Ghana with a valid national identification card, and also reside in the Greater Accra Region qualifies to participate in this study.

Participants who are male/female and also are within the stipulated age-qualified to participate in the study. This is mainly because the study sought to understand SRH issues of adolescents and thus, the need to collect data of the said population.

Must be literate and should be in the position to read and write. This is so because the survey was conducted online and therefore demands a high possibility for the respondent to be in the position to attend to all questions without any assistance. Thus, participants who have access to smartphones should equally be able to read and write to provide an appropriate response to the survey questions.

3.5.2 Exclusion Criteria

The online survey was designed such that participants who respond but do not fall within the inclusive criteria automatically bring them to an end of the survey.

3.6 Sampling Size

According to Salaria (2012), sampling is the method of selecting and evaluating a relatively small number of individuals or measurements of people, items, or events to find out something about the entire population from which it was chosen.

To that end, data from the survey were obtained from a sample of 202 individuals within Greater Accra. The small size is to enable the researcher to save time and resources. Salaria further argued that a good sample not only needs to be representative, it also needs to be adequate or of sufficient size to allow confidence in the stability of its characteristics (Salaria, 2012).

3.7 Sampling Technique

Due to time constraints, a non-probability sampling process was chosen. This study employed convenience sampling in the selection of 202 young individuals who reside in Ghana. A convenience sampling was used because of limited time, Covid-19 protocol or situation, as well as unavailability of financial resources. Again, this process was aimed to arbitrarily or consciously choose what elements to include in the sample (Malhotra & Birks, 2006). In light of these constraints, this study found it appropriate to use the convenience sampling method.

The data was collected through an online survey which was distributed through WhatsApp platforms, social media platforms like Facebook, and group chats.

3.8 Sources of Data

The study used both primary and secondary data for the study. Primary data refers to the first-hand collection of data for a particular purpose. The data were collected through an online survey from young individuals between 15-35 years who reside in the Greater Accra

Region of Ghana. Published sources (example books, journal articles, and course literature with useful information for the study) were the main mediums for secondary data. Data was also collected from the Internet, as well as some information from the study's various websites and social media pages.

3.9 Data Collection/ Data Instrument

In this study, one method of data collection has been employed thus the use of an online survey. A structured questionnaire was used to collect data from respondents. The questionnaire comprised four (4) sections; socio-demographic characteristics, knowledge on mHealth, sources of mHealth platforms, and challenges faced by young individuals when accessing these mHealth platforms.

3.9.2 Online Survey

Here questions were crafted through google forms and sent to the specified email address and contacts on WhatsApp and Facebook. The email addresses were sourced from the Admissions office of the University of Ghana. The forms were sent to selected individuals who were residents of Greater Accra and within the selected age gap. This information was sourced from their application to the University of Ghana.

Additionally, with regards to WhatsApp, the Researcher at her discretion sent forms to key colleagues who were residents in Greater Accra and within the selected age who likewise forwarded to their other contacts. This same model was applied to the Facebook platforms soliciting respondents to respond to the questionnaires. For controls, a link containing the research questionnaire was sent to adolescents on all adolescent health social media platforms (Youth Action Movement WhatsApp page, Ghana Adolescent Health Program, Curious Minds, and Researchers personal Twitter handles, Facebook page, Instagram

account page) with an instruction to complete the questionnaire.

After all, these are done, the research sorts out all the questionnaires and excludes responses that do not meet the criteria.

3.10 Data Analysis

The administered questionnaire/ online survey was ported into an excel sheet to permit analysis. This was collated and reviewed every week to assess if research objectives were being met and if there was a need to review research questions. The data were analyzed using Excel. Data were entered and cleaned in Microsoft Excel and exported to SPSS. Frequency tables and graphs were generated and analyzed. Descriptive analyses (frequencies, and tabulation), and percentages were employed.

3.11 Ethical Considerations

Ethical clearance for the study was obtained from the Ghana Health Service Ethics Review Committee (GHS-ERC – Protocol ID No: 007/04/20). The objectives of the study, possible risk, study procedures as well as expected benefits of participating were explained to participants to avoid deception. Participants were made to consent to the study before answering the questionnaires, and were also informed of the fact that their participation was voluntary and therefore have the right to withdraw at any given point of the study without it affecting their current or future use of health care services. Study participants were entitled to no incentives or compensation. This was communicated clearly in the study information sheet/consent form. On average, a participant spent about 15 to 20 minutes completing a survey and requiring no more than 0.20 megabits.

All information related to participants in this study was kept confidential and was not revealed to anyone. The file containing the information was stored on a laptop computer with

a password known only to the researcher and will be destroyed after a minimum of three years as per research protocol. Data analysis was done using ID numbers. Participants' identities were not revealed in any reports.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

Chapter four of this study presents the results of the study, with a keen examination of the role of mobile health platforms on SRH knowledge and service utilization by young people in the GAR. This chapter is divided into four sections. Section one describes the socio-demographic characteristics of the participants. Section two presents the knowledge of SRH and modes of accessing SRH services by key participants. Section three presents the knowledge and experience of mHealth platform users in accessing SRH services. And the last section identifies some of the challenges associated with this app usage.

4.2 Socio-Demographic Characteristics

From Table 4.2, the majority of the respondents are young individuals with the specified age range. Out of the total 202 respondents, Majority, thus 109 (54%) were between the age group of 15-24 and with 85(42.1%) represented from the age group 25-35. However, a minority of the respondents were either between 10-14 representing 6(3.0%) of the population while only 2(1.0%) were above 35 years old. The table also revealed more women, that is 129(63%) participated in the study compared to men who were represented with a total of 73(36.1%). The table further presents other variables such as the ethnicity or ethnic group of the 202 respondents. Of the 202 respondents, 94(46%) were Ga/Adamgbe, 60 (29 %) being Akan's residing in Accra, and 36 (17.8%) were Ewe's residing in Greater Accra. Additionally, with reference to their marital status, of 202 respondents, 180 (89%) of them were young people who are single, while 18(8.9%) of the sample are married, with a relatively small percentage 4(2.0%) of them cohabiting. The religious background of the respondents was likewise reflected in this study with 183 (90.6%) of them, Christians, a total

of 15 (7.4%) are Muslims and 3 (1.5%) were traditional people. The list representation was an individual, thus 1 (0.5%) who was not affiliated to any religious group. Moreover, with respect to the educational background of the respondents, a total of 144(71.3%) were tertiary individuals which meant that they were highly educated. A lot, 44(21.8%) of them were Secondary high school individuals which also signifies their ability to read and write. The minority of the respondents was either primary, JHS students, or individuals who haven't been to school and they were respectively represented with 4(2.0%), 9(4.5%), and 1(0.5%). Lastly, with regards to their economic background, 62 (30.7%) were employed, 18 (8.9%) were recruited into an apprentice, and are learning a skill, 75 (37.1%) were students and 29 (14.4%) were unemployed or not employed at all. Below presents the summary results of the characteristics of the respondents in this study.

Table 4.2 Characteristics of Respondents.

Selected Characteristics	**Frequency (N=202)**	**Percentage (%)**
Age (In Years)		
10-14	6	3.0
15-24	109	54.0
25-35	85	42.1
Above 35	2	1.0
Sex		
Male	73	36.1
Female	129	63.9
Ethnicity		
Akan	60	29.7
Bassare	1	0.5
Dagomba	8	4.0
Ewe	36	17.8
Ga/Adangme	94	46.5

Guan	3	1.5
Marital Status		
CoHabiting	4	2.0
Married	18	8.9
Single	180	89.1
Religion		
Christianity	183	90.6
Islam	15	7.4
No Religion	1	0.5
African Traditional	3	1.5
Educational Background		
Primary	4	2.0
JHS	9	4.5
SHS	44	21.8
Tertiary	144	71.3
No School	1	.5
Employment Status		
Employed	62	30.7
Unemployed	29	14.4
Student	75	37.1
Apprentice	18	8.9
Self employed	18	8.9

Source: fieldwork 2020

4.3 General knowledge about Sexual and Reproductive Health

4.3.1 Puberty

In figure 4.3, a number of indicators of the knowledge on sexual and reproductive health

were assessed. In order to engage the knowledge level of respondents, respondents were asked to state what they thought best described puberty. From the responses gathered, two hundred and two (202) responded to this question. However, more than half of the respondents, 198 (98%) stated that puberty was a period when a young person reaches sexual maturation and becomes capable of reproducing. Other respondents with a total of 3(1.5%) persons reported that it was a stage when girls shed off dirty blood, while just an individual, thus 1 (0.05%) believed it was a stage where boys and girls cannot mingle or play together.

Another aspect of the respondent's knowledge was what they understood by menstrual periods. Hence, respondents were asked to state their thoughts on what they felt best to describe the menstruation period. From the table below, the majority of the respondents 188 (93.1%) stated that during puberty, there are rapid physical and developmental changes in young people. Also, a total number of 13(6.4%) and 1 (0.05%) respondents reported that puberty is about shedding dirty blood with the latter unaware of any happenings during the menstrual period. This could be as a result of the lack of exposure to such experience, probably because they are under age and have not been properly sensitized about the menstruation period.

Additionally, as part of understanding the knowledge base of the respondents with respect to sexual and reproductive health, the researcher hopes to properly gauge opinions on how respondents understood menstruation. Based on that, they were asked to state if starting menstruation could mean getting pregnant when they indulge in sexual intercourse. From the responses gathered in this respect, the Majority of the respondents, thus 190 (94%) reported that when one indulges in sexual intercourse in this period, she could get pregnant, while 12(5.9%) stated otherwise. This may be due to the fact that these respondents were not knowledgeable about the women's cycle of menstruation. It could also mean that they were

knowledgeable and must recognize the fact that with the right preventive measures one could avoid getting pregnant.

Lastly, the researcher sought to understand the level of knowledge on the respondent's right to sex. Following this objective, the researcher posed a question which states that *Do you know that you have the right to say yes/no when someone tries to have sex with you or touches you inappropriately? T*his was to gauge their level of knowledge with respect to their rights as individuals to say yes or no as part of their sexual and reproductive rights. The report from the table shows that majority of the respondents representing 198(98%) were fully aware of their right to say yes or no when someone tries to have sex with them, while 3(1.5%) of them stated no. This could be a result of them being underage and not properly sensitized about their sexual rights. Additionally, an individual representing 1(0.5%) stated that she was not aware of such rights. Below presents the response data.

Table 4.3 General knowledge of Sexual and Reproductive Health

Table 4.3 General knowledge of Sexual and Reproductive Health	**Frequency (n=202)**	**Percent (%)**
What is puberty? It is the period when a young person reaches sexual maturation and becomes capable of reproducing	198	98.0
This is a stage where boys and girls cannot mingle or play together	1	.5
This is the stage girls shed off dirty blood	3	1.5
Knowledge of menstruation Period		
Shed dirty blood	13	6.4

There are rapid physical and developmental changes in young people	188	93.1
I don't know	1	.5
Level of understanding about menstruation		
Yes	190	94.1
No	12	5.9
Right to Sex (SRH)		
Yes	198	98.0
No	3	1.5
I don't know	1	0.5

Source: fieldwork 2020

4.4 Sources of Sexual and Reproductive Health Information and Services

Furthering to identify respondent's source of SHRH, table 4.4 below, shows the most preferred and convenient channels to information access by these young people. From the responses, 71 (35.2) of these young people preferred to visit a health facility for their SRH needs. Again, 26 (12.9%) preferred visiting the pharmacies for their SRH needs, and this is the second most selected. Surprisingly despite the confirmed access to digital platforms and devices, just about 14 (6.5) confirmed the visit of the internet and other platforms as their source of support. And finally, 2 (1.3%) preferred speaking with friends about their SRH needs, and 2 (1.3%) also confirm referencing reading materials such as books. The least of 1(1.3%) of the respondents would speak with parents or guardians for support. Contrarily, a majority of 80 (36.6%) did not know which platforms were preferable and choose N/A as their response to the question.

Table 4.4: Source of SRH among young individuals

Sources of SRH	**Frequency (N=202)**	**Percentages (%)**
Books	2	1.3
Friends	2	1.3
Health	71	35.2
Facilities	14	6.5
Internet/social media	1	0.5
Parents	26	12.9
Pharmacies	2	1.3
Religious	4	1.4
Leaders	80	39.6
Traditional	-	-
Medication	-	-
N/A	-	-

Source: fieldwork 2020

4.5 General Awareness and Usage of mHealth Platforms

One of the key objectives of this study was to assess the level of awareness among young individuals with respect to mHealth platforms and identify some of the apps present and that was quite accessible to them. This section explores the usage of mobile health applications. Respondents were asked to state if they had ever used a mHealth application, and the majority representing 108(53.5%) reported that they have never used such applications before. On the other hand, 87(43.1) stated that they have ever used mobile health applications in their life while 7(3.5%) of the respondents did not know if they have ever used the

applications or not. Moving forward, respondents were presented with an example of a mobile health application which is known as You Must Know (YMK). From the 202 samples, 65(32.2%) reported that they have heard about the App while 135 (66.8%) stated they haven't heard of its existence. On the other hand, about 2 (1.0%) revealed that they do not know whether it exists or not, thus, I don't Know. The above shows that there is a lack of sensitization about mHealth Platforms and the majority of people may not be aware of these applications. The research sought to decipher respondent's awareness of the App presented. Based on this, they were asked to state what the app was used for. This was to ensure they really know the YMK app and have at some point in their life using it. From Table 4.5, the majority representing 32 (49.2%) reported that the app provided SRH information and service to young people while 19(29%) were of the view that the app provided SRH information to adolescents only. On the other hand, 1(1.5%) and 4(62.2%) were of the view that the app was an online and medical app respectively. Although stated earlier they had used or heard about the app, 9(13.9%) stated None of the above in the category presented.

Still, under understanding the level of awareness among respondents on the said App, they were asked to state how they knew about this app. This question was open to all as the description of the app could spark the memory of the app's use in some of the respondents. A diagram of the respondent's responses is presented below. Out of the 202 respondents, 40(19.8%) and 3(1.5%) stated they knew about the app from friends and school respectively. Another 3(1.5%) and 7(3.5%) stated they knew about the app from health facilities and Family respectively. Additionally, a total of 1(0.5%) and 5(2.5%) reported that they knew about print and electronic media respectively. Moreover, with respect to the website and social media, about 2 (1.0%) and 18 (8.9%) were respectively represented, while a total of 3 (1.5%) did not respond to the question, leaving a total of 117 (57.9%) stating a none of the above response. This means that they did not have any prior knowledge about the app and

therefore did not resort to finding it from the listed sources. Lastly, respondents were asked to state how long they have been using the App. As stated earlier, a majority of 137 (67.8%) reported that they did not use the App. However, deriving responses from those who use the App, 42 (20.8%) of them stated that they have been using the app for between 1 to 6 months, while 8(4.0%) also added that they use this app between 7 months to a year. On the other, 12 (5.9%) and 3(1.5%) reported that they have been using the app for 1- 2 years and over 2 years respectively.

Table 4.5: Specific Awareness and Usage of 'YMK Application'

Awareness and Usage of YMK Application	**Frequency (n=202)**	**Percentage (%)**
A. Awareness of You Must Know App (YMK)		
Yes	65	32.2
No	135	66.8
I don't know	2	1.0
B. Usage of mHealth Application		
Yes	87	43.1
No	108	53.5
I don't Know	7	3.5
C. Uses of the App (Frequency:65)		
App that provides SHRH information to adolescents	19	29.3
It is an online shopping App	1	1.5
It is a medical app for students	4	6.2
An app that provides SHRH information and services to young people	32	49.2
N/A	9	13.9
D. Knowledge of the App		
No response	3	1.5
Friend	40	19.8
School	3	1.5
Health facility	7	3.5
Relative	5	2.5
Print Media	1	.5
Electronic Media	5	2.5

Website	2	1.0
Social Media	18	8.9
N/A	117	57.9
E. Period of mHealth application Usage		
1 month-6 months	42	20.8
7 months-1 year	8	4.0
1-2 years	12	5.9
Above 2 years	3	1.5
N/A	137	67.8

Source: Fieldwork, 2020

4.6 Challenges in mHealth Platform Usage

This section of the data sought to understand from mHealth users and young people some of the challenges faced while accessing SRH leveraging mHealth platforms. Also, to identify if there are any limitations to these mHealth platforms, of which reasons they would stop using. From table 4.6, young people identified numerous SRH services that are often explored using mHealth and these include menstrual health counselling, HIV testing, and Service, Family Planning. Counselling, Comprehensive abortion, and NHIS. Most young people representing 34(16.8%) reported that they have accessed menstrual health information, with a total of 18(8.9%) on HIV testing and services. Other respondents representing, 13(6.4%) and 23 (11.4%) claimed to have accessed issues on Family planning and general counselling respectively on this platform while 4 (2.0%) and 3(1.5%) reported comprehensive abortion care and NHIS access on this platform. However, a total population of 107 stated none of the above. It is believed this constitutes individuals who have not heard or used the app.

In establishing the user experience of using these mHealth applications or platforms, the research sought to identify respondents' responses on their experience while using these apps. However, a total of 27 (13.4%) of them reported that using the app was quite very easy compared to 34 (16.8%) who claimed it was easy. On the other hand, a total of 2 (1.0%) established the fact that it was quite difficult compared to 1 (0.5%) who reported that it was

very difficult. Overall, out of the 202, 138 (68.3%) reported none of the above, stipulating they have no idea whether those apps were difficult to use or not.

Additionally, this study sought to understand from mHealth users and young people the challenges they face while accessing SRH leveraging on mHealth platforms. Respondents were asked to choose some of the challenges they faced when it came to accessing mHealth service and the majority of the respondents stated that there was difficulty in understanding the app as well as the high cost of using the app. However, the majority , 85.1% acknowledge that they faced challenges using the app. This will be discussed in detail in the discussion section.

Table 4.6: Services and Challenges of mHealth Platforms

Services and Challenges of mHealth Platforms	**Frequency (n=202)**	**Percentage (%)**
Services accessed on mHealth Platforms		
Menstrual Health Counselling	34	16.8
HIV testing & Services	18	8.9
Family Planning Services	13	6.4
Counselling	23	11.4
Comprehensive Abortion Care	3	1.5
NHIS	4	2.0
N/A	107	53.0
User Experience of App Usage		
Very easy to use	27	13.4
Easy to use Difficult to Use	34 2	16.8 1.0
Very Difficult to use	1	0.5
N/A	138	68.3
Challenges of mHealth platform usage		

I don't get all the information I am looking for	18	8.9
I can't interact with internet service providers any time I want	1	.5
No response from service providers	6	3.0
I still would have to go to the health Facility	5	2.5
All of the above	172	85.1

Source: Fieldwork, 2020

In conclusion, this chapter has explained the analysis associated with assessing the level of awareness of the mHealth platform among young people. The next chapter however will delve into the discussion of the study.

CHAPTER FIVE

DISCUSSION OF THE STUDY

5.0 Introduction

This section presents the results of the study in relation to the research questions and study objectives. The results are summarized as frequencies and percentages in tables. The study was centered around three main objectives and they include identifying some sources of SRH information among the youth, their level of knowledge about mHealth platforms, and some challenges they encounter when using these platforms.

5.1 Social and demographic background of Respondents

Out of 202 young men and women living in Accra, about 54% of those who participated in this study were between the ages of 15-25. These individuals have all reached or experienced puberty. These findings suggest that young individuals in the study area are well informed about their sexual and reproductive health as they have experienced puberty at some point in their lives. Though 15–24-year-olds represent only one-quarter of the sexually active population, they acquire nearly half of all new STDs (Cates & Wasserheit, 1991). Studies have revealed the willingness of young people to access SRHR information through mobile phones. This can be beneficial to young people in developing countries with limited access to SRHR services (van Benijma, 2007; Akinfaderin-Agarau, Chirtau, Manre, & Ekponimo, 2012).

Additionally, more women (63.9%) than men were represented in the study and this was good as most of the questions were channeled for women. Men were not left out in the study because it was information for the researcher to understand the level of knowledge men have about women's sexual and reproductive growth.

The educational level of people who participated in this study was very good and it shows that they were well able to understand key themes in the study as they could relate to them. The majority of the individuals were educated thus from the Senior High School to the Tertiary institutions with only 0.5% with no academic achievement. The majority of the individuals with 71.3% were from the tertiary level which implies they have experienced some of the sexual and reproductive issues surrounding puberty and adulthood and with access to phones, have been able to have exposure to sexual and reproductive information. This confirms Wurtele's (2017) findings that since the onset of technology, most adolescents and young people within the stipulated age use the internet to find information about their sexual health given that the internet offers privacy and access to unlimited information.

The study likewise revealed the employment and marital status of these individuals who participated in the study. From the study, the majority of individuals were Single and students. About 89% of these individuals were single and this is not surprising given the age range and the fact that 37% of them were still students and 62% of them employed. Being single, educated, and a student or being employed is enjoyed in the study as most young people within that range are unmarried and in the tertiary institution being exposed to a lot of information on the internet of which Sexual reproductive health is all-inclusive. Recent findings indicated an increasing rate of mobile phone acquisition in low- and middle-income countries like Ghana. In Ghana, the mobile phone penetration rate is 88.8% (Ghana Communication Authority, 2018). This suggests that the majority of Ghanaians, especially young people use mobile phones. With the rapid spread of mobile communication, there has been an equal rise of interest in research on the possible leverage of mobile phone usage for health benefits.

5.2 Access to Sexual and Reproductive Health Information (SHRH)

The main objective of this study was to identify young people's access to SHR and that is where young people solicit information about sexual health**.** Adolescents, as a result of their curiosity, are often caught in the search for information about their bodies, the way they look, and some of the changes they experience including their sexuality (Cheak-Samora et al, 2019). Meanwhile, some adolescents in Ghana, on the other hand, lose the ability to speak about what they know, see, feel, and the experiences of their sexuality which is evident in childhood and as they come under cultural norms (Ahonsi, Nai, Goldson, et al 2019). There is, therefore, a worrying lack of a credible source of information for some of these adolescents and young people when it comes to their access to reproductive health information (Ahonsi, Nai, Goldson, et al 2019). On the other hand, curious adolescents are usually seen to rely on their immediate source of reach which happens to be parents, teachers, friends, and the internet hardly a health service provider (Cheak-Samora et al, 2019).

First of all, the research sought to understand their general knowledge on sexual and reproductive health but with a key emphasis on puberty and menstruation. Questions on what they thought puberty or menstruation were asked as well as how often they practice hygiene with respect to the number of times to bathe, brush and wash their private areas. From the analysis section, the majority of the respondents were Knowledgeable of puberty and menstruation as well as their right to say yes or no when their sexual rights are questioned.The findings also determined some of the prominent sources of SHRH among the youth. Results from the study revealed that the majority of the youth, thus 35% of them depended on health facilities for the SHRH information. This is not surprising as most of them during this age period find themselves in the hospital doing check-ups about their sexual and reproductive health. Unfortunately, 80% of the individuals preferred not to

disclose their source of SHR and this could be either due to the lack of understanding about the said topic and disinterest in revealing where they get their health information. This study found that the mHealth market is still in its early stage and, therefore, many young people lack knowledge about it (Odo et al, 2018).The Discovery of technology and the invention of mobile phones can be considered a great advancement to development. This is because the technology did not only lead to a change in the modes of communication, with a wide use of advanced mobile technology and subscriptions but also contributed to the advancement of Universal health. Globally, there has been an increase in mobile phone usage at 6.8 million, with an 89% rate at which mobile phones are used in developing countries (Bankmycell, 2020). This shows that the majority of people worldwide which includes young people are now using mobile phones ("Mobile Phone Usage among Youth," 2016). The majority of the respondents choose health facilities, pharmacies, and the internet as their source of information. This is also not surprising as individuals within these stipulated ages prefer to be more private about their sexual and reproductive health. Young people's access to sexual and reproductive health information and services in Ghana has usually been at health facilities, youth-friendly corners, counselling centres, and peer counselors (Zuurmond et al, 2012). Young people in Greater are known to resort to many alternatives such as available youth-friendly corners, health care facilities, and Community-Based Health Planning and Services (CHPS) however, due to identified hindrances related to service access, they no longer patronize these service even when it is being offered for free (Bankole & Malarcher, 2010).

5.3 Level of awareness about the mHealth platforms

The second objective of this study was to assess the level of awareness on the mHealth platform. This was assessed through a couple of questions on some mHealth applications. However, from the data collated, it was found out that both users and non-users of the

mHealth platform had a bit of knowledge and experience to share about these platforms. Respondents were asked to state some of the mHealth platforms available to them. It was found out that respondents were apprised with the Flow Up, YMK app, Agoo app whiles the majority (66.8%) of the respondent haven't the slightest clue of some of the mHealth platforms. A typical example of the YMK application was introduced to gauge their opinion but only a few of 32% of the respondents were aware with over 66% unaware of its existence.

Although the study confirms the increased access to digital devices and smartphones, the usage of mHealth platforms is at a decreasing rate. This confirms a cross-sectional study conducted by Odo et al 2018 on factors influencing the usage intention of mHealth. Findings indicated that time, perceived usefulness, and reliability are key associated factors that had a major influence on young people's intention to use mobile applications. Although this study showed most respondents confirming the easy usage of these mHealth platforms, most of them (53%) claim never to have used any mHealth application.

Additionally, when asked to state the uses or function of the app, the number dropped to 13.9% who did not know what the app was used for. The study likewise revealed that most individuals who were well acquainted with the app were referred to. This means that the majority 19.9% knew about this app through friends. The power of word-of-mouth advertisement. However, it is evident that with the inception of technology, sources of information for adolescents and young people, in general, have taken a different trail. The internet has been the most convenient and vital source of information for most young people as most mobile health (mHealth) platforms prevent a lot of hurdles associated with young people's access to SRH information and services (Ippoliti & L'Engle, 2017).

5.4 Challenges and Constraints Experience by Young people

The last objective presented in this study was related to the challenges and constraints associated with young individuals having access to mHealth Platforms. Some of the listed challenges included the following;

The high cost of the internet. Most youngsters, especially students, revealed that the high cost of the internet is a major challenge as one has to download the app and, on every chat, the internet moves quite faster. Based on that, they are discouraged to patronize it. One of the respondents stated in the "*Other"* section; *Using the internet is quite expensive*

This confirms with the result of Busagala and Kawono (2013) who revealed that the adoption of eHealth is constrained by inadequate ICT skills, high cost of ICT in relation to the economic status of community members, less developed infrastructure including lack of imaging equipment, a small proportion of internet users and lack of information about suitable ICT solutions. Other challenges identified by respondents were also related to the attitudes of service providers even when they use these services. Responses are delayed and this affects the MHealth services.

Difficulty in usage: Some respondents stated that using the apps was quite difficult to understand as most of these apps are complicated to use, hence why they are not encouraged to use them. About 18% of the respondents reported that they did not get the required information they wanted. This is contrary to the fact that everything can be found on google.com. Therefore, it could mean they did not know how to use the app to its maximum capability. This confirms with the cross-sectional study conducted among young people to ascertain their perception and preference for internet users to access ASHR services which stated that young people prefer easily understandable online resources on information related to SRH (Tinnemann, & Müller-Riemenschneider, 2017).

Waste of time: Other respondents revealed in the "*other options*" that they felt the app was a waste of time as there are some illnesses or healthcares that require physical medical contact to than the app.

These were the major challenges identified as most respondents skipped the question, hence not enough responses were generated.

5.5 Limitations of the Study

The study had the following limitations.

First, only a quantitative method was employed in this study. However, the qualitative or mixed-method could have brought out further insights.

Secondly, the exclusion criteria (non-elite) might have excluded some valuable respondents who might have provided rich information.

Also, the timeframe given by the University of Ghana for the study to be conducted was limited.

This implies that research findings, although relevant, cannot be generalized for decision making, taking into consideration the exclusive criteria

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter presents the summary and conclusion of the study. It also makes recommendations for future practice and research.

6.1 Conclusion of the Study

In this study, the majority of respondents have access to information about mHealth from health centers, pharmacies, and through the internet. The study also concluded that the majority of the respondents in this study have prior knowledge about mHealth, although not everyone applies the usage of it. However, those who do, use it effectively in the enhancement of their reproductive health knowledge. This was further indicated that young people are actively engaged in the surf of the internet and some major apps identified for mHealth usage amongst them were Agoo App, YMK, and the Flow App.

A final conclusion of this study can also be related to the fact that some young individuals experience some challenges or constraints associated to access to these apps and these include; the belief that it is a waste of time as some illness may need physical attention, others also believed that it is associated with the high cost of internet, and the complexities of the app which hamper their ability to get the right kind of information.

The main objective of the study is to assess mHealth as a tool for SRH access among young people. With high penetration of mobile phones to improve knowledge, attitudes, and practices of young people about SRH. This will go a long way to improve the context of mHealth outcomes. Findings in this study are likely to elucidate the extent to which ICT working in the context of mHealth has influenced SRH.

6.2 Recommendations

In light of the results and conclusions reached, the following suggestions are made to assist stakeholders involved in this study in developing and implementing relevant and efficient strategies to help enhance mobile health services in Accra.

For Practice:

1. *Health Directorate of the Greater Accra Region*

   It is important to improve school health as well as community education on mobile health tools. This can be accomplished by launching more mHealth educational initiatives in communities and schools to increase awareness, access, and use of SHR services.

   Intensive training on mHealth for health care professionals, such as in-service training and seminars, should be structured to develop their understanding of how to treat and deliver services to young people.

   The district, in collaboration with community members and other agencies, should establish more health clubs in neighbourhoods to make it easier for providers to meet young people and offer services to them.

2. *To the Ministry of Health and its Partners:*

   It is also suggested that future research be conducted to investigate the awareness, attitudes, and use of mobile health among only female adolescents.

   The government should implement policies that prioritize socioeconomic empowerment, especially female education so that women are better equipped to make informed decisions about their health

3. *Mobile health developers*

Mobile health and mobile technology developers should consider the context, the content, as well as targeted populations to meet their needs and also satisfy the need of the targeted audience. With this in mind, platforms should be designed such that their usage would be more exciting, user friendly with less data consumption to reduce cost and also attract young people's usage.

4. *Young Individuals*

More young individuals depend on the health facilities and pharmacies as well as the internet as their sources of SRH information, hence, there is the need to encourage young individuals to be exposed to other sources of SRHR information like books, friends, and families as this will improve their educational level and enable them to appreciate mHealth platforms.

For policy:

5. As a way forward, other health centers who have not adopted the sensitization of mHealth platforms should be encouraged to do this to improve the level of knowledge in the country about SRH. This can however be enhanced through massive collaboration with the Ministry of Health and the Ministry of Education.

For Further Research:

6. Further studies using mixed methods research methods may show more insights
7. This study was limited to only the Greater Accra region. Further studies examining the topic in other regions of Ghana is highly recommended.

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APPENDICES

Appendix 1: Questionnaire

UNIVERSITY OF GHANA SCHOOL OF PUBLIC HEALTH

Start of interview……

End of interview……..

Date of interview…….

Urban-rural community ……

	Questions	Response
1. Socio-demographic Information		
	How old are you as of your last birthday?	a) 10 – 14 years b) 15- 24 years c) 25 – 35 years d) Above 35 years
	What is your sex?	Male Female
	What is your ethnicity?	Akan Ewe Ga/Adamgbe Dagomba

	What is your marital status?	a. Single b. Married c. Co-habiting d. Divorced
	How many children do you have?	a. 0 b. 1 c. 2 d. 3 e. 4 and more.
	What is your religion?	a. Christianity b. Islam c. Traditionalist d. Other (Specify)……
	Whom do you stay with?	Alone Parents/Guardian Friend Spouse
	Which community do you live in?	……

	What is your employment status?	a. Employed b. Unemployed c. Student d. Apprentice/Intern e. Self-employed
	What is your current/highest level of education?	a. Primary b. JHS c. SHS d. Tertiary e. No School
2. Knowledge of Sexual and Reproductive Health Issues		
	What is puberty?	a. t is the period when a young person reaches sexual maturation and becomes capable of reproducing b. his is a stage where boys and girls cannot mingle or play together c. This is the stage girls shed off dirty blood
	What happens during puberty?	a. Shed dirty blood b. Start having sex c. here are rapid physical and developmental changes in young people d. I don't know
	Starting menstruation means you can get pregnant when you have sexual intercourse.	a. Yes b. No c. I don't know
	How many times do you bath when you are	Once

	menstruating?	Two times Three times or more N/A
	How many times is it appropriate to bathe daily?	a. Once b. Two Times c. Three times or more d. Others (Specify)……..
	How many time is it appropriate to brush the teeth	a) Once b) Two times c) Three-time or more d) Others (Specify)
	What materials should be used for cleaning the Vagina?	Water only Soap and Water Water and Antiseptic Vaginal Wash N/A
	Are you sexually active?	Yes No I don't Know
	As a male, how do you protect yourself from pregnancy when you engage in unprotected sexual activity?(select all that applies)	Condoms b. Pills / Emergency Contraceptives IUD

		Jadelle
		Coitus Interruptus (withdrawal) f. Other (Specify) …….. g. N/A
	Do you know that you have the right to say no when someone tries to have sex with you or touches you inappropriately?	a. Yes b. No c. I don't know
	What is HIV/AIDS?	a. Diseases from the gods b. t a disease you get when you live a promiscuous life c. It is a virus that damages the immune system d. I don't know
	How is HIV transmitted? (select all that applies)	a. Kissing b. Touching c. Insect bite d. Through transfusion of infected blood e. Sharp instrument f. y having unprotected sex with an infected person g. Other (specify)…….
	Do you know the characteristics of a Youth- Friendly Facility?	a. Yes b. No c. I don't know

	How will you describe a Youth-Friendly Facility? (select all that applies)	a. Accessible services b. Confidentiality of care c. Privacy d. Affordable services e. Friendly service providers f. Other (Specify)……

	Do you think abstinence from sexual activity is important for young people?	a. Yes b. No c. I don't know
	What are the benefits of abstaining from sex?	a)Avoid unintended pregnancies b)You can finish school c)You won't grow old d)Prevents STI's
3. Source of Sexual Reproductive Health Information		
	Have you ever used any Mobile Health application?	a. Yes b. No c. I don't remember
	If your answer to the previous question is YES, what is the name of the mobile application?	a)The Flow App b)YMK App c)WAWA ABA web-based platform d)Agoo App e)Other
	Have you heard of the "You Must Know" (YMK) application?	a. Yes b. No

	If your answer in (26) above is "Yes", what are the uses of the YMK app.	a. App that provides SRH information to adolescents b. It is an online shopping App c. It is a medical app for students d. An App that provides SRH information and services to young people. e. N/A
	If No, skip to Q35	
	How did you know about this app?	a. Friend b. School c. Health Facility d. Relative e. Print Media f. Electronic Media g. Website h. Social Media i. N/A
	How long have you been using the application?	a. 1 month - 6 months b. 7month - 1 year c. 1 year - 2 years d. Above 2 years e. N/A
	How easy was it to use the application?	a. Very easy to use b. Easy to use c. Difficult to use d. Very difficult to use

	Do you feel comfortable using the YMK App?	a.Yes b.No c.Maybe d.N/A
	If Yes, Why do you feel comfortable	a. Application is easily accessible b. Educational materials are readily accessible c. Can easily call and interact with counsellor d. ecause I can easily ask any question without being known e. Other (specify)…… f. N/A
	If No, why don't you feel comfortable	a. don't get all the information I am looking for b. an't interact with service providers any time I want c. No response from service providers d. Still would have to go to the health facility e. Other (Specify)…… f. N/A

	Before the YMK mobile application, from where did you seek sexual and reproductive Information?	a. Friends & Relatives b. Health Facility c. Print media d. Electronic media e. Social Media f. Other (specify) …….
	Currently, are you using any other health- related mobile application aside from the YMK?	a Yes b. No
	What App is that?	a. Flow App b. SRH bulk messaging (ReproTalk) c. Maries Stopes helpline d. Others…… e. N/A

41	How often do you use it?	a. Once a day b. Twice a day c. Occasionally d. Rarely e. Never f. N/A
42.	Where do you usually seek Sexual and Reproductive health care?	a. Health facility b. Pharmacy/drug stores c. Traditional medication d. Religious Leasers e. Other (specify) ……
5. Sources Sexual Reproductive Health (SRH) Services		
43	During the last 6 months, have you accessed or used any SRH services?	a. Yes b.No c.N/A
44	If you answered Yes, what service did you accessed?	a.Menstrual Health Counselling b.HIV testing & service c.Family Planning Services d.Counseling e.Comprehensive Abortion Care f.NHIS g.N/A
45.	How was your experience at the health facility?	a.Attitude of the service provider was warm b.I didn't get what I was looking for c.Lateness of the service provider in attending to me d.Other ....

		.....
46.	How long does it take you to get to the health facility?	a.Between 15-30 Minutes b.30Min – 1hour c.2hours and above d.N/A
47.	What service did you go for?	a. Menstruation b. Family planning service c. Counseling service d. Abortion Care d. Other SRH Service..... e. N/A
48.	Where did you seek SRH care?	a. Health facility b. Pharmacy/ Drug store c. Adolescent Health Facility d. Herbalist e. Other (Specify)…… f. N/A
49.	Where do you usually receive your SRH information and service?	a. Health Facility b. Adolescent Health Facility c. Relative d. Teacher e. Pastor/ Imams f. Friends g. Herbalist h. Other (specify)……..

	How long does it take you to get to the facility from your home?	a. between 15 - 30 Minutes b. 30min - 1 Hour c. 2 hours and more.
	6. Mobile Phone Use	
	Do you have a smartphone?	a. Yes b. No
	If no, do you have access to a smartphone?	a. Yes b. No
	If your answer to (ii) is yes, please, whose smartphone do you have access to?	a. Parents / Guardian b. Siblings c. Friends d. Other (Specify) ……..
	What do you usually use your phone for?	a. Calls. b. Browse the internet c. Search for information d. Others……..
	How often do you have access to internet services?	a. Very Often b. Often c. Occasionally d. Rarely e. Never

	What SRH Information / service did you access?	a. Menstruation b. Pregnancy c. Family Planning d. Chat e. Watch Video f. Others…….
	What will make you stop using the mHealth platform?	a. Cost of internet b. Difficult to use and Understand c. Not attractive d. Others……
	What do you wish considered to make access to mHealth SRH services, comfortable and accessible for you?	a. mHealth should be available b. Internet access should be affordable c. Create awareness on mHealth platforms. d. Other (specify)