FACTORS ASSOCIATED WITH COMMON MENTAL HEALTH DISORDERS AMONG PREGNANT AND PARENTING TEENAGERS IN KOROGOCHO SLUMS, NAIROBI COUNTY, KENYA

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DECLARATION AND RECOMMENDATION

Declaration

I declare that this project is my original work and has not been presented for a degree or any other award in any other University.

Signed by:…… Date: …….

Miriti Jenny Gakii

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Recommendation

This research project has been submitted for examination with our approval as university supervisors.

Signed…… Date: ……..

Name: Dr. Eunice J. Nyavanga

Signed…….. Date: …….

Name: Ms. Phoebe Masita

DEDICATION

I dedicate this research project to my family members who have been my source of motivation and inspiration.

ACKNOWLEDGEMENT

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I will forever be grateful.

ABSTRACT

Global healthcare trends demonstrate a rise in mental health disorders. Notably, mental health disorders have a considerable negative impact on academic performance, work, close relationships, the global economy, and one's ability to make positive contributions to the community. Worth noting is that teenage pregnancy shows a positive correlation to mental disorders, most of which are aggravated by the teenagers' immediate environments hence the need for in-depth understanding of the specific factors associated with common mental disorders (CMDs) among this cohort. This cross-sectional descriptive study sought to establish association between individual factors, sociocultural factors, healthcare services and common mental disorders among pregnant and parenting teenagers. The ecological system theory guided the study. The study employed a mixed method approach under the descriptive study design and was conducted in Korogocho slums, Nairobi County. The Cochran formula was used to obtain the sample size of 185 from a target population of 357 pregnant and parenting teenagers recorded in antenatal, or post-natal registers in health facilities in Korogocho slums. Proportionate stratified random sampling was adopted. The researcher used the health facilities as the strata and subdivided the sample population of 185 proportionately relative to the number of registered pregnant and parenting teenagers in each facility. The participants in each stratum were then purposively selected from the registers, contacted, and followed up in their households. A structured interviewer administered questionnaire was used to collect sociodemographic data and a Self-Reporting Questionnaire (SRQ-20) by WHO was used to collect data on the prevalence of CMDs among the study cohort. Three focused group discussions were held with Key Informants using an interview guide. The research tools were piloted to ensure validity and reliability. Data collected was analyzed using SPSS version 25 and presented using frequency tables. Interdependence chi square test and fisher's test were used to examine the association between common mental disorders with p value of <0.005 considered statistically significant. A total of 153 out of 187 (82.7%) participated in the study. The study findings indicated that n=84 (55%) of the respondents had symptoms of CMDs. Moreso, n=49 (32%) of the respondents reported alcohol use, n=40 (26%) bhang use and n=41 (27%) Miraa use. Additionally, study findings showed no significant association between CMDs and Age, or level of education. However, there was significant association between CMDs and income status, gender-based violence, and social support among the study cohort. Notably, the study findings revealed significant association between affordable and adolescent friendly services and CMDs. However, there was no significant association of CMDs with availability of mental health services. In conclusion, mental health disorders are relatively high among pregnant and parenting teenagers in Korogocho slums. Sociocultural and healthcare factors significantly affect the mental wellness of the pregnant and parenting teenagers. The respondents who manifested symptoms of CMDs were advised to seek further healthcare services in facilities of preference. The study recommends integration of responsive mental health services in antenatal care, awareness creation campaigns on mental wellness, community-based support groups and income generating programmes targeting pregnant and parenting teenagers.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

AIDS: Acquired Immune Deficiency Syndrome

CMD: Mental Disorders

FGD: Focus Group Discussion

GBV: Gender Based Violence

HIV: Human Immune Deficiency Virus

IPV: Intimate Partner Violence

KHIS: Kenya Health Information System

KII: Key Informant Interview

LMIC: Low- and Middle-Income Countries

MCH: Maternal and Child Health

NACOSTI: National Commission for Science, Technology, and Innovation

KEMU: Kenya Methodist University

PTSD: Post Traumatic Stress Disorder

SRH: Sexual Reproductive Health

SRQ-20: Self Reporting Questionnaire

SPSS: Statistical Package for the Social Sciences

UNFPA: United Nations Population Fund

UNICEF: United Nations Children's Fund

US: United States

WHO: World Health Organisation

YFRHS: Youth Friendly Reproductive Health Services

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Mental health is not limited to the absence of a mental disorder. According to World Health Organization (WHO, 2018), the concept also entails thinking, learning, and understanding one's emotions and others' reactions. For an individual to be mentally healthy, they need to strike a balance between different facets of their life and environment, including physical, psychosocial, spiritual, cultural, and other interrelated factors (WHO, 2018).

Common mental disorders (CMDs) refer to a group of mental health conditions that are characterized by symptoms such as anxiety, depression, and stress. They also include alcohol and substance abuse (mainly alcohol), as well as post-traumatic stress disorders both in mild and moderate forms. CMDs in pregnant and parenting teenagers not only affect their mental health but also have potential consequences for the health and development of their children. Additionally, mental health affects vital aspects of their wellbeing including emotional well-being and social development, and can lead to social isolation, stigma, and inability to contribute to society if untreated (Ali et al., 2016).

Existing research shows that adolescents' mental health needs differ from those of the patients in other age groups. Nebhinani and Jain (2019) notes that a considerable number of people experience mental health issues in their teenage years of which more adolescents compared to children struggle with mental disorders at 10-20% and 1-2% respectively. Thus, to improve the adult

population's health outcomes, one must be attentive to teenager's health. Pregnant and parenting teenagers especially in resource-constrained settings like the Korogocho slums in Kenya are particularly vulnerable to CMDs due to the many physical, emotional, and social changes they experience during this stage of life.

Pregnancy is considered a major stressor of mental illness in adolescent girls (Osok et al., 2018). The researchers maintain that teenage pregnancy leads to cultural stigma, disenfranchisement from public services and institutions, and worsens gender inequality, and as a result educational, psychosocial, emotional, financial, and health problems in affected teenagers. Corcoran (2016) also provides in-depth insight into the relationship between mental health and adolescent pregnancy by positing that poor psychological health among teenage mothers is not solely attributable to pregnancy. On the contrary, she maintains that pregnancy and poor mental health result from the same social risk factors facing this group (Corcoran, 2016). Similarly, Siegel and Brandon (2014) assert that social support, parent-child relationships, self-perception, and social-economic factors affect teenagers' psychological response to pregnancy. Because the challenges that teenagers face vary from place to place, it is essential for scholars to examine how different social-demographic factors may affect teenage mothers' mental health.

Even though the consequences of neglecting mental health in children and adolescents extend to adulthood, limiting the opportunities available for this cohort leading fulfilling lives (WHO, 2021), mental health disorders are underdiagnosed and undertreated. Additionally, mental health disorders have multigenerational consequences. According to Pajer et al. (2014), children born of teenage mothers

are further susceptible to psychiatric disorders, sexual abuse, and physical victimization, leading to multigenerational sequences of mental health disabilities. Owing to its far-reaching effects, the mental health of teenage mothers should be given greater consideration. Unfortunately, in Kenya, screening and treatment of mental disorders is not done routinely in the healthcare facilities.

There is need for more research on the biological and psychosocial aspects of mental health to understand the risk factors and outcomes of mental disorders to develop more effective interventions (WHO, 2001). While there is considerable research on the factors that contribute to common mental disorders in teenage pregnancy and parenthood, few scholars have focused on the unique situation on the adolescent girls in the informal settlements of Kenya (Beguy et al., 2013). To design interventions for public health officers and health care workers that respond to the mental needs of this cohort, it is necessary to understand how various factors contribute to the mental health of pregnant and parenting teenagers.

1.2 Background of the Study

Mental health disorders are increasing worldwide with a reported 13% rise in the last decade (to 2017), attributed to demographic changes (WHO, 2021). Further to this, mental disorders contribute to 1 in 5 years lived with disability (YLD) and account for 12% of the global burden of disease. The impact of mental health conditions on socio-economic growth cannot be ignored. Depression and anxiety disorders impact negatively costing the global economy at least US$ 1 trillion each year. In addition, these disorders have significantly affected individual's everyday life including performance in school and the workplace, relationships with close

family members and friends, and the ability and willingness to contribute to one's community (WHO, 2001).

According to WHO (2021), mental disorders among the10–19-year-olds account for 13% of disease burden within the age group. In addition, they account for one in every case of mental disorders. Depression, anxiety, among other behavioural disorders are the leading causes of disabilities and illnesses among the adolescents. Moreso, if the mental health disorders are not addressed, they extend to adulthood and negatively affect physical and mental health of the adolescents (WHO, 2021). Further, pregnant, and parenting adolescents are at greater risk of mental health conditions.

In Kenya, teenagers are faced with myriad of vulnerabilities. Teenage pregnancy remains a significant challenge, (Muturi, 2020). Further, the research shows that 20% of Kenyan girls aged between 15-19 years are either expectant or have children. According to Kenya Health Information System (KHIS, 2020), Nairobi County recorded 22 159 teenage pregnancies of which 19,561 were among 15–19-year-olds. This is a considerable proportion of the adolescent population hence should not be ignored. Moreso, mental health problems among the teenagers are a common phenomenon in Kenya (Kumar et al., 2018). Teenagers living in the low-income areas of Nairobi County are considered more vulnerable to mental health disorders because they are exposed to multiple risk factors, (Kumar et al., 2018) including low quality maternal and child health services. Marangu et al. (2014) extrapolate this challenge by asserting that mental healthcare in the country is not integrated within primary healthcare settings. This population cannot afford to pay for additional health services, predisposing them to poor health outcomes. Besides,

with the current scarcity of mental health specialists, absence of a ratified psychiatric health policy, and the prevalence of community stigmatization of psychological illnesses, these members of society are considerably neglected. Similarly, owing to the low literacy levels in their communities, the concept of mental illness is not well understood and is mostly stigmatized.

As a result, parenting teenagers are exposed to multiple psychosocial stresses such as stigma, discontinuation of their education, parental neglect, gender-based violence, financial strain, and discrimination (Patton et al., 2016). Moreover, these teenagers are oblivious of the available options, preventing them from getting help. Beguy et al. (2013) also examine the unique situation of the adolescent mothers living in Nairobi slums, providing insight into their struggles. The researchers note that the slum environment in characterized by poor social services and infrastructure, high rates of substance abuse, crime and unemployment, lack of recreational facilities, and poor schooling facilities (Beguy et al., 2013).

It is significant to note that when a mother suffers a mental disorder, she functions sub optimally and this may adversely affect her ability to bond with the infant which increases the risk of child morbidity and mortality (Woldetsadik et al., 2017). Further, mental disorders such as anxiety and depression contribute significantly to morbidity and mortality among adolescent girls in low- and middle-income countries (Silva & Surita, 2017). Of even greater significance, the complications experienced by teenagers during pregnancy and childbirth are the major factors contributing to high rates of mortality among adolescents and young women aged 15 to 19 years old (United Nations Population Fund [UNFPA], 2013). However, the specific factors associated with mental health problems in slum-

dwelling teenagers have not been adequately investigated. This study intends to provide in-depth insight into this problem, providing vital information to future scholars, medical practitioners, and policymakers.

1.3 Statement of the Problem

The rate of mental health disorders such as depression prenatal and postpartum is significantly higher among pregnant teenagers than their non-pregnant peers and older age group (Hodgkinson et al., 2010). Besides, adolescents from low-income backgrounds have been found to record more pregnancies and higher incidents of negative mental health outcomes, due to their socio-cultural environments (WHO, 2020). Present-day research also indicates that there is considerable discrepancy between the actual and presumed needs of Kenyan parenting teenagers, a situation that is attributable to the limited research examining this situation (Marangu et al., 2014).

While the effect of the environment on mental outcomes during teenage pregnancies and parenthood is widely recognized, few researchers have focused on the unique situation of the slum dwellers of Nairobi County (Musyimi et al., 2020). Consequently, there is limited knowledge about the impact of the slum culture, poor infrastructure, poverty, violence, and other factors on the mental outcomes of these parenting teenagers (Musyimi et al., 2020). Due to the challenging living conditions in slums, young mothers in Korogocho may face additional stressors that contribute to the development of common mental disorders.

Conducting studies on the factors associated with common mental health problems in teenage pregnancy and parenthood provides an opportunity for policy makers and other stakeholders to design effective evidence-based interventions, improving

the populace's health outcomes. This study, therefore, aims to document the factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County.

1.4 Objectives

1.4.1 General Objective

The study determined the factors associated with common mental health disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County

1.4.2 Specific Objectives

i. To determine the prevalence of common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County

ii. To assess individual factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County

iii. To establish socio-cultural factors aassociated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County

iv. To establish healthcare provision factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County

1.5 Research Questions

i. What is the prevalence of Common Mental Disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County?

ii. What are the individual factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County?

iii. What are the socio-cultural factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County?

iv. What are the healthcare provision factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County?

1.6 Justification of the Study

The projection that Sub-Saharan Africa will have the largest adolescent population in the world by 2050 highlights the urgent need to address the reproductive and mental health needs of pregnant and parenting teenagers in the region, (Osok et al., 2018). American Academy of Pediatrics (AAP, 2012) study on the Global Burden diseases, injuries, and Risk Factors, revealed that mental health disorders have been on the rise for more than 2 decades, and among the top ten contributor of the global health burden. Mental health has historically been overlooked as a public health issue in Kenya. However, the need to address mental health issues has been amplified in recent years evidenced by development and launch of the first national mental health policy to address the gaps in mental health care. Despite these efforts, there is still much work to be done to address the mental health needs of Kenyans, particularly in vulnerable populations such as pregnant and parenting teenagers in slums.

The fact that Kenya is a youthful country with over 11.6 million adolescents (KNBS, 2023) underscores the importance of addressing the mental health needs of this population. In addition, pregnancy and mental health disorders during adolescence are double vulnerabilities for negative outcomes not only for adolescents but also their offspring, (Julianah et al., 2022), hence, the pregnant teenagers are more predisposed to depression and other disorders by 25-42% (Musyimi et al., 2020). The teenagers' immediate environments, and the associated social risks such as increased insecurity and crime rates, overpopulation, unemployment, inadequate housing, illiteracy, poverty, and other negative childhood experiences increase both the likelihood of teenage pregnancy, and development of mental disorders (Corcoran, 2016). This view is supported by a study conducted by Kumar et al., (2018), which found that 55-80% of parenting and pregnant teenagers living in the Kenyan slums suffer from mental disorders, such as depression and anxiety.

Therefore, there is a need for further research to determine the association between these factors and common mental disorders among pregnant and parenting teenagers in Korogocho slums and to develop appropriate interventions to address the underlying factors which can contribute to poor mental outcomes among this vulnerable population.

1.7 Significance of the Study

The findings of the study would benefit the community, policy makers, and policy implementers to respond appropriately to the cohort's psychological health needs. In this respect, understanding how individual, community, health system, and family factors contribute to poor mental health outcomes in teenage pregnancy and

parenting was enable the government to provide comprehensive programs that cover these aspects (Marangu et al., 2014). It would also enlighten policy implementers on their contribution to the existing challenge empowering them to change their attitudes and service delivery techniques (Marangu et al., 2014). Similarly, it would raise community awareness about the psychiatric challenges faced by pregnant and parenting teenagers, garnering more support for this group. The results of the study will also benefit researchers by providing them with vital basic information, on which they can build their research on. In this regard, future investigators can use these results to determine the factors that need further study.

1.8 Limitations and Delimitations

Study Limitations

This study has some limitations that need to be put into consideration when interpreting the results. The study relied on self-report measures to assess the mental health status of the pregnant and parenting teenagers. This may result to inaccurate reporting of mental health symptoms due to the participants selective memory, exaggeration, and social desirability biases. The interviewer, however, asked probing questions in case the answers are inconsistent to increase the accuracy of data. The SRQ 20 questionnaire which was used for mental health assessment is a screening tool but not a diagnostic tool for common mental disorder. Therefore, the findings of these study show general manifestations of the common mental disorders and not specific clinical diagnosis.

Study Delimitations

This study has some delimitations that need to be considered. The study used a cross-sectional design, which only captures a snapshot of the mental health status of the participants at a particular point in time hence limited ability to establish causal relationships between variables. The participants of the focused group discussions were purposefully selected hence data saturation might not have been reached. The findings of the study may be limited in terms of generalizability to other populations or settings beyond Korogocho slums. This is because the study is based on a specific population with unique characteristics, such as socio-economic status, culture, and environmental factors that may not be representative of other populations.

1.9 Operational Definition of Variables

Common mental disorders: This term refers to a group of mental health conditions that are characterized by persistent symptoms of depression, anxiety, and post-traumatic stress disorder, alcohol, and substance abuse. In this study, common mental disorders were screened using the Self-Reporting Questionnaire (SRQ-20) and defined sets of questions were used to screen for alcohol and substance abuse and post-traumatic stress disorder.

Pregnant and parenting teenagers: This term refers to adolescent girls aged between 15 and 19 years who are either pregnant or have given birth and are raising a child. In this study, pregnant and parenting teenagers were identified through antenatal or postnatal clinic records.

Factors: In this study, factors refer to the different social, economic, and demographic variables that may be associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums. Examples of factors which were studied include age, education level, poverty, social support, and exposure to violence.

Association: Association refers to a statistical relationship between two or more variables.

Korogocho slums: This term refers to a low-income, informal settlement in Nairobi, Kenya, characterized by high levels of poverty, crime, and limited access to basic services such as healthcare, education, and sanitation.

Poverty- living on less than Kshs.190 per day.

Youth Friendly Health Services (YFRHS): refers to health services that are accessible, affordable, and meet the needs of adolescents. They are effective, safe, and are delivered at the right place, right price and in the right manner.

Social Support: Social support refers to the emotional, instrumental, and informational assistance that an individual receives from their social network, such as family, friends, and community members.

Intimate Partner Violence (IPV): IPV refers to physical, sexual, or psychological harm inflicted by a current or former intimate partner.

Substance Use: Substance use refers to the consumption of drugs or alcohol for non-medical purposes.

The name **Adolescent and teenager** was used interchangeably in this study to mean those aged 15-19years.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter comprehensively examined factors associated with common mental health disorders among pregnant and parenting teenagers between 15-19 years. The literature was reviewed under the following main sub themes: The prevalence of common mental health disorders among pregnant teenagers and parenting teenagers, individual, socio-cultural, and mental healthcare variables associated with common mental disorders among pregnant and teenage mothers. The researcher searched various databases such as PubMed, and PsycINFO to obtain literature. Keywords and key phrases such as teenage pregnancy, adolescent pregnancy and mental disorders, and common mental disorders were utilized to search topics related to the study. Bibliographies of identified papers were also examined.

2.2 Prevalence of CMDs

The prevalence of common mental disorders among pregnant and parenting teenagers is a growing concern in public health. In Sub-Saharan Africa Countries including Kenya, teenage pregnancy is a rampant public health issue that causes a substantial mental health burden (Osok et al., 2018). During pregnancy, the adolescent experiences stressful life events that increases their vulnerability to mental disorders and severe mental health outcomes (Patton, et al., 2016). According to Hodgkinson et al. (2014), pregnant and parenting teenagers may become depressed, engage in drug and substance abuse to the point of addiction, and may suffer posttraumatic stress disorder. Pregnant teenagers are at a high risk

of developing mental health conditions (Ali, et al., 2016). The genetics of CMDs among pregnant and parenting teenagers is an evolving area of research. While genetic predisposition may contribute to susceptibility, the complex interplay of genetics and environmental factors must be considered. While not specific to pregnant teenagers, an influential study by Lopizzo et al. (2015) demonstrates the interaction between genetic susceptibility and environmental stressors in the development of depression.

2.2.1 Depressive and Anxiety Disorders

Globally, it is estimated that 11-18% of women suffer from depression during pregnancy (Odejimi, 2011). Several studies have reported high rates of depression and anxiety disorders among pregnant and parenting teenagers. A systematic review and meta-analysis of 41 studies found that the prevalence of depressive symptoms ranged from 14% to 46% among pregnant teenagers and from 11% to 73% among parenting teenagers (Phipps et al., 2012). Another meta-analysis of 29 studies reported that the prevalence of anxiety disorders ranged from 12% to 52% among pregnant teenagers and from 11% to 56% among parenting teenagers (Field et al., 2017). Notably, many of these studies have been conducted in Western Countries. A national maternal and infant health survey report by Siegel and Brandon (2014) indicate that there is increased vulnerability to depression both prenatally and postnatally among American parenting teenagers compared with their adult counterparts. In the same Country, a study by Hodgkinson et al. (2010) reveals that depression increases by 16 to 44% among parenting adolescents than among nonpregnant adolescents and adult women whose depression rates ranges between 5% and 20%.

There have been recent studies across sub-Saharan Africa on the prevalence of depression in pregnancy in general with minimal focus on the adolescents. In Ghana, a study by Howard et al. (2014) posits an increased prevalence of depression antenatally while Bindt et al. (2012) estimates the same to be 33% in Cote d'Ivoire. Further to this, a cross sectional study conducted by Biratu et al. (2015) revealed a prevalence of antenatal depression of 24.94% by in Ethiopia and 39.5% in Tanzania (Kaaya et al., 2012). Depressive and anxiety disorders have emerged as the most common mental health disorders among teenagers (Nebhinani & Jain, 2019). The mental health issues present through behavioural challenges, such as suicidality and substance abuse. Nebhinani and Jain (2019) also note that stress and depression are more common among school-going teenage girls. Moreover, 40-90% of the teenagers affected by depression also have one or more comorbid psychological disorders, including personality, anxiety, substance abuse, and conduct disorders. Stress related, neurotic, and somatoform disorders are most common in teenage girls while substance abuse disorders are most common in boys (Nebhinani & Jain, 2019).

Depressive and anxiety symptoms among pregnant and parenting teenagers can have significant negative impacts on both the mother and the child. Maternal depression and anxiety can lead to poorer parenting practices, including less responsive and less nurturing behaviours, which can negatively impact the child's development (Goodman et al., 2011). Approximately 50% of teenage pregnancies are unintended, Kamari et al. (2013) hence heightened risk of maternal depression (Faisal-Cury et al., 2016). Several studies have revealed that poor mental health not only affects adolescent mothers but also their children. Hodgkinson et al. (2014) posit that parenting teenagers are more prone to suicidal ideation and

substance abuse. Additionally, depression among pregnant mothers is positively correlated to interpersonal conflict, increasing the risk of child abuse and neglect and compromising children's cognitive, emotional, and social functioning (Peterson & Albers, 2001). Besides, this populace is usually unresponsive to its infants' needs, leading to attachment disorders in the offspring (Hodgkinson et al., 2014).

In Kenya, Ongeri et al. (2016) conducted a study on depression among mothers attending maternal and child health (MCH) clinics in two high volume public health facilities in Nairobi County. The researcher documented an 18% prevalence of antepartum depression. Similarly, Wamuti (2008) in his master's dissertation, noted antenatal depression rate of 73% among expectant teenagers attending Pumwani maternity and City Council hospital in Nairobi. Several risk factors have been identified for depressive and anxiety symptoms among pregnant and parenting teenagers. These include social and economic factors such as poverty, low educational attainment, lack of social support, and family conflict (Field et al., 2017; Phipps et al., 2012).

It is notable that these studies focus on depression solely and leave out the other common mental health disorders. The studies are done within confides of the health facilities and therefore interacting with the study cohort within their residential environs might provide more insights on the in-depth of mental health problems experienced within their socioeconomic environs.

2.2.2 Suicidality

According to a study conducted by Sipsma et al. (2015), pregnant and parenting teenagers have an increased risk of experiencing suicidal thoughts compared to

their non-parenting counterparts. The study involved a systematic review of 16 articles that examined suicidal ideation and behaviour among pregnant and parenting adolescents. The findings revealed that pregnant and parenting teens were more likely to experience suicidal thoughts than their non-parenting peers.

Another study by Gavin et al. (2010) found that pregnant teenagers who reported high levels of depressive symptoms were more likely to have suicidal thoughts. The study involved a sample of 524 pregnant teenagers, and the results showed that those with more severe depressive symptoms had a higher risk of suicidal thoughts. Furthermore, a study by Gelaye et al. (2016) found that teenage mothers who experienced intimate partner violence (IPV) were more at risk of suicidal thoughts compared to those who did not experience IPV. The study involved a sample of 471 teenage mothers, and the results showed that those who reported experiencing IPV had a significantly higher risk of suicidal thoughts. A study by Musyimi et al. (2020) postulates that suicidal ideation is more prevalent among adolescent pregnant mothers in Kenya. There is minimal evidence on the prevalence of suicidality among pregnant and parenting teenagers in Korogocho slums, Nairobi County, hence the need to investigate and make informed preventive and control measures particularly in our community.

2.2.3 Alcohol and Substance abuse

Early childbearing is also associated with substance abuse. Still, few scholars have explored drug use among pregnant or parenting teenagers in Africa. In western Countries, a National Survey on Drug Use and Health (NSDUH) conducted in 2011-2012 found that approximately 18.3% of pregnant teenagers reported illicit drug use compared to the same age non-pregnant peers (13.8%). In addition, 11% of pregnant teenagers aged 15 to 17 reported alcohol use in the past month

(Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). Similarly, the Monitoring the Future study revealed that over 8% of pregnant teenagers had used illicit drugs in the past year (Johnston et al., 2020).

Whilst substance abuse in pregnancy is associated with low birthweight and other complications. A study by Salas et al. (2015) revealed that pregnant adolescent abuse drugs and substances more than adult counterparts. Additionally, it is more likely that if an adolescent begins substance abuse before pregnancy, she will continue throughout the pregnancy, (Wong et al., 2020). Several factors contribute to alcohol and substance abuse among pregnant and parenting teenagers. Peer pressure, lack of social support, and exposure to adverse childhood experiences (ACEs) have been identified as significant contributors (Barth et al., 2018). Additionally, socioeconomic disparities and cultural factors can influence substance abuse patterns (Elkington et al., 2016).

Alcohol and substance abuse during pregnancy pose serious health risks to both the mother and the developing foetus. Maternal risks include an increased likelihood of pregnancy complications, such as preterm birth and low birth weight (Strandberg-Larsen et al., 2019). Furthermore, the neonate faces potential adverse effects, including neonatal abstinence syndrome (NAS) in cases of opioid abuse (American Academy of Paediatrics [AAP], 2012). The long-term consequences for the child may encompass developmental delays, cognitive impairments, and behavioral problems (Guille & Aujla, 2019).

2.2.4 Post-Traumatic Stress Disorder

There is limited research on Post Traumatic stress Disorder (PTSD) in pregnant teens. However, a study by Surer Adanir et al. (2020) urgue that PTSD is more

frequent in pregnant adolescents compared to their non-pregnant peers and is mainly associated with traumatic childhood events. This can be exacerbated by the fact that being pregnant while still a teenager is culturally unacceptable hence pregnant and parenting teenagers face a higher risk of violence exposure at community and interpersonal levels (Kennedy & Bennett, 2006). In their study, they found out that on average, teenage mothers experience more than 5 traumatic events, including being physically attacked by partners, abandonment, mistreatment and cruelty by a parent, detention, and traumatic loss. This reveals the psychosocial turmoil that the pregnant and parenting teenager goes through. This predicament therefore highlights the need to understand the magnitude of mental health disorders among the study population and provide insights on areas of redress.

2.3 Individual Factors and CMDs

Mental health is considerably influenced by the individuals' social, economic, and physical environments, (Abera, 2014). In addition, the fact that majority of the adolescents' pregnancies are unplanned, and the mother is still young, not married and may be experiencing insufficient intimate partner support including spousal violence, may lead to developing mental health disorders among this study cohort. Therefore, the study assumes that having a higher education level, a stable job, a caring, dependable intimate partner, are protective factors from perinatal disorders.

2.3.1 Age

According to some researchers, depression is correlated to the age of the mother. According to Edward et al. (2012), teenage mothers suffer from high rates of depression both prenatally and postnatally. In Mexico, Alvarado-Esquivel et al. (2015) reveals strong heightened risk of prenatal depression among the young

mothers with the highestt rate of 56.3% among the 14 years old. On the contrary, studies in Western Societies found no relationship between maternal age and postpartum depression (Stewart et al., 2013). Other researchers argue that it is not the young age itself that contributes to mental health disorders but also the social relations and economic factors that add to the age factor (Dahmen et al., 2013).

In Kenya, Osok et al. (2018) posits that depression among pregnant adolescents in the urban informal settlements of Kenya correlate with the age of the girl. It is important to understand the magnitude to which age contributes to the mental health of adolescents to design age-appropriate interventions to prevent and control mental disorders among pregnant and parenting teenagers. Maternal age is also a risk factor for drug and substance abuse. The younger the mother, the higher the likelihood of engaging in drugs and substance abuse.

2.3.2 Level of Education

Access to education is significant to physical, economic, and social wellbeing. Hence, when a teenager gets pregnant while in school, she ends up dropping out of school to deliver and bring up her child. Her dreams of continuing with her education become limited resulting to poor mental health outcomes (Ki-Moon, 2016). The demand to balance between education and motherhood is a stressful and overwhelming experience to the young girl. During pregnancy, the pregnant teenager may face stigma and shame from peers and teachers (Osok et. al, 2018) and these may adversely affect the psychological wellbeing of adolescents. According to Ayamolowo (2019), pregnant women with higher education have lesser symptoms scores and lower probability of developing symptoms of anxiety and depressive symptoms than those with lower education.

2.3.3 Poverty and Financial Burden

Several researchers have found poverty to significantly contribute to the increased incidence of mental disorders among parenting teenagers. Adolescents and young people comprise a substantial percentage of the slum-dwelling population in Kenya (Beguy et al., 2013). Owing this fact, a significant proportion of pregnant and parenting teenagers are not financially stable and depend largely on economically struggling caregivers and young husbands which at times makes the adolescent to be viewed as burdensome and this predisposes them to suicidal ideation and depression (Musyimi et al., 2020). Besides, most of the adolescents are unemployed, and depend on their parents, guardians, or partners to support them meet their basic needs. If these needs are not met, the adolescent is psychologically affected and this may lead to depression (Osok et al., 2018). Similarly, a study by Hodgkinson (2014) found teen mothers residing in socially disadvantaged and low-income communities and families to be more impoverished and hence more predisposed to mental disorders.

2.4 Socio-cultural factors and CMDs

Teenage pregnancy is considered a social problem for both the teenager and their immediate kin. Many at times, if the teenager gets pregnant, she is rebuked or judged harshly or even disowned by those close to her and this may lead to denial of the pregnancy which increase the adolescent's risk of developing mental disorders such as anxiety (Kessler, 2012).

2.4.1 Lack of Social Support

Another common pattern among pregnant adolescents is one-sided support, where the teenager's mother provides primary social support while the rest of the family

members and the responsible partner keep off with little or no support in child's upbringing (Kumar et al., 2018). Decreasing stress and increasing social support to adolescents during pregnancy and parenting is a protective factor of negative mental health status including maternal depression (Huang et al., 2014). Various studies have been conducted to understand the effects of perceived support versus received support on the pregnant and parenting teenagers' mental health. At times, some adolescent mothers expect too much support after delivery, and this can lead to aggravated stress and depression postpartum (Hodgkinson, 2014). Pregnant women who experience low social support are vulnerable to substance abuse and developing mental illness, (Bedaso et al., 2021).

In some families, some parents of adolescent mothers often criticize and neglect them, causing them to miscarry, abort, or experience adverse birth outcomes (Musyimi et al., 2020). When the pregnant or parenting adolescent lacks family support, she becomes vulnerable to mental disorders such as anxiety disorders (Kessler, 2012). Positive relations with the child's father and parental figure have been linked to lower rates of depression among pregnant and parenting teenagers, (Edwards et al., 2012). Hence support from family members is essential in the eradication of mental difficulties among parenting teenagers.

2.4.2 Gender Based Violence (GBV)

GBV is a significant public health issue that affects women and girls globally. It can cause physical, psychological, and social harm, resulting in adverse health outcomes. Adolescent depression and mental health burden increase manifold when an adolescent experience some of the greatest inequality such as physical and sexual abuse in the household context (WHO, 2006). Gender based violence whether physical or sexual among pregnant teenagers is associated with depression

(Tzilos, et al., 2012). A report by the United Nations Children's Fund-Kenya (UNICEF-Kenya, 2010) indicated that 3 in every 4 Adolescents and Young women aged between 18 and 24 years have ever experienced violence before their eighteenth year. The existing social disparities among pregnant and parenting teenagers in Kenya pose a challenge to implementing a one-dimensional programme (Kimbui et al., 2018). In this regard, understanding the association of sociodemographic factors with mental health problems among this cohort is critical in designing evidence based and targeted interventions for preventing and addressing mental health disorders among pregnant and parenting teenagers.

2.4.3 Intimate Partner Violence and Rejection

Intimate partner violence (IPV) and family rejection increased the prevalence of psychiatric issues among parenting adolescents of which adolescent mothers are not only more vulnerable to IPV due to their partner choice but also more likely to tolerate abuse (Musyimi et al., 2020). Notably, teenage mothers whose male partners were ambivalent, and negative were at greater risk of depression and substance use (Kimbui, et al., 2018).

2.5 Healthcare Provision and CMDs

Despite this significant contribution of mental health disorders, less than one-tenth of contemporary countries have a mental health policy that caters for the needs of children and adolescents. Besides, mental disorders are prevalent during childhood and adolescence, yet insufficient attention is paid to this area of mental health (WHO, 2001).

2.5.1 Accessibility of youth friendly Health Services

In Sub Saharan Africa, access to and utilization of adolescent friendly services remain unsatisfactory and a challenge among the youth attributable to barriers such

as negative attitude and incompetency of health workers. Additionally, aadolescents have limited knowledge about these services (Ninsiima, 2021). In Kenya, there are limited adolescent responsive health clinics limiting the access to reproductive health services and predisposing them to morbidity and mortality (Mumah et al., 2014).

Recent trends of increasing mental disorders reveal that mental health care is significant to all, including the pregnant and parenting teenagers. However, teenagers find it challenging to seek mental health services particularly when pregnant and parenting (Leplatte et al., 2012). Apart from childbearing, pregnancy and parenting have reasons as to why they do not seek mental health services such as lack of confidentiality by healthcare providers (Akinambi et al., 2001). Besides, they may also decline seeking mental health care to avoid disclosing it to their parents.

2.5.2 Quality of Healthcare Services

Inadequate medical interventions have been shown to contribute to occurrence of mental disorders among parenting teenagers. According to Kumar et al. (2018), the standard treatment offered in Kenyan maternal and child health Centres (MCH) does not meet the young parents' needs. The medical practitioners in these facilities demonstrate negative attitudes and beliefs, compromising the quality of healthcare services provided to this cohort (Kumar et al., 2018). Consequently, the adolescents who visit these Centres contend with significant derision and shame within the institutions. The situation contributes to the population's marginalization and distress, exacerbating mental disorders.

2.5.3 Availability of mental Health Services

Provision of adolescents' mental health services in Kenya is suboptimal. According to Abera et al. (2014), mental health services are not prioritized in our health facilities and have inadequate skilled personnel to handle such cases. The workforce lacks the capacity to handle those suffering from mental disorders with barely one psychiatrist or psychologists serving over100, 000 population hence inadequate mental health coverage hence increased mental health for the adolescents (Osok et al., 2018). Maternal Health resources and care at primary health facilities are scarce (Osok et al., 2018) with less than 1% of all health resources allocated to mental health (Abera et al., 2014). This may affect the availability of these services to adolescents. The limited resources allocation to the mental health program reflects low prioritization of adolescent mental health whilst on the other hand, it remains a relatively understudied area not only in Kenya but also globally.

A study published in the International Journal of Mental Health Systems in 2020 found that integration of mental health services in Kenya was hampered by several factors, including a shortage of mental health professionals, limited funding, and stigma surrounding mental illness. The study also found that mental health services in Kenya were often fragmented, with services provided by different organizations, such as governmental, non-governmental organizations, and faith-based organizations, operating independently of each other. Therefore, there is need for integrating mental health services in all facilities to increase access and uptake of the same by the pregnant and parenting teenagers. Abera et al. (2014) emphasizes the importance of integrating medical, and psychosocial services in the health facilities to increase access of services by the teenage parents as well as enhance

their parenting skills. Therefore, to adequately address mental health burden in adolescents we require approaches that resonate with the cultures, systems, and structures in existence and are supported by community-based awareness (Kimbui, 2018).

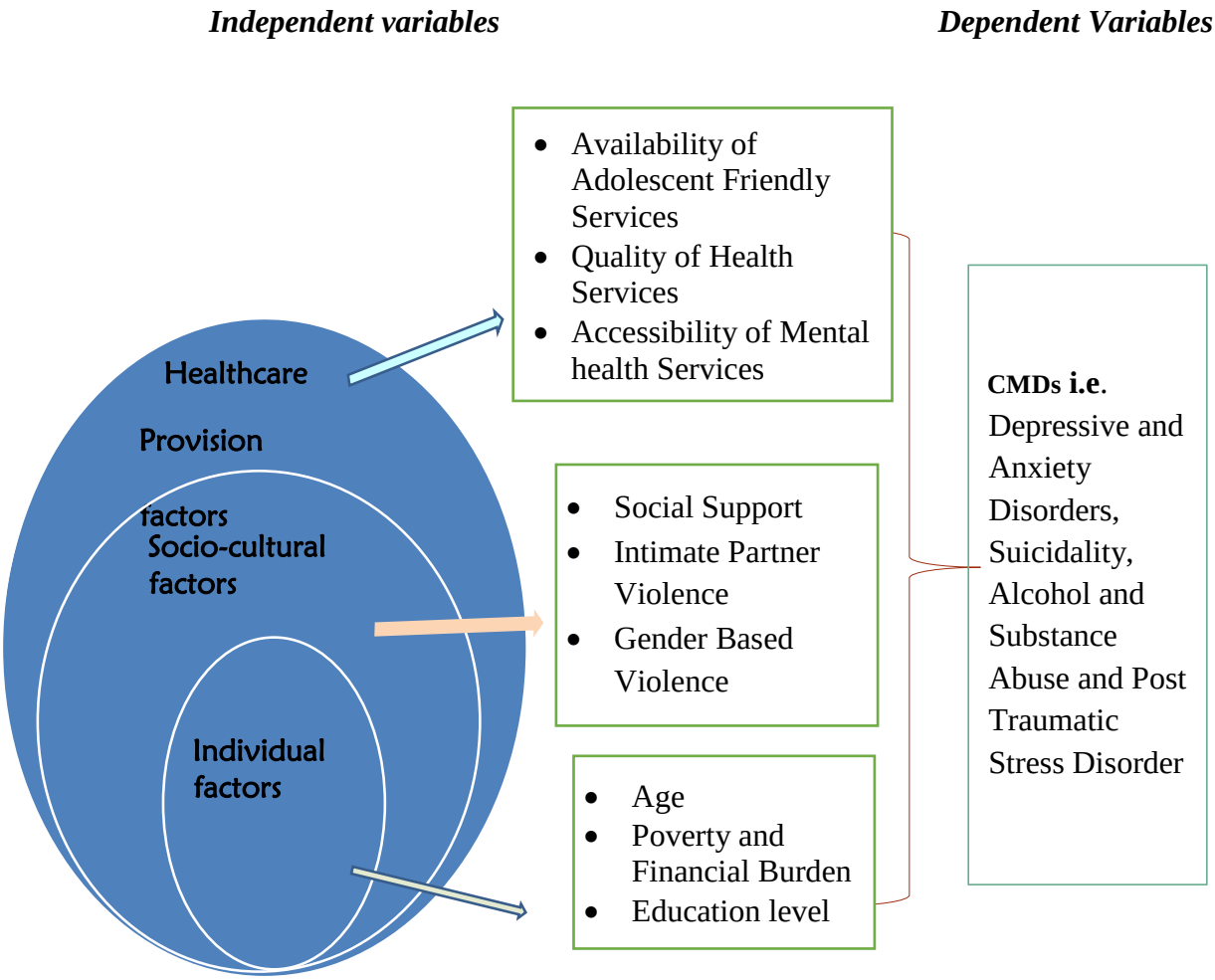
2.6 Theoretical Framework

This study utilized the ecological system theory to understand how various individual, social, cultural, economic, and healthcare related factors influence the mental wellness of pregnant and parenting teenagers in Korogocho slums. Ecological theory emphasizes on the importance of the environment in which an individual lives and how it influences their development. It suggests that individuals are embedded within various interconnected systems and environments which shape their experience and development. By employing this theory, the study recognises factors such as individual factors, socioeconomic factors and healthcare related factors interact and influence the mental wellness of pregnant and parenting teenagers within their ecological environment. Ultimately, the findings will inform policies, interventions and support systems that can address the multifaceted factors influencing the mental well-being of the study participants.

2.7 Conceptual Framework

Figure 2

Conceptual framework



Source: Researcher 2022

Research on mental disorders other than depression among teenage mothers either during pregnancy, childbirth or post-partum is profoundly lacking hence the need for further research (Hodgkinson, 2014). Further to this, few scholars have focused on the unique situation on the adolescent girls in the informal settlements of Kenya (Beguy et al., 2013). This study intends to bridge the gap of knowledge on the

prevalence of common mental disorders in teenage motherhood in the informal settlements of Nairobi while exploring the various factors that contribute to these mental health disorders. This provided insights to design interventions for preventing and controlling mental disorders among this cohort. The graphical and methodical representation shows the independent variable and dependent variables.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that includes the study design and target population, sampling methods, data collection procedures including the tools that was be used, how data was be analyzed, and the ethical principles that the study was put into consideration.

3.2 Study Design

Research design is the process that is used to investigate phenomenon to answer the research question of concern (Cresswell, 2014). This researcher adopted a descriptive cross sectional study design to assess factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums. Davies and True (2015) asserts that descriptive research is appropriate in undertaking studies among humans because it provides accurate facts through collecting data for hypothesis testing and responding to study questions. The design provided an in-depth analysis on association between independent variables which included individual factors, sociocultural factors, and healthcare services with dependent variables which were common mental disorders among pregnant teenagers and teenage mothers.

3.3 Study Population

According to Churchill and Cresswell (2014), a study population are cases that meet the required specifications of the study. The study population consistuted of pregnant and parenting teenagers, 15-19 years of age, residing in Korogocho

slums, Ruaraka Sub County in Nairobi County, Kenya, who sought antenatal and postnatal services in all the 11 health facilities in Korogocho slums.

3.4 Study Sampling

3.4.1 Sampling and Sampling Procedure

A sampling procedure refers to the method for choosing a part of the population to test the hypothesis of the study about the whole population and helps the researcher to select a reasonably representative part of the population.

The sampling unit consisted of all facilities in Korogocho which had antenatal and post-natal data in the Kenya Health Information System (KHIS). These 11 health facilities included: Comboni, Missionary Sisters Health Program, Kenwa VCT, Korogocho Health Centre, LVCT, Korogocho, Mama Margaret Uhuru Hospital, Mwangaza Ulio Na Tumaini, Ngomongo Healthcare, Ngomongo Dispensary, Provide Inter Math Dispensary, Provide International Korogocho, and Vision Peoples Inter Health Centre.

Table 3.1

The Study Population

Health Facility	Teenage Pregnancy and deliveries (15-19)
Comboni Missionary Sisters Health Program	0
Kenwa VCT	0
Korogocho Health Centre	240
LVCT Korogocho	0
Mama Margaret Uhuru Hospital	0
Mwangaza Ulio Na Tumaini	107
Ngomongo Healthcare	0
Ngomongo Dispensary	4
Provide Inter Math Dispensary	0
Provide International Korogocho	6
Vision Peoples Inter Health Centre	0
Study population	**357**

Out of the 11 registered health facilities, only 4 facilities recorded adolescents antenatal and postnatal visits in the Kenya Health Information system the year 2021. The 4 facilities therefore became the strata.

Table 3.2

Sampling units (strata)

Sampling Unit	Teen Pregnancies and deliveries (15-19)
Korogocho Health Centre	240
Mwangaza Ulio Na Tumaini	107
Ngomongo Dispensary	4
Provide International Korogocho	6

3.4.2 Sample Size Determination

Sample size refers to the number of individuals, items, or things chosen to participate in the study. It is a finite part of a population whose properties are assessed to gain information about the whole population. The study population was relatively small consisting of 385 recorded pregnant and parenting teenagers in all the 11 facilities in Korogocho slums; hence the Cochran formula for smaller populations was be applied to determining sample size. This allowed the researcher to compute a sample size with the desired degree of precision, level of significance and estimate the proportions of an attribute present in the population.

The following equation was used to determine the sample size of the smaller population.

$$n = \frac{\text{n0}}{1 + \frac{(n0 - 1)}{N}} = \frac{384}{1 + \frac{(384 - 1)}{357}} = 185$$

Where:

N is population size.

n is the sample size.

n_0 is Cochran's sample size recommendation (384)

By substituting the values to the equation, the sample size was computed to be **185.**

A proportionate stratified sampling technique was then applied to distribute the sample size across the strata. The proportionate stratified random sample was obtained using the formula below:

n = ***(sample size/ study population size)*** × ***stratum size***.

The sample was distributed across the four health facilities in Korogocho according to the proportioning column in Table 3.

Table 3.3

Proportion size per health facility

Healthy facility	Teen pregnancies and deliveries (15-19)	Proportion	Proportion size (n)
Korogocho Health Center	240	67.23%	124
Mwangaza Ulio Na Tumaini	107	29.97%	55
Ngomango Dispensary	4	1.12%	2
Provide International Korogocho	6	1.68%	3

The participants were then purposively selected from the Antenatal and Post natal Registers in the 4 facilities, contacted, and followed up in their households.

3.5 Instrumentation

3.5.1 Socio-demographic Questionnaire

Socio-demographic data such as the age, marital status, economic status, social support status, exposure to gender-based violence, history of alcohol and substance abuse, history of mental disorder prior pregnancy, and education background of the teenager were collected using a standardized questionnaire developed by the researcher piloted prior to data collection to test validity. The researcher clearly explained the purpose of the study and obtained consent from each participant.

Parental consent was sought for all adolescents who were below 18 years of age before administered the questionnaire. The face-to-face interviews were conducted in easily understandable language such as Kiswahili to accommodate respondents with low literacy level.

3.5.2 Self-reporting questionnaire (SRQ-20)

The Self-reporting questionnaire (SRQ-20), which is a WHO standardized screening tool used to identify common mental disorders (CMDs) in primary care settings. The SRQ-20 is a valid and reliable screening tool with several advantages, including ease of administration, good validity, and reliability, and can be used in a variety of settings. Its use can facilitate the detection and management of CMDs, particularly in low-resource settings (Ali et al., 2015). The researcher administered SRQ 20 questionnaire to the respondents to assess the prevalence of common mental disorders. The instrument has 20 standardized questions focusing on the last 30 days. Answers indicate presence or absence of symptoms which are categorised in four scales- anxiety and depressive symptoms, somatic symptoms, reduced vital energy, and depressive thoughts including suicidality. The researcher administered the 20 questions to the pregnant and breastfeeding teenagers and used a score of 8 as the cut off mark for mental disorder.

Validation studies have been conducted on more than 25 various tools for screening for any Common Mental disorders among which SRQ-20 demonstrated the strongest psychometric properties. In one of the validation studies, (Netsereab et al., 2018) reveals that SRQ-20 is a valid and reliable instrument which can detect cases of CMDs in a cost-effective manner. Studies conducted in India reported a sensitivity of 83.1% and specificity of 78.8% for the SRQ-20 in detecting CMDs ()

and a Cronbach's alpha coefficient of 0.85, indicating good internal consistency of the SRQ-20 (Ermiatis et al., 2022).

3.5.3 Interview guide

An interview guide was also developed to guide focused group discussions with the pregnant and parenting teenagers, key informants who included parents/guardians, Community health volunteers including community leaders. The focused group discussions were structured to collect information on individual, family and societal, and healthcare factors that contribute to CMDs. The guiding questionnaire was semi-structured a mix of open ended and closed ended questions to allow flexibility as well as focused responses and discussions.

3.6 Data Collection

Mixed methods of data collection were applied in this study- both qualitative and quantitative methods. The quantitative method was used to find the prevalence of common mental health disorders including post-traumatic stress disorders and Alcohol and substance abuse among pregnant and parenting teenagers in Korogocho slums in Nairobi County. The qualitative method provided in-depth understanding of any association between the various variables of interest and the development of common mental disorders among the study cohort. Pregnant and parenting teenagers identified through the facility records then followed up in their residential homes and upon consenting, primary data which was collected using the methods below:

3.6.1 Interviews

Interviews were conducted using structured questionnaires. The questionnaire was administered to them after explaining the purpose of the study and obtaining consent and assent. The researcher ensured confidentiality and ensured privacy while completing the questionnaire. The first section of the questionnaire collected

sociodemographic data such as the age, marital status, economic status, social support status, exposure to gender-based violence, history of alcohol and substance abuse, and education background of the teenager. The second section of the interview entailed the Self-reporting questionnaire (SRQ-20), which is a WHO standardized screening tool for common mental disorders (CMDs) in primary care settings. The SRQ 20 was used to identify pregnant and parenting teenagers who had depressive and anxiety symptoms while separate set of questions were used to assess post-traumatic stress disorder and alcohol and substance abuse. A Multidimensional Scale was used to assess social support for pregnant and parenting teenagers.

3.6.2 Focused Group Discussions

Three Focused group discussions were conducted as semi structured discussions guided by a pre-defined set of open questions. The focused group discussions sought to gather valuable insights on various aspects related to common mental health among pregnant and breastfeeding teenagers. The FGDs allowed for the collection of diverse perspectives and was useful in exploring group dynamics and shared experiences. The focused group discussions comprised of pregnant and parenting teenagers, parents/guardians, and community leaders. Purposive sampling was used to identify the key informants for the Focused group interview.

Each FGD consisted of 10 key informants who willingly participated and contributed their insights during the discussion. The discussions were also audio recorded with prior consent from the participants. The researcher adhered to ethical guidelines regarding participant confidentiality and informed consent and removed identifying information from the transcripts to protect participants' privacy.

3.7 Piloting

Pretesting of the tools was done to ensure the questions are well understood, culturally acceptable and answerable by the participants. Validity is the accuracy and truth of the research findings while reliability is the ability of the research to provide similar findings if repeated by another researcher or independent observer. Piloting of the research tools in Mathare slums which is adjacent and has similar characteristics with Korogocho slums. This sample size was selected to provide insights into clarity, and acceptability of the research tools. The researcher conducted face-to-face interviews and administered the questionnaire to 30 pregnant and parenting teenagers who were randomly selected. Descriptive statistics including frequencies and percentages were calculated to assess the clarity and acceptability of the questionnaire items. The pilot study found that the questionnaire was generally well received by the participants. They reported no difficulties in understanding or answering the questions. The questionnaire demonstrated good acceptability and clarity. This validation process contributed to the overall validity and reliability of the research.

3.8 Inclusion and Exclusion Criteria

To be eligible for inclusion, the participant had to be a pregnant or parenting teenager between 15 –19 years of age, able to communicate in Swahili or English and willing to participate and provide informed assent or consent as appropriate.

Table 3.4

The Inclusion and Exclusion Criteria

No.	Inclusion Criteria	Exclusion Criteria
1	15 - 19 Years old as per health facility records	Below 15 years or Above 19 years of age as per the facility records
2	Recorded in the antenatal or postnatal register within 1 year at the time of study	Recorded in antenatal or post-natal register more than 1 year ago at the time of the study
3.	Able to obtain parental consent for those below 18 years	Inability to provide parental consent for those below 18 years
4	Able to communicate in English or Swahili	Not able to communicate in English or Swahili
5	Willing to Participate in the study and provide informed consent	Decline to participate in the study or refusal to provide informed consent

3.9 Ethical Considerations

Ethical approvals were sought from the Post graduate Studies of KeMU, KeMU Ethical Review Committee and NACOSTI. The researcher also obtained permission from the National and County Administration to conduct the study in the study location. The study recognized that teenagers less than 18years are not adults according to the Constitution of Kenya. In line with standard ethical research guidelines, written informed consent was sought from the participants'

parents/guardians before interviewing and audio recording the pregnant and parenting teenagers. The respondents assented before participating in the interview. The FGDs were conducted in private set up to protect the confidentiality of the responses and enhance trust and comfort of the respondents. Owing to the sensitive nature of this information, participants were taken through the study objectives and were assured of confidentiality of their responses. Unique identifiers were used and access to the study questionnaires was strictly, limited to the investigators. Additionally, the study population and their parents were informed about the ways their data would be used. Their right to opt out at any given time of the study even if they had earlier consented.

Participants who manifested symptoms of common mental disorders were advised to seek medical attention in the nearest health facility for further screening and referral while their personal details were handled confidentially.

3.10 Data Management

Data collected was coded and stored in a computer, analyzed, for dissemination of the findings. The questionnaires were stored in a secure place to ensure confidentiality.

3.10.1 Data Entry

Quantitative data was manually checked for any incompleteness and inconsistencies by the investigators. Data collected was coded using study identification numbers in place of participants name to ensure confidentiality. The raw data was transformed into numerals to facilitate counting and tabulation. The organized data was then collated and cleaned and later analyzed using SPSS version 25.

3.10.2 Data Analysis

Descriptive analysis was done by calculating frequencies, and percentage distribution for categorical variables such as participants age, education level, marital status, income status and living arrangements. Inferential analysis was conducted using the chi- square test to determine if there was significant association between individual factors, socio-cultural factors, healthcare provision factors and common mental disorders. The Fisher's test was applied where the cell counts in the 2 by 2 contingency tables were less than 5. The inferential analysis enabled the researcher to draw conclusions about the association between the dependent and independent variables in the study. A P value of <0.05 was considered to be statistically significant. Qualitative data from the Focused group discussions was audio recorded then transcribed into written text which was then coded and organized into themes. The researcher then triangulated the findings to identify commonalities and variations by identifying recurring themes from the 3 discussions. Data was visualized using frequency tables and pie charts in line with the research questions and objectives.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The study findings are presented in this chapter in accordance with the study objectives. The results are interpreted and discussed with reference to literature review. The chapter contains the response rate as well as reliability results. Further, it presents descriptive statistical analysis results of study variables as well as; chi-square of independence and visualized using frequency tables.

A total of 185 pregnant and parenting teenagers were purposively sampled from the facility records out of whom 153 respondents participated in the study representing 82.7 % of return response.

Table 4.1

Respondents' response rate

Total sampled	**Response rate**	**Non-response rate**	**Comment**
185	83%	17%	Representative

Source: Researcher (2022)

This response rate exceeds the stipulations by Bryman (2012) who defines a response rate above 70% as representative of the population, and adequate for statistical data analysis. The high response rate would be attributed by sampling methods, informed consent form ethics, lessons learnt from pilot study and appointment arrangement with interviewee before data collection.

4.2 Demographic characteristics of the respondents

The study determined the respondents' characteristics. The results are presented in table 4.2 below:

Table 4.2

Demographic characteristics of the respondents

Variable	Frequency	Percent
Gender		
Female	153	100.0
Age		
(15-17) years	93	60.8
(18-20) years	60	39.2
Marital Status		
Single	114	74.5
Married	26	17.0
Separated	11	7.2
Cohabiting	2	1.3
Education level		
None	7	4.6
Primary	72	47.1
Secondary	70	45.8
Tertiary	4	2.6
Employment status		
Not employed	122	79.7
Self employed	19	12.4

Employed	8	5.2
In school	4	2.6
Living Arrangements		
Living alone	20	13.1
Living with parents	87	56.9
Living with partner	31	20.3
Living with relatives	15	9.8
Circumstances that led to pregnancy		
Peer pressure	67	43.8
Financial problems	53	34.6
Curiosity	18	11.8
Intended to be married	10	6.5
Raped	1	.7
Alcohol and substances abuse	4	2.6

Source: Researcher (2022)

The analysis showed that, there were only female respondents who participated in the study (153,100%). The findings on gender variable were expected since the study targeted only female respondents (pregnant and parenting teenagers) in Korogocho slums to establish their associated common mental health disorders (Ayamolowo et al., 2019). The analysis determined that more than half of the respondents were aged between 15 years and 17 years (93, 60.8%) compared to those in the age category of 18-20 years (n=60, 39.2%). Similarly, a qualitative investigation in slums of Kampala by Swahn et al. (2022) submitted that majority of adolescent pregnancies among sexually active girls are more likely to be between 14 years to 17 years. In terms of

marital status, there were four categories: single, married, separated, and cohabiting. According to the analysis, most participants were single (74.5%, n=114), while 17.0% (n=26), were married, 7.2% (n=11) were separated, and only 1.3% (n=2) were cohabiting. These findings revealed the vulnerabilities that adolescent girls face after getting pregnant including child marriages. The analysis supports findings from research conducted in Somalia that, majority of teenagers with pregnancy-related effects on mental disorders are single (Hassan, 2021).

Additionally, the findings in table 4.2 above, revealed that a high proportion of pregnant and parenting teenagers (n=72, 47.1%) had primary level of education while a substantial proportion had secondary education (n=70, 45.8%), 4.6% (n=7) had no form of education, and only 2.6% (n=4) had completed tertiary or higher education. These findings agree with World Health Organization report that pregnancy among adolescents tend to be higher among those with less education and of low economic status. (WHO, 2022)

The results also indicate that during the study, 28.8% of the respondents (n = 44) were pregnant, while 71.2% (n = 109) were parenting. This was expected since the study was focusing on pregnant and parenting teenagers.

The study findings show that the predominance of the respondents was not employed during the time of the study, (79.7%, n=122). Secondly, 12.4% (n=19) of the respondents were self-employed while 5.2% (n=8) of the respondents were employed and 2.6% (n=4) were at school during the time of the study. The study marries findings by Ali et al. (2016) who found that majority of the pregnant and parenting teenagers were not employed while the minorities were at school.

The findings show that, majority of the respondents were living with their parents during the study, (56.9%, n=87), the participants who were living with partners

during the study were (20.3, n=31). The results also show that (13.1%, n=20, 9.8%, n=15) of the respondents were living alone and with relatives respectively (Smith & Brown, 2019).

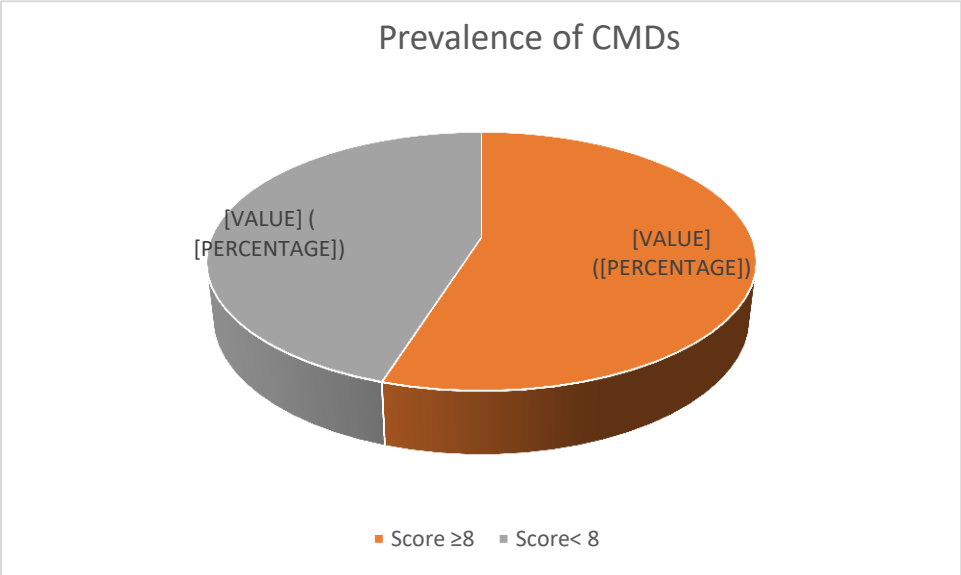
The study findings show that (43.8%, n=67) of the respondents got pregnant due to peer pressure, 53 (34.6%) due to financial problems, 18 (11.8%) due to curiosity while 10 (6.5%) intended to be married. Rape and alcohol abuse contributed to (0.7%, n=1) and (2.6%, n=4) of the pregnancy respectively. The findings agree with those of Psaki et al. (2021) that peer group and poverty and economic factors are key determinants to early marriages among school going students.

4.3 Prevalence of CMDs among the study participants

Self-reporting questionnaires 20 (SRQ-20) items were analyzed in-line with World Health Organization guidelines (WHO, 2017), where study participants who answered 'Yes' to at least 8 questions were classified to have manifestations of common mental disorder (CMD). Results indicated the prevalence of common mental disorders among the pregnant and parenting teenagers in Korogocho slums is n=84 (55 %), meaning slightly half of the respondents manifested symptoms of common mental disorders.

Figure 4.1

Prevalence of CMDs among pregnant and parenting teenagers in Korogocho slums



The SRQ 20 revealed that, more than half of the respondents manifested depressive and anxious mood, of which n=80 (52%) of respondents felt easily frightened, n=98 (64%) felt nervous, tense, or worried, n=89 (58%) felt unhappy and n=70 (46%) of the respondents cried more than usual thirty days to the study. These findings are in concurrence with East et al. (2017) who examined depressive symptoms in a sample of pregnant teenagers in the United States and found that nearly half of the participants reported depressive symptoms.

Additionally, significant proportion of the respondents manifested depressive thoughts in which n=73(48%) of the respondents reported inability to play a useful part in their life while a half of the respondents n=77 (50%) had lost interest in things and n=89 (58%) of the respondents felt worthy for the last thirty days to the study. These findings agree with study published in the Journal of Adolescent Health examined the prevalence of depression among 465 adolescent mothers. The study found that 38% of the participants reported symptoms of depression, and

depressive symptoms were associated with poorer parenting practices (Zachry et al., 2015). Notably, the study also found that n=46 (30%) of the respondents had a thought in their mind of ending their life within the last thirty days to the study. These findings are in tandem with the study conducted by Musyimi et al. (2020) which postulates that suicidal ideation is more prevalent among adolescent pregnant mothers in Kenya.

These results are also supported by the FGDs conducted with parents and community leaders which pointed out that the teenage mothers undergo psychological stress.

> *"I noticed something was wrong with my daughter when she started excluding herself from everyone and everything, at times she would talk to herself and even beat other offsprings for with no apparent reason. She also complained of headaches, feeling scared and dizziness, lack of sleep, and her heart beating so fast. She was just not her normal self-most of the time." Parent,* FGD2

> *"I notice teens are mentally ill when I see them stare at her hands for no reason. she will talk to herself and stand-alone for long in the office." Chief, FGD2*

4.3.1 Prevalence of Alcohol and substance abuse

The study sought to determine the prevalence of alcohol and substance abuse among pregnant and parenting teenagers in Korogocho slums, Nairobi County.

Table 4.3

Alcohol and substance abuse

Substance of abuse	No	Yes	Total
Alcohol	104 (68%)	49 (32%)	100%
Bhang	113 (74%)	40 (26%)	100%
Heroine	147 (96%)	6 (4%)	100%
Miraa	112 (73%)	41 (27%)	100%
Cocaine	147(96%)	6 (4%)	100%
Brown sugar	150 (98%)	3 (2%)	100%

Source: Data (2022)

The results in table 4.3 shows that, majority of the pregnant and parenting teenagers in Korogocho slums, Nairobi County had not engaged in alcohol and substance abuse, where n=49 (32%) of the respondents reported alcohol use while n=104 (68%) of the respondents were non-alcohol consumers, n=40 (26%) of the respondents were bhang smokers while n=113 (74%) non-bhang smokers, n=6 (4%) of the respondents had used heroine while n=147 (96%) did not use heroine. Further, n=41 (27%) of the respondents had used miraa while n=112 (73%) had not used miraa, n=6 (4%) of the respondents had used cocaine while n=147 (96%) had not used cocaine as well as n=3 (2%) of the respondents were brown sugar users while n=150 (98%) of the respondents were non-users. The study is in contrast with Gateri and Nyakwana (2018) who found that majority of the pregnant and parenting teenagers had engaged in alcohol and substance abuse.

The researcher also was interested in assessing the time the respondents started before getting pregnant, during pregnancy or after delivery. The results are as presented below:

Table 4.4

Time the respondents start using alcohol and substance abuse.

Responses	**Frequency**	**Percent**
Before pregnancy	46	80.7
During pregnancy	7	12.3
After delivery	4	7.0
Total	**57**	**100.0**

Source: Data (2022)

The findings of Table 4.4 shows that majority of those who abused alcohol and other substances, n=46 (80.7%) started prior to pregnancy, n=7 (12.3%) began alcohol and substance abuse during pregnancy while n=4 (2.6%) began alcohol and substance abuse after delivery. The study corroborated with Addila, et al. (2021) who found that majority of the women engaged alcohol and substance abuse before pregnancy and Hser et al. (2014) who found that adolescent mothers who reported substance use prior to pregnancy were more likely to continue using substances during pregnancy and postpartum. On the contrary, the study contrast with Abera et al. (2014) who found that majority of the women engaged in alcohol and substance abuse during pregnancy.

4.3.2 Prevalence of Post traumatic stress disorder

The study sought to assess the prevalence of post-traumatic stress disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County. The researcher interviewed the respondents on whether they have ever experienced a life-threatening event that caused intense fear, helplessness, or horror.

Table 4.5

Life threatening event that caused intense fear, helplessness, or horror.

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	77	50.3	50.3	50.3
no	76	49.7	49.7	100.0
Total	153	100.0	100.0	

Source: Researcher (2022)

According to table 4.5 above, the study found that, slightly half of the respondents n=77 (50.3%) had experienced or witnessed a life-threatening event that caused intense fear, helplessness, or horror while the rest of the respondents n=76 (49.7%) did not experience or witnessed any of the life-threatening event that caused intense fear, helplessness, or horror. The study is anchored by Musyimi et al. (2020) who found that pregnant and parenting teenagers had experienced life-threatening events that caused fear and helplessness, unwanted nightmares, and flashbacks. A set of questions were administered to the participants to assess PTSD Symptoms.

Table 4.6

Unwanted nightmares and flashback

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	77	100	100	100
No	0	0	0	0
Total	77	100.0	100.0	

Source: Researcher (2022)

The findings in table 4.6 show that all the respondents 100% (n=77) who reported to have experienced a life-threatening event had unwanted nightmares, flashbacks. The study corroborated with Ermiatis et al. (2022) who found that majority of the pregnant and parenting teenagers had experienced nightmares or felt that they are in life-threatening situations. The study findings also agree with a study published in the Journal of Adolescent Health which found that pregnant adolescents who reported a history of traumatic events were more likely to experience symptoms of PTSD (Dunkel et al., 2012).

4.4 Association between Individual factors and CMDs

4.4.1 Age and common mental disorders

The study analyzed the age variable to determine whether maternal age had an association with common mental disorders. The findings are presented in the table below:

Table 4.7

Association between age and CMDs

Variable		Age		Chi-square /Fisher's exact values	P-value
		15-19 (%)	20-24 (%)	(2, 153) = 2.093	0.351
CMDs	No	99 (53.6)	2 (44.9)		
	Yes	52 (61.9)	0 (38.1)		

Source: field data (2022)

The findings in table 4.7 show no significant association between age and common mental disorders. These findings concur with studies in Western Societies which found no relationship between maternal age and postpartum depression (Stewart et al., 2013).

4.4.2 Level of education and CMDs

The study further sought any association between education variable and common mental disorders among the pregnant and parenting teenagers in Korogocho slums, Nairobi County.

Table 4.8

Association between the education level and CMDs

Variables		**Common mental disorder**		**Chi-square / Fisher's exact values**	**P-value**
		No (%)	Yes (%)		
Education level	None	2 (25.0)	6 (75.0)	(3, 153) =5.451	0.142
	Primary	14 (35.9)	25 (64.1)		
	Secondary	46 (47.9)	50 (52.1)		
	Tertiary and above	7 (70.0)	3 (30.0)		

Source: Field data (2022)

According to table 4.8 above, there is no significant association between the education level and common mental disorder (χ^2 (3, 153) = 5.451; P-value = 0.142). These findings contrast with those of Fergusson et al. (2005) who found out that early onset mental health problems were associated with a range of adverse outcomes, including lower educational attainment.

4.4.3 Financial burden and CMDs

By identifying the source of income and monthly income, the study aimed to better understand any association between the financial situation of pregnant and parenting teenagers living in the slums of Korogocho in Nairobi County and CMDs

Table 4.9

Association between income and CMDs

Variables		**Common mental disorder**		**Chi-square**	**P-value**
		No (%)	Yes (%)	(3, 153) =	0.017
Source of income	Not employed	19 (32.8)	39 (67.2)	10.198	
	Self-employed	19 (47.5)	21 (52.5)		
	Employed	29(61.7)	18 (38.3)		
	In-school	2 (25.0)	6(75.0)		

Source: Field data (2022)

The relationship between common mental disorder (CMD) and the respondent's source of income was assessed using Chi-square. The violation of assumption; a cell value of specific variable greater than or equal to 5 was checked. From the results in table 4.9 above, there is significant association between common mental disorder (CMD) and source of income at 95% confidence interval; p-values<0.05 ($\chi^2(3, 153) = 10.198$; P-value= 0.017). These was considerable agreement with

these findings according to the FGDs with parents and community leaders. Some respondents cited poverty as key contributor to mental disorders.

> *"When these teen mothers lack personal effects, medicines, diapers, and food for their children feel mentally ill." Village elder,* FGD3.

These findings agree with the study of Scott et al. (2019) who found that that adolescent mothers with lower income were more likely to report symptoms of depression and anxiety and (Howard et al., 2017) who found that lower income was associated with a higher risk of depression among adolescent mothers.

4.5 Association between Socio cultural factors and CMDs

The third study objective was to determine any association between family and community factors and common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County.

4.5.1 Social support

The study sought to establish who provides primary social support during parenting stage of the child. The results are shown below:

Table 4.10

Source of Social support for pregnant and parenting teenagers

Response	Frequency	Percent
Myself	38	24.8
Parents	54	35.3
Relatives	12	7.8
The child's father	22	14.4
No response	27	17.6
Total	153	100.0

Source: Field data (2022)

According to the findings in table 4.10, 54 (35.3%) of respondents indicated that parents looked after the respondents' children. This supports the findings that one-sided support is a common pattern among pregnant adolescents, where the mother of the teenager provides most of the social support while the rest of the family and the responsible partner refrain from providing much needed or any support for the child's upbringing (Kumar et al., 2018). Contrarily, some parents of adolescent mothers frequently criticize and neglect them, according to (Musyimi et al., 2020), leading to miscarriages, abortions, or unfavorable birth outcomes. This was clearly demonstrated by the study results, which showed that nearly half of the respondents 38 (24.8%) cared for their children on their own, while 12 (7.8%) and 22 (14.4%) left their children in the care of family members or their father. These findings were complemented by the focused group discussions where some pregnant and parenting teenagers reported that at first, parents and other family members disowned them and punished them.

"When I became pregnant, my mother told me to leave the house and go to child's father at night." Pregnant Teen, FGD1.

However, others said they received support in terms of momentary, feeding and diapers from their parents.

"Our mothers support us in taking care of the pregnancy and child" Parenting Teen." FGD1.

The study used multidimensional scale of perceived social support to determine how family support and partner support by rating in the intervals.

Table 4.11

Association between the social support and CMDs

Variables		**Common mental disorder**		**Chi-square value**	**P-value**
		No (%)	Yes (%)		
Social support	Myself	9 (23.7)	29 (76.3)	(3, 126) = 12.983	0.005
	Parent	32 (59.2)	22 (40.7)		
	Relatives	5 (41.7)	7 (58.3)		
	Child's father	13 (59.1)	9 (40.9)		

Source: Field data (2022)

The chi-square analysis was conducted as demonstrated in table 4.11 above, to establish the association between social support and common mental disorders. A

cell value of specific variable was greater than or equal to 5, hence no violation of assumption. From the results, there is significant association the social support and common mental disorder at 95% confidence interval; p-values<0.05 ($\chi^2(3, 126) = 12.983$; P-0.005). These findings agree with studies conducted by (Gateri & Nyakwana, 2018; Yim et al., 2021). These studies found that family support was positively associated with maternal well-being among adolescent mothers. Specifically, emotional support, instrumental support, and informational support from family members were all associated with lower levels of depression and higher levels of self-esteem among adolescent mothers.

The study used multidimensional scaling of perceived social support by the family by using an interval scale.

Table 4.12

Family support

	Strongly agree	**Agree**	**Disagree**	**Strongly Disagree**	**Mean**	**SD**
FAMILY SUPPORT						
My family really tries to help me	58 (38%)	67 (44%)	15 (10%)	14 (9%)	3.11	2.71
I get the emotional help and support I need from my family	55 (36%)	55 (36%)	29 (19%)	14 (9%)	3.01	2.63
I can talk about my problems with my family.	49 (32%)	50 (33%)	38 (25%)	17 (11%)	2.87	2.52
My family is willing to help me make decisions.	58 (38%)	67 (44%)	15 (10%)	14 (9%)	3.00	0.08
					3.11	0.71

According to the findings in the table 4.12 above, the aggregate mean value was 3.11. This meant that most of the respondents agreed that they receive support from their families. A Standard deviation above 1.0 was used to mean deviation

from the normal. In this instance, the aggregate SD was 0.71 which is less than 1.0 hence the answers were within the normal.

4.5.2 Intimate Partner Violence and CMDs

Table 4.13

Association between intimate Partner Violence and CMDs

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	27.755	1	.000		
Continuity Correction	25.970	1	.000		
Likelihood Ratio	29.512	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	27.560	1	.000		
N of Valid Cases	142				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.29.

Chi-square analysis and Yates' continuity correction reported. The findings in table 4.13 submit that there is significant association between the IPV and CMD ((χ^2(1, 142) = 25.970; P-value= 0.000). These findings concur with the study conducted

by Ludermir et Al. (2014) who found that being assaulted or abused by someone who is intimate can trigger feelings of helplessness, hopelessness, and depression.

4.5.3 Gender based violence and CMDs.

The study assessed respondents' experiences with physical, sexual, and emotional abuse pre, during and after pregnancy which would probably expose them to common mental disorders.

4.5.3.1 Physical abuse

The study sought to establish if the respondent experienced physical abuse before pregnancy, during pregnancy and after delivery. Results presented in table 4.14.

Table 4.14

Proportion of respondents who had experienced Physical abuse.

Physical abuse experience	No	Yes	Total
Before pregnancy	112 (73%)	41 (27%)	100%
During pregnancy	118 (77%)	35 (23%)	100%
After delivery	115 (75%)	38 (25%)	100%

Source: Field data (2022)

The findings in table 4.14 show that, 112 (73%), 118 (77%) and 115 (75%) of the respondents did not experience any physical form of abuse before pregnancy, during pregnancy or after pregnancy respectively. On other hand, 41 (27%) of the respondents were physically abused before pregnancy, 35 (23%) were physically abused during pregnancy while 38 (25%) of the respondents were physically abused after pregnancy. The study findings show higher prevalence than the that of a study conducted by the Centers for Disease Control and Prevention (CDC) found

that nearly 10% of pregnant teenagers reported experiencing physical abuse during their pregnancy.

4.5.3.2 Sexual abuse

The study sought to establish cases of sexual abuse among the respondents before pregnancy, during pregnancy and after delivery.

Table 4.15

Proportion of respondents who had experienced Sexual abuse.

Sexual abuse	No	Yes	Total
Before pregnancy	110 (72%)	43 (28%)	100%
During pregnancy	118 (77%)	35 (23%)	100%
After delivery	115 (75%)	38 (25%)	100%

Source: Field data (2022)

The results from table 4.15 shows that, 43 (28%) of the respondents were sexually abused before pregnancy,35 (23%) was sexually abused during pregnancy and 38 (25%) were sexually abused after delivery, while the study also shows that, (110 (72%), 118 (77%) and 115 (75%) of the respondents were not sexually abused before pregnancy, during pregnancy and even after pregnancy respectively. The study's findings show higher prevalence than that published in the Journal of Adolescent Health in 2019 which found that among a sample of pregnant and parenting teens in the United States, 13% reported experiencing sexual abuse during pregnancy.

4.5.3.3 Emotional abuse

The study sought to establish the proportion of respondents who experienced emotional abuse before pregnancy, during pregnancy and after delivery. Results were as presented in table 4.16 below:

Table 4.16

Proportion of respondents who had experienced emotional abuse.

Emotional Abuse	No	Yes	Total
Before pregnancy	98 (64%)	55 (36%)	100%
During pregnancy	77 (50%)	76 (50%)	100%
After pregnancy	109 (71%)	44 (29%)	100%

Source: Field data (2022)

The results in table 9 shows that, (98 (64%), 77 (50%) and 109 (71%) of the respondents did not experience any emotional abuse before pregnancy, during pregnancy and after pregnancy respectively, while 55(36%) were emotionally abused before pregnancy, 76(50%) of the respondents were emotionally abused during pregnancy and 44 (29%) of the respondents were emotionally abused after pregnancy. Emotional abuse was highlighted by the parents of teenage mothers during the FGD.

> *"Because of my husband's disapproval to support the daughter, I became harsh to her and hence while, the teen felt discriminated from family." Parent,* FGD2.

"When I went to give birth, nurses beaten me asking who asked to be pregnant at your tender age which mentally stressed me". Parenting teenager, FGD 1.

Additionally, according to the key informants, the community perceives teenage mothers as rebels hence ostracized by society.

"H*er mother said she is not going to stay with her daughter in the same house because she went against community expectations". Majority of the respondents said the teen mothers feel separated hence mental disorders. CHV,* FGD3

"The community referred me as a bad example and my friends were asked not to associate with me anymore, which stressed me a lot". Parenting teenager, FGD 1

These findings are also in tandem with the study findings published in BMC Pregnancy and Childbirth in 2018 which found that 34.5% of the pregnant and parenting teens in Nigeria experienced emotional abuse.

Table 4.17

Association between the gender-based violence and CMDs

Gender based violence and CMD	Chi-square values	P-value
Physical abuse before pregnancy	19.006	<0.001*
Physical abuse during pregnancy	21.169	<0.001*
Physical abuse after delivery	26.173	<0.001*
Sexual abuse before pregnancy	13.896	<0.001*
Sexual abuse during pregnancy	5.208	0.035*
Sexual abuse after pregnancy	8.405	0.003*

***Significant at 95% Confidence Interval (CI)**

Source: Field data, 2022

The Chi-square analysis results in table 4.17 above demonstrates that there is significant association between all forms of the gender-based violence and common mental disorder. These findings are aligned with the focused group discussion where some respondents highlighted mistreatment by family members as a stressor to the adolescent mother. The chief recorded that,

> *"Majority of suicidal cases in my areas among teenage mothers are as a result of mistreatment from their parents" Chief,* FGD3.

These results are also in tandem with a study conducted in South Africa which found that adolescent girls who experienced GBV were more likely to report symptoms of depression and anxiety (Machisa et al., 2017).

4.6 Association between Healthcare services and CMDs

The study's fourth objective was to determine the relationship between the respondent's experience with health care services and common mental disorders. The assessment sought any association between accessibility of adolescent friendly services and CMDs, quality of health care services and CMDs, and availability of mental health care services and CMDs during pregnancy and after delivery.

Table 4.18

Attendance of Antenatal Health care clinic among the respondents

Response	Frequency	Percent
Yes	144	94.1
No	9	5.9
Total	153	100.0

Source: Researcher (2022)

The findings in table 4.18 show that 144 (94.1%) of the respondents attended antenatal clinic when they got pregnant while 9 (5.9%) did not attended antenatal clinic when they got pregnancy. Some respondents submitted that lack of knowledge, lack of medical supplies and counselling services on when these teens should access these services as the reasons for not attending antenatal services. One of the respondents said,

> *"My daughter refused to attend clinic due to lack of counselling services where even the nurses are totally unfriendly in our nearest facility." Parent,* FGD2.

"I don't go to health facility because no medicines and have spent my money as fare." Pregnant teenager, FGD 1.

"*When we go to health facilities, we were not counselled rather being despised by nurses". Pregnant teenager, FGD 1.*

The study contrasts with the findings of a study conducted by Geerts, 2021 which found majority of teenagers do not use antenatal clinic because they fear shame and exposure.

4.6.1 Healthcare provision during pregnancy

Further, the study sought to establish the Availability of mental health services, Quality of health care services and accessibility of Adolescent friendly health services for pregnant teenagers during pregnancy.

Table 4.19

Healthcare services during pregnancy

Statement	No	Yes	Total
The health services were good and affordable	38 (25%)	115 (75%)	100%
I was offered mental counselling services	57 (37%)	96 (63%)	100%
The healthcare providers were responsive to my need	47 (31%)	106 (69%)	100%
The adolescent friendly services were available	75 (49%)	78 (51%)	100%

Source: Researcher (2022)

According to table 4.19 above, 115 (75%) of the respondents admitted that the health services were good and affordable during pregnancy, while 38 (25%) of the respondents did not find the services good and affordable. 96 (63%) of the respondents admitted that they were offered mental counseling services during pregnancy while 57 (37%) said they did not receive mental counselling services. Moreso, 106 (69%) of the respondents stated that the healthcare providers were responsive to their need during pregnancy while 47 (31%) of the respondents had a contrary statement. Slightly above half of the respondents 78 (51%) accepted that the adolescent friendly services were available during pregnancy while the rest of the respondents 75 (49%) felt that the health services were not adolescent friendly during pregnancy. Furthermore, the majority of CHVs reported that health facilities are not available to serve the teens in Korogocho estate. They added that the available facilities have unfriendly health providers.

> "*Sometimes, the health providers are unfriendly with teen mothers when we take them for delivery/childbirth" CHV,* FGD3.

They also added that the age variation between teen mothers and adult nurses and unfriendly behaviour of the health providers makes teens to be mentally stressed and ill.

> "*When I went to give birth, nurses beaten me asking who asked me to be pregnant at a tender age which mentally stressed me." Parenting Teen,* FGD1.

Others reported that they were treated well. However, during delivery majority felt how they way they were treated by health provider depended on which health facility they attended. Some CHVs also admitted the negative practices by some of their peers which discouraged adolescent mothers from going to the health facilities.

> *"Some of us as CHVs are not confindential and private with teen mothers' issues hence teens prefer going for such guidance and counselling services far from their community" CHV,* FGD3.

These findings dispute the study by Leplatte et al. (2012) who found that teenagers find it challenging to seek mental health services particularly when pregnant and parenting. Pregnant and parenting teenagers often seek health services but encounter challenges which discourage them from accessing the services.

Table 4.20

Association between healthcare provision during pregnancy and CMDs

Variables	Chi-square/ Fisher's exact values	P-value
Availability of adolescents' friendly services and CMD	8.777	0.004*
Offered mental health counseling and CMD	0.307	0.610
The healthcare providers were responsive to my need	3.146	0.076
Good and affordable health's services and CMD	5.224	0.035*

*Significant at 95% Confidence Interval (CI)

Source: Field data (2022)

The chi-square analysis was conducted to establish the association between quality of health services during pregnancy and common mental disorders. A cell value of specific variable was greater than or equal to 5, hence no violation of assumption. From the results, Availability of adolescents' friendly services and Good and affordable health's services were found to be significantly associated with common mental disorders at 95% confidence interval; p-values<0.05 was found ($\chi^2(1, 153) = 8.777, 5.224$; P-0.004, 0.035) respectively. These findings support the systematic review published by WHO in 2018 which found that adolescent-friendly healthcare services are associated with improved mental health outcomes among adolescents, including a reduced risk of depression and anxiety.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study findings, discussion of the findings, conclusions and finally recommendation. It also gives suggestions for further research.

5.2 Summary of the study

This section covers the purpose of the study, methodology and the study findings in a summarized manner. The main goal of this study was to determine the factors associated with common mental health problems among pregnant and parenting teenagers in Korogocho slums, Nairobi County. The research was guided by four objectives; To determine the prevalence of common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County; to assess individual factors associated with common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County ; to establish any association between socio-cultural factors and development of common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County; to establish any association between healthcare services and common mental disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County. The study findings were as follows:

5.2.1 Prevalence of common mental disorders among pregnant and parenting teenagers

The study findings show that more than half of the pregnant and parenting teenagers in Korogocho slums suffer common mental health disorders. Further, a

significant number use alcohol and substances such as miraa, and bhang of whom majority begin prior to pregnancy.

5.2.2 Association between Individual factors and CMDs among pregnant and parenting teenagers

In this study, attributes for individual factors of the sample were: age, education level and poverty and financial burden. The study findings show no significant association between age and common mental disorders. These findings concur with study conducted by Stewart et al., 2013. On the contrary, the study findings contrast with those of Fergusson et al. (2005) who found out that early onset mental health problems were associated with lower educational attainment.

Poverty was found to be significantly associated with CMDs. Adolescents who had low- or no-income sources manifested symptoms of CMDs than those who had higher income sources These findings agree with the study of Scott et al. (2019) and (Howard et al., 2017) who found that that adolescent mothers with lower income were more likely to report symptoms of depression and anxiety.

5.2.3 Association between sociocultural factors and CMDs among pregnant and parenting teenagers

In this study, attributes for sociocultural factors included: lack of social support, and gender-based violence. The study reveals significant association between social support and CMDs among the study cohort. These findings agree with studies conducted by Frias et al. (2021) and Yim et al. (2021) who found that family support was positively associated with maternal well-being among adolescent mothers. Moreso, the study found a significant association between gender-based violence and CMDs. These results are in tandem with a study conducted in South Africa which found that adolescent girls who experienced

GBV were more likely to report symptoms of depression and anxiety (Machisa et al., 2017).

5.2.4 Association between Healthcare services and CMDs among pregnant and parenting teenagers

The study's fourth goal was to determine the relationship between the Healthcare services and common mental health disorders. The study established the pattern of health services uptake among the respondents during pregnancy. The findings show that the majority of pregnant teenagers attend antenatal care clinic. Further the study sought to establish association between accessibility of adolescent friendly services, quality health services and availability of mental health services for the participants. According to the study findings, there was a significant association between adolescent friendly health services and CMDs. Additionally, there was a significant association between the quality of health services and CMDs. However, on the contrary there was no significant association between availability of mental health services and CMDs among the pregnant and parenting teenagers. These findings support the systematic review published by WHO in 2018 which found that adolescent-friendly healthcare services are associated with improved mental health outcomes among adolescents, including a reduced risk of depression and anxiety.

5.3 Conclusion

5.3.1 Prevalence of common mental disorders among pregnant and parenting teenagers

The study concludes that the prevalence of common mental disorders among pregnant and parenting teenagers in Korogocho slums is significantly high hence measures need to be taken to prevent and respond to them. The study also

concludes that less than half of the pregnant and parenting teenagers in Korogocho slums do not engage into alcohol and substance such as bhang and miraa. However, there are needs to have interventions on preventing drug and substance abuse among teenagers since those who were found to abuse substances started way before pregnancy.

5.3.2 Association between Individual factors and CMDs among pregnant and parenting teenagers

The study concludes that there is no significant association between age or education level and common mental disorders among pregnancy and parenting teenagers in Korogocho. However, adolescent mothers with lower income are more likely to suffer common mental disorders. Income generating interventions for the pregnant and parenting teenagers can contribute significantly to their mental well-being.

5.3.3 Association between sociocultural factors and CMDs among pregnant and parenting teenagers

The study concludes that social support, and gender-based violence are significantly associated with common mental disorders among pregnant and parenting teenagers. Adolescents who receive support from their parents are less likely to develop common mental disorders compared to those who do not receive or perceive social support. Hence, there is need to strengthen the social support systems at the community level for pregnant and parenting teenagers to cushion them from common mental disorders.

5.3.4 Association between Healthcare services and CMDs among pregnant and parenting teenagers

The study concludes that availability of adolescent friendly services and provision of quality health care services that are responsive to the needs of the pregnant and parenting teenagers significantly reduces the likelihood of development of common mental disorders among this cohort. The quality of mental health services should be evaluated to ensure that they protect pregnant and parenting teenagers from developing common mental disorders.

Finally, the study concluded that, qualitative analysis results interconnected with quantitively analysis results.

5.4 Recommendation

This study makes recommendations to the participants, the policy makers and implementers and other researchers.

5.4.1 The policy makers and the government should:

1. Provide comprehensive healthcare services that integrate mental health, alcohol, and substance abuse in the Antenatal Clinics to meet the needs of pregnant and parenting teenagers.
2. Undertake Mental health awareness creation campaigns including available mental health services.
3. Prioritize Community based programmes such as psychosocial support groups and income generating programmes should be prioritized to cushion the pregnant and parenting teenagers from psychosocial impact due to lack of socio-economic support.

4. Conduct an assessment on the effectiveness of the established adolescent friendly services to ensure they are responsive to the needs of the adolescents.
5. Provide trainings and mentorship programmes for healthcare providers to enhance their capacity to provide services that respond to the needs of the pregnant and parenting teenagers.

5.4.2 The other researchers should:

1. Conduct similar studies in other slums in Kenya as well as in rural set up to establish other factors that might be associated with common mentally illness.
2. Conduct studies to determine the impact of mental disorders among pregnant and parenting teenagers.

REFERENCES

Abera, M., Tesfaye, M., Belachew, T., & Hanlon, C. (2014). Perceived challenges and opportunities arising from integration of mental health into primary care: a crosssectional survey of primary health care workers in south-west Ethiopia. *BMC health services research, 14*(1), 113-123. https://doi.org/10.1186/1472-6963-14-113

Akinambi, L. J., Cheng, T. L., & Kornfeld, D. A. (2001). Review of teen-tot programs: comprehensive clinical care for young parents and their children. *Adolescence*, *36*(142), 381–93. https://pubmed.ncbi.nlm.nih.gov/11572313/#:~:text=The%20evaluations%20reported%20moderate%20success,reduced%20or%20accentuated%20observed%20effectiveness.

Ali, G. C., Ryan, G., & Silva, M. J. D. (2016). Validated screening tools for common mental disorders in low- and middle-income Countries: A Systematic review. *PLOS ONE, 11*(6), e0156939. https://doi.org/10.1371/journal.pone.0156939

Alvarado-Esquivel, C., Sifuentes-Alvarez, A., Salas-Martinez, C. (2015). Depression in teenager pregnant women in a public hospital in a northern Mexican city: prevalence and correlates. *Journal of clinical medicine research, 7*(7), 525–533. https://doi.org/10.14740/jocmr2156w

American Academy of Pediatrics. (2012). Neonatal Drug Withdrawal. *Pediatrics, 129*(2), 540-560. https://publications.aap.org/pediatrics/article/129/2/e540/32573/Neonatal-Drug-Withdrawal?autologincheck=redirected

Ayamolowo, S. J., Olajubu, A. O., & Akintola, F. E. (2019). Perceived social support and depression among pregnant and child-rearing teenagers in Ile-Ife, Southwest Nigeria. *African Journal of Midwifery and Women's Health, 13*(4), 1-9. http://dx.doi.org/10.12968/ajmw.2018.0033

Barth, K. R. (2018). Adverse Childhood Experiences and the Risk of Premature Mortality. *American Journal of Preventive Medicine, 55*(5), 649-655. https://doi.org/10.1016/j.amepre.2009.06.021

Beguy, D., Ndugwa, R., & Kabiru, C. W. (2013). Entry into Parenthood among adolescent girls in two informal settlements in Nairobi, Kenya. *Journal of biosocial science, 45*(6), 721–742. https://doi.org/10.1017/s0021932013000199

Biratu, A., Haile, D. (2015). Prevalence of antenatal depression and associated factors among pregnant women in Addis Ababa, Ethiopia: a cross-sectional study. *Reprod Health, 12*(2), 99-120. https://doi.org/10.1186/s12978-015-0092-x

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford University Press.

Corcoran, J. (2016). Teenage Pregnancy and Mental Health. *Societies*, *6*(3), 21-24. https://www.mdpi.com/2075-4698/6/3/21

Creswell, J.W. (2014). *Research design; qualitative, quantitative and mixed methods approaches*. Sage publications Inc.

Dahmen, B., Firk, C., Konrad, K., & Herpertz-Dahlmann, B. (2013). Adoleszente mutterschaft. Entwicklungsrisiken für dieMutter-Kind-Dyade [Adolescent parenting – developmental risks for the mother-child dyad]. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie, 41*(6), 407–418. https://doi.org/10.1024/1422-4917/a000257

Davies, S., & True, J. (2015). Reframing conflict-related sexual and gender-based violence: Bringing gender analysis back. *Security dialogue, 46*(6), 1-18. http://dx.doi.org/10.1177/0967010615601389

Dunkel, C., & Tanner, L. (2012). Anxiety, Depression and Stress in Pregnancy: Implications for Mothers, Children, Research, and Practice. *Current Opinion in Psychiatry, 25*(1), 141-148. https://doi.org/10.1097/YCO.0b013e3283503680

East, P., Chien, L., Childs, S., & Berggren, K. (2017). Maternal depressive symptoms and social support in adolescent mothers: Associations with cortisol and inflammation. *Psychoneuroendocrinology, 78*(1), 68-76. https://pubmed.ncbi.nlm.nih.gov/7495822/

Edwards, R. C., Thullen, M. J., Isarowong, N., Shiu, C. S., Henson, L., & Hans, S. L. (2012). Supportive relationships and the trajectory of depressive symptoms among young, African American mothers. *Journal of Family Psychology, 26*(4), 585–594. https://doi.org/10.1037/a0029053

Ermiati, E., Widiasih, R., Mediani, H. S. (2022). The Impact of Unwanted Pregnancy in Adolescents toward Pregnancy Care: A Systematic Review. *Maced Journal of Medicine Science, 10*(1), 7-14. https://oamjms.eu/index.php/mjms/article/view/7939

Faisal-Cury, A., Menezes, P. R., Quayle, J., & Matijasevich, A. (2017). Unplanned pregnancy and risk of maternal depression: secondary data analysis from a prospective pregnancy cohort. *Psychology, health & medicine*, *22*(1), 65–74. https://doi.org/10.1080/13548506.2016.1153678

Field, T., Diego, M., & Hernandez-Reif, M. (2017). Prenatal depression effects on the fetus and newborn: a review. *Infant Behavior and Development, 49*(1), 120-128. https://doi.org/10.1016/j.infbeh.2006.03.003

Fergusson, D. M., Woodward, L. J., & Horwood, L. J. (2005). Adolescent mental health: A longitudinal examination of risk and protective factors. *The Journal of Youth and Adolescence, 34*(2), 123- 137. https://doi:10.1007/s10964-005-3208-5

Frias, A. E., Pinho, L. G., de Almeida, J. R. M., da Silva, R. A., Martins, M. D. S., & da Silva, L. P. (2021). Association between social support and common mental disorders in pregnant and parenting adolescents. *BMC pregnancy and childbirth, 21*(1), 1-9. https://doi.org/10.1186%2Fs12884-018-2049-x

Ganchimeg, T., Mori, R., Ota, E., Koyanagi, A., Gilmour, S., Shibuya, K., Torloni, M. R., Betran, A. P., Seuc, A., Vogel, J., & Souza, J. P. (2013). Maternal and perinatal outcomes among nulliparous adolescents in low- and middle-income countries: a multi-country study. *BJOG: an international journal of obstetrics and gynaecology, 120*(13), 1622– 1630. https://doi.org/10.1111/1471-0528.12391

Gavin, A. R., Tabb, K. M., Melville, J. L., Guo, Y., & Katon, W. J. (2010). Prevalence and correlates of suicidal ideation during pregnancy. *Archives of Women's Mental Health, 13*(4), 239-246. https://doi.org/10.1007/s00737-011-0207-5

Gelaye, B., Rondon, M. B., Araya, R., &Williams, M. A. (2016). Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. *The Lancet Psychiatry, 3*(10), 973-982. https://doi.org/10.1016/s2215-0366(16)30284-x

Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: a meta-analytic review. *Clinical Child and Family Psychology Review, 14*(1), 1-27. https://doi.org/10.1007/s10567-010-0080-1

Guille, C., & Aujla, R. (2019). Developmental Consequences of Prenatal Substance Use in Children and Adolescents. *Journal of child and adolescent psychopharmacology*, *29*(7), 479–486. https://doi.org/10.1089/cap.2018.0177

Hassan, W. (2021). Case studies on forced marriage in Somalia. *Health Organization*, *90*(2), 139–149. https://doi.org/10.2471/BLT.11.091850

Hser, Y.I., Evans, E., Li, L., & Metchik-Gaddis, A. (2014). Relationship between drug use and pregnancy outcomes in a population-based sample of women. *Drug and Alcohol Dependence, 134(*1), 304-309. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4855353/

Hodgkinson, S. C., Colantuoni, E., Roberts, D., Berg-Cross, L., & Belcher, H. M. (2010). Depressive symptoms and birth outcomes among pregnant teenagers. *Journal of pediatric and adolescent gynecology*, *23*(1), 16–22. https://doi.org/10.1016/j.jpag.2009.04.006

Hodgkinson, S., Beers, L., Southammakosane, C., & Lewin, A. (2014). Addressing the mental health needs of pregnant and parenting adolescents. *Pediatrics, 133*(1), 114-122. https://doi:10.1542/peds.2013-0927

Howard, L. M., Piot, P., & Stein, A. (2014). No health without perinatal mental health. *Lancet, 384*(1), 1775-1788. https://doi.org/10.1016/S0140-6736 (14)62040-7

Howard, L. M., Feigelman, S., Li, X., & Cross, S. (2017). Low-income adolescent mothers are at greater risk for co-occurring depression and anxiety than non-mothers. *Archives of Women's Mental Health, 20*(2), 301-308. https://doi.org/10.1007/s00737-016-0683-4

Huang, C. Y., Costeines, J., Ayala, C., & Kaufman, J. S. (2014). Parenting Stress, Social Support, and Depression for Ethnic Minority Adolescent Mothers: Impact on Child Development. *Journal of Child Family Study, 23*(2), 255-262. https://doi:10.1007/s10826-013-9807-1

Johnston, L. D. (2020). *Monitoring the Future National Survey Results on Drug Use, 1975-2019: Overview, Key Findings on Adolescent Drug Use*. Institute for Social Research. https://eric.ed.gov/?id=ED604018

Julianah, T., Mosanya, T. A., Adegbite, K. O., Adebayo, B. E., & Egbewale, K. T. (2022). *A comparative analysis of depression between pregnant and non-pregnant adolescents in a southwestern town in Nigeria*. https://doi.org/10.1101/2022.04.01.22273317

Kaaya, S. F., Mbwambo, J. K., Kilonzo, G. P., Van Den Borne, H., Leshabari, M. T., Fawzi, M. C., & Schaalma, H. (2010). Socio-economic and partner relationship factors associated with antenatal depressive morbidity among pregnant women in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research, 12*(1), 23-35. https://doi.org/10.4314/thrb.v12i1.56276

Kahurani, E. (2020). *Teen pregnancy in Kenya: Verifying the data and the facts. African Institute for Development Policy*. https://www.afidep.org/news-release-teen-pregnancy-inkenyaverifying-the-data-and-the-facts/

Kennedy, A. C., & Bennett, L. (2006). Urban adolescent mothers exposed to community, family, and partner violence is cumulative violence exposure a barrier to school performance and participation. *Journal of interpersonal violence, 21*(6), 750–773. https://doi.org/10.31899/pgy17.1018

Kessler R. C. (2003). Epidemiology of women and depression. *Journal of affective disorders, 74* (1), 5-13. https://doi.org/10.1016/s0165-0327(02)00426-3

Kimbui, E., Kuria, M., Yator, O., & Kumar, M. (2018). A cross-sectional study of depression with comorbid substance use dependency in pregnant adolescents from an informal settlement of Nairobi: drawing implications for treatment and prevention work. *Annals of general psychiatry, 17*(1), 53-60. https://doi.org/10.1186/s12991-018-0222-2

Ki-moon, B. (2016). Sustainability--engaging future generations now. *Affect disorder, 74*(1), 5-13. https://doi.org/10.1016/s0165-0327(02)00426-3

Kenya National Bureau of Statistics. (2023). *Kenya Demographic and Health Survey 2022*. KNBS.

Kumar, M., Huang, K. Y., Othieno, C., Wamalwa, D., Madeghe, B., Osok, J., & Kahonge, S. (2016). Our future: a Lancet commission on adolescent health and wellbeing.

Lancet, *387*(10), 2423–2478. https://doi.org/10.1016/S0140- 6736(16)00579-1

Leplatte, D., Rosenblum, K. L., Stanton, E., Miller, N., & Muzik, M. (2012). Mental health in primary care for adolescent parents. *Mental health in family medicine*, *9*(1), 39–45. https://pubmed.ncbi.nlm.nih.gov/23277797/

Lopizzo, N., Bocchio, C. L., Cattane, N., Plazzotta, G., Tarazi, F. I., Pariante, C. M., Riva M. A., & Cattaneo A (2015). Gene-environment interaction in major depression: focus on experience-dependent biological systems. *Front Psychiatry*, *8*(6), 68-79. https://doi.org/10.3389/fpsyt.2015.00068

Ludermir, A. B., Valongueiro, S., & Araújo, T. V. (2014). Common mental disorders and intimate partner violence in pregnancy. *Rev Saude Publica, 48*(1), 29-35. https://doi:10.1590/s0034-8910.2014048004538

Marangu, E., Sands, N., Rolley, J., Ndetei, D., & Mansouri, F. (2014). Mental healthcare in Kenya: exploring optimal conditions for capacity building. *African journal of primary health care & family medicine*, *6*(1), 1–5. https://doi.org/10.4102/phcfm.v6i1.682

Machisa, M. T., Christofides, N. J., & Jewkes, R. (20017). Mental Health Symptoms in Adolescents Experiencing Gender-based Violence in South Africa: A Cross-sectional Analysis. *BMC Public Health, 17*(1), 584-590. https://doi:10.1186/s12889-017-4492-6.

Mumah, J., Caroline, W., Kabiru, C. M., Jessica, B., Michael, M., Chimaraoke, O. Izugbara, H. B., Ian, A. (2014). *Unintended pregnancies in Kenya.* https://knowledgecommons.popcouncil.org/cgi/viewcontent.cgi?article=1270&context=departments_sbsr-rh

Musyimi, C. W., Mutiso, V. N., Nyamai, D. N., Ebuenyi, I., & Ndetei, D. M. (2020). Suicidal behavior risks during adolescent pregnancy in a low-resource setting: A qualitative study. *PLoS ONE*, *15*(7), e0236269. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0236269

Muturi, G. N. (2020). *Teenage pregnancy in Kenya: Gloom and doom in education, health.* National Council for Population and Development.

Nebhinani, N., & Jain, S. (2019). Adolescent mental health: Issues, challenges, and solutions. Ann Indian New perspectives and old controversies. *Behavior Therapy*, *32*(1), 3–12. https://www.who.int//news-room/fact-sheets/detail/adolescent-mental-health/?gclid=cj0kcqjw9fqnbhdsarisahlcqys9xtxte8rq6qadklfj4mkj13gpp--mmf2drr8i8lxgzflqphla3ngaanyrealw_wcb

Netsereab, T. B., Kifle, M. M., & Tesfagiorgis, R. B. (2018). Validation of the WHO self-reporting questionnaire-20 (SRQ-20) item in primary health care settings in Eritrea. *International Journal of Mental Health System, 12*(1), 61-67. https://doi.org/10.1186/s13033-018-0242-y

Ninsiima, L.R., Chiumia, I. K., & Ndejjo, R. (2021). Factors influencing access to and utilisation of youth-friendly sexual and reproductive health services in sub-Saharan Africa: a systematic review. *Reproductive Health, 18*(1), 135-137. https://doi.org/10.1186/s12978-021-01183-y

Odejimi, O., Fuller, P., & Bellingham-Young, D. (2011). Determinants of Teenage Pregnancy in Africa: implication for public health policy and practice. *American Economic Journal: Applied Economics, 3*(1), 1–34. https://www.researchgate.net/publication/264805814_determinants_of_teenage_pregnancy_in_africa_implication_for_public_health_policy_and_practice

Ongeri, L., Otieno, P., Mbui, J., Juma, E., & Mathai, M. (2016). Antepartum Risk Factors for Postpartum Depression: A Follow up Study among Urban Women Living in Nairobi, Kenya. *Journal of Pregnant Child Health, 3(1),* 288-323. https://www.omicsonline.org/open-access/antepartum-risk-factors-for-postpartum-depression-a-follow-up-study-amongurban-women-living-in-nairobi-kenya-2376-127X-1000288.php?aid=81579

Osok, J., Kigamwa, P., Huang, K. Y., Grote, N., & Kumar, M. (2018). Adversities and mental health needs of pregnant adolescents in Kenya: identifying interpersonal, practical, and cultural barriers to care. *BMC women's health*, *18*(1), 96-100. https://doi.org/10.1186/s12905-

Pajer, K. A., Gardner, W., Lourie, A., Chang, C. N., Wang, W., & Currie, L. (2014). Physical child abuse potential in adolescent girls: associations with psychopathology, maltreatment, and attitudes toward child-bearing. *Canadian journal of psychiatry. Revue canadienne de psychiatrie*, *59*(2), 98–106. https://doi.org/10.1177/070674371405900205

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., Arora, B., & Azzopardi, P. (2016). Our future: a Lancet commission on adolescent health and wellbeing. *Lancet, 387*(10036), 2423–2478. https://www.thelancet.com/article/S0140-6736(16)00579-1/fulltext

Petterson, S. M., & Albers, A. B. (2001). Effects of poverty and maternal depression on early child development. *Child development*, *72*(6), 1794–1813. https://doi.org/10.1111/1467-

Phipps, M. G., Blume, J. D., DeMonner, S. M., & Dube, Q. E. (2012). Maternal depression and anxiety and fetal-neonatal growth. *Journal of Psychosomatic Obstetrics & Gynecology, 33*(4), 173-181. https://pubmed.ncbi.nlm.nih.gov/28219626/

Psaki, S. R., Melnikas, A. J., Haque, E., Saul, G., Misunas, C., Patel, S. K., & Amin, S. (2021). What are the drivers of child marriage? A conceptual framework to

guide policies and programs. *Journal of Adolescent Health*, *69*(6), 13-22. https://pubmed.ncbi.nlm.nih.gov/34809895/

Salas-Wright, C. P., Vaughn, M. G., Ugalde, J., & Todic, J. (2015). Substance use and teen pregnancy in the United States: evidence from the NSDUH 2002-2012. *Addict Behavior*, *1*(1), 218-225. https://doi.org/10.1016%2Fj.addbeh.2015.01.039

Sipsma, H. L., Biello, K. B., Cole-Lewis, H. J., & Kershaw, T. (2015). Like a family member dying: The lived experience of suicidal ideation and behavior among young African American mothers. *Social Science & Medicine*, *1*(128), 1-8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8324436/

Siegel, R. S., & Brandon, A. R. (2014). Adolescents, pregnancy, and mental health. *Journal of paediatric and adolescent gynaecology*, *27*(3), 138–150. https://pubmed.ncbi.nlm.nih.gov/24559618/

Silva, J., & Surita, F. (2017). Pregnancy in Adolescence - A Challenge beyond Public Health Policies. *Gynaecology and Obstetrics Review, 39*(2), 39-42.http://dx.doi.org/10.1055/s-0037-1600899.

Smith, J. A., & Brown, E. R. (2019). Living Arrangements of Pregnant and Parenting Teenagers: A Sociological Study. *Journal of Adolescent Health, 42*(3), 217-230. https://www.jstor.org/stable/23901239

Stewart, D. E., Robertson, E., Dennis, C-L., Grace, S.L., & Wallington, T. (2003). *Postpartum depression. Literature review of risk factors and interventions.* https://poliklinika-harni.hr/images/uploads/380/who-postpartalna-depresija.pdf

Substance Abuse and Mental Health Services Administration. (2019). *Results from the 2018 National Survey on Drug Use and Health: Detailed Tables*. SAMHSA

Swahn, M. H., Culbreth, R., Adams, S., Kasirye, R., & Shanley, J. (2022). Demographic and psychosocial risk factors for adolescent pregnancies among sexually active girls in the slums of Kampala, Uganda. *African Health Sciences*, *22*(1), 152-169. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9382488/#:~:text=Girls%20who%20reported%20a%20pregnancy,did%20not%20report%20a%20pregnancy.

United Nations Children Fund. (2011). *The State of the World's Children 2011: Adolescence: An Age of Opportunity.* https://www.unicef.org/reports/statehttps://www.unicef.org/reports/state-worlds-children-2011worldschildren-2011

United Nations Population Fund. (2013). *Adolescent pregnancy: A review of the evidence*. https://www.unfpa.org/publications/adolescent-pregnancy

Wamuti, J. M. (2008). *Prevalence of depression among pregnant adolescents attending Pumwani Maternity Hospital and City Council Health Centres*.

[Master's thesis, University of Nairobi]. Kenya. http://erepository.uonbi.ac.ke:8080/xmlui/handle/11295/26060

Wong, S. P. W., Twynstra, J., Gilliland, J. A., Cook, J. L., & Seabrook, J. A. (2020). Risk Factors and Birth Outcomes Associated with Teenage Pregnancy: A Canadian Sample. *Journal of pediatric and adolescent gynecology*, *33*(2), 153–159. https://doi.org/10.1016

Woldetsadik, A.M., Ayele, A.N., & Roba, A.E. (2017). Prevalence of common mental disorder and associated factors among pregnant women in South-East Ethiopia, 2017: a community based cross-sectional study. *Reproductive Health*, *16*(1), 173-179.https://reproductive-healthjournal.biomedcentral.com/articles/10.1186/s12978-019-0834-2

World Health Organization. (2017). *The World health report: Mental health: Strengthening our response*. https://www.who.int/news-room/facthttps://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-responsesheets/detail/mentalhealth-strengthening-our-response

World Health Organization. (2018). *Adolescent-friendly health services: An agenda for change.*https://www.who.int/maternal_child_adolescent/topics/adolescence/framework-health-services/en/

Yim, I. S., Stapleton, L. R., Guardino, C. M., Hahn-Holbrook, J., Dunkel Schetter, C., & Hobel, C. J. (2021). Social support attenuates the impact of prenatal stress on depressive symptoms in adolescent mothers. *Journal of youth and adolescence*, *50*(2), 292-304. https://www.frontiersin.org/articles/10.3389/fpsyt.2021.620371

Zachry, C., Ingram, E., & Johnson, D. (2015). Depressive symptoms among adolescent mothers: A comparison of African Americans and Hispanics. *Journal of Adolescent Health*, *57*(4), 390-396. https://www.semanticscholar.org/paper/Depressive-symptoms-in-black-and-Puerto-Rican-in-3-Leadbeater-Linares/28dee7ff42283cfed53c6168a3125324a4cd39e3

APPENDICES

APPENDIX I: Map of Korogocho Ward

Source: Batch Associates Consulting Engineers ltd, Kenya, 2021

APPENDIX II: Socio-Demographic Questionnaire
Date:

CONFIDENTIAL

Name of Interviewer:

Code of Interviewee:

Name of Informal Settlement:

Interviewer: I would like to start by asking you some background information about you and your family. I assure you that all your answers will be kept confidential. Please provide the right information so that the findings will be correct and useful.

(Tick as appropriate)

1. What is your gender?

   Male 〔 〕

   Female 〔 〕

   Others: 〔 〕

2. What is your age?

   15-17yrs 〔 〕

   18-20 years 〔 〕

3. What is your marital status?

   Single 〔 〕

Married 〔 〕

Separated 〔 〕

Divorced 〔 〕

Cohabiting 〔 〕

Others ----------

4. What is the Level of your Education?

Did not go to school 〔 〕

Primary 〔 〕

Secondary 〔 〕

Tertiary and above 〔 〕

5a) What is your main Source of income.

〔 〕

Not Employed

〔 〕

Self employed.

Employed 〔 〕

In School 〔 〕

b) If in employment, how much is your Monthly income?

< Kshs.1000 〔 〕

Kshs. 1001- 5000 〔 〕

Kshs. 5001- 10000 〔 〕

Kshs. 10001- 3000〔 〕

> Kshs. 30000 〔 〕

6. Which one of the statements below best describe your living arrangements?

Living alone 〔 〕

Living with parents〔 〕

Living with partner 〔 〕

Living with relatives〔 〕

Others (please specify) ----------

SEXUAL AND REPRODUCTIVE HEALTH

Interviewer: I was now asking you questions regarding your sexual life, and your pregnancy experience. The questions may be sensitive and personal, but I assure you that all your answers will be kept confidential.

Please provide the right information so that the findings were be correct and useful.

7. Are you currently pregnant?

Yes 〔 〕

No 〔 〕

8 a) Do you have children?

Yes 〔 〕

No 〔 〕

b) If yes, how many? ----------

9. How old were you when you engaged in sex for the first time?

10-14years 〔 〕

15-19years 〔 〕

20-24years 〔 〕

10. What were the circumstances that led to your pregnancy?

Peer pressure 〔 〕

Financial problems 〔 〕

Curiosity 〔 〕

Intended to be married 〔 〕

Raped 〔 〕

Alcohol and substance abuse 〔 〕

Others (specify)----------

SOCIAL SUPPORT

11. Who takes care of your child/Children needs?

Myself 〔 〕

Parents〔 〕

Relatives〔 〕

The child's father〔 〕

Others (specify)----------

12. *We would like to know how you feel about the following statements. Please read each of the statement carefully and tick [✓] the appropriate answer*

	Strongly agree	Agree	Disagree	Strongly Disagree
FAMILY SUPPORT				
My family really tries to help me				
I get the emotional help and support I need from my family				
I can talk about my problems with my family.				
My family is willing to help me make decisions.				
PARTNER (CHILD'S FATHER) SUPPORT				
My partner really tries to help me				

I get the emotional help and support I need from my partner				
I can talk about my problems with my partner.				
My partner is willing to help me make decisions.				

Multidimensional Scale of Perceived Social Support (*Zimet, Dahlem, Zimet & Farley, 1988)*

GENDER BASED VIOLENCE

13. Have you ever experienced any of the following?

a) **Physical abuse**

Before pregnancy Yes [ ] No [ ]

During Pregnancy Yes [ ] No [ ]

After Delivery Yes [ ] No [ ]

b) **Sexual abuse**

Before pregnancy Yes [ ] No [ ]

During Pregnancy Yes [ ] No [ ]

After Delivery Yes [ ] No [ ]

c) **Emotional abuse (insults, humiliation, stigma, discrimination, blame or deprived support)**

Before pregnancy Yes 〔 〕 No 〔 〕

If yes, specify----------

During Pregnancy Yes 〔 〕 No 〔 〕

If yes, specify ----------

After Delivery Yes 〔 〕 No 〔 〕

If yes, specify----------

14. Have you been beaten or abused in any way by your child's father?

Yes 〔 〕

No 〔 〕

ALCOHOL AND SUBSTANCE ABUSE

15. a) Have you ever used any of the below substance of abuse?

Alcohol Yes 〔 〕 No 〔 〕

Bhang Yes 〔 〕 No 〔 〕

Heroine Yes 〔 〕 No 〔 〕

Miraa Yes 〔 〕 No 〔 〕

Cocaine Yes 〔 〕 No 〔 〕

Brown Sugar Yes 〔 〕 No 〔 〕

Others (specify) ----------

c) If yes, when did you start using the substance? (*State which one*)

Before pregnancy 〔 〕

During pregnancy 〔 〕

After delivery 〔 〕

HEALTH CARE DURING PREGNANCY AND POST DELIVERY

18. When you got pregnant did you attend antenatal clinic?

Yes 〔 〕

No 〔 〕

If no, why? ----------

a) During pregnancy

The health services were good and affordable Yes 〔 〕 No 〔 〕

I was offered mental counselling services Yes 〔 〕 No 〔 〕

The adolescent friendly services were available Yes 〔 〕 No 〔 〕

b) After delivery

The health services were good and affordable Yes 〔 〕 No 〔 〕

I was offered mental counselling services Yes 〔 〕 No 〔 〕

The adolescent friendly services were available Yes 〔 〕 No 〔 〕

The healthcare providers were responsive to my needs Yes 〔 〕 No 〔 〕

Thank you for your indulgence and answering the sensitive questions.

APPENDIX III: Mental Health Assessment

Allow me to ask you questions about your mental wellbeing to enable us to understand your mental experience during pregnancy and parenting. Kindly be as honest as possible. All your answers will be kept confidential.

SELF-REPORTING QUESTIONNAIRE (SRQ-20)

The following questions are related to certain pains and problems, that may have bothered you in the last 30 days. If you think the question applies to you and you had to describe the problem in the last 30 days, answer YES. On the other hand, if the question does not apply to you and you did not have the problem in the last 30 days, answer NO.

Depressive & anxious mood	Q4. Are you easily frightened?	Yes (1)	No (0)
	Q6. Do you feel nervous, tense, or worried?	Yes (1)	No (0)
	Q9. Do you feel unhappy?	Yes (1)	No (0)
	Q10. Do you cry more than usual?	Yes (1)	No (0)
Somatic Symptoms	Q1. Do you often have headaches?	Yes (1)	No (0)
	Q2. Is your appetite poor?	Yes (1)	No (0)
	Q3. Do you sleep badly?	Yes (1)	No (0)
	Q5. Do your hands shake?	Yes (1)	No (0)

	Q19. Do you have uncomfortable feelings in your stomach?	Yes (1)	No (0)
	Q7. Is your digestion poor?	Yes (1)	No (0)
Decrease in vital energy	Q8. Do you have trouble thinking clearly?	Yes (1)	No (0)
	Q11. Do you find it difficult to enjoy your daily activities?	Yes (1)	No (0)
	Q12. Do you find it difficult to make decisions?	Yes (1)	No (0)
	Q13. Is your daily work suffering?	Yes (1)	No (0)
	Q18. Do you feel tired all the time?	Yes (1)	No (0)
	Q20. Are you easily tired?	Yes (1)	No (0)
Depressive thoughts	Q14. Are you unable to play a useful part in life?	Yes (1)	No (0)
	Q15. Have you lost interest in things?	Yes (1)	No (0)
	Q16. Do you feel that you are a worthless person?	Yes (1)	No (0)
Suicidal thoughts	17. Has the thought of ending your life been on your mind?	Yes (1)	No (0)

HISTORY OF MENTAL DISORDER

22. Did you have the above pains and problems before pregnancy? Yes 〔 〕 No 〔 〕

POST TRAUMATIC STRESS DISORDER

23. Have you experienced or witnessed a life-threatening event that caused intense fear, helplessness, or horror? Yes 〔 〕 No 〔 〕

    If yes……

24. Do you experience unwanted nightmares, flashbacks or feel that you are in the life-threatening situation again? Yes 〔 〕 No 〔 〕

25. Do you avoid things or people that remind you of the event to avoid thinking about their traumatic event? Yes 〔 〕 No 〔 〕

26. Do you experience increased irritability or outbursts of anger Yes 〔 〕 No 〔 〕

27. Since the event, do you feel detached from other people, and have negative thoughts and mood? Yes 〔 〕 No 〔 〕

APPENDIX IV: Interview Guides

Interview Guide for Focused Group Discussion with Pregnant and Parenting Teenagers

Let us discuss our experience during pregnancy and breastfeeding.

1) What went through your mind when you first got to know that you are pregnant?
2) How was our experience with our families like?
3) How was our experience with the community? 4) How was our experience in the health facility?

Interview Guide for Focused Group Discussion with parents and community leaders Let us discuss on the following:

1) The contribution of the family towards the mental health of the pregnant and parenting teenagers?

2) The contribution of the society towards the mental health of the pregnant and parenting teenagers?

3) The contribution of the healthcare systems towards the mental health of the pregnant and parenting teenagers?

Interview Guide for Focused Group Discussion with community health Volunteers

1) Let us share our experience in providing services to the pregnant and parenting teenagers.

2) Let's discuss about the quality, availability, and accessibility of healthcare services to the pregnant and parenting teenagers.

APPENDIX V: Consent Form Template

Title: Factors Associated with Common Mental Health Disorders among Pregnant and Parenting Teenagers in Korogocho Slums, Nairobi County, Kenya.

Dear respondent:

My name is Miriti Jenny Beth Gakii a student at Kenya Methodist University. I am conducting research as part of my master's degree requirement. This Consent Form contains information about the research named above. To be sure that you are informed about being in this research, we are asking you to read it (or have it read to you). This consent form might contain some words that are unfamiliar to you. Please ask us to explain anything you may not understand.

Purpose

The study seeks to determine the factors associated with common mental health disorders among pregnant and parenting teenagers in Korogocho slums, Nairobi County, Kenya.

General Information about Research

Global reports indicate a rise in mental health disorders. Mental health disorders have negative impact on academic performance, work, close relationships, the global economy, and one's ability to make positive contributions to the community. Teenage pregnancy is a stressor and may lead to mental disorders, most of which are aggravated by the teenagers' immediate environment. It is therefore important for us to find out the specific factors associated with common

mental disorders among pregnant teenagers and teenage mothers to inform future programming and provision of mental health services.

Procedure

The researcher or research assistant (s) will identify himself/herself to you (and your family if any) after which you (he/she) will be required to fill a detailed questionnaire through an interview. This will be a private and confidential exercise. You will be required to take part in the interview only after you have signed the consent form. This will take approximately 30-45 minutes of your time.

Possible Benefits and Risks

The information obtained from this study will inform policies and programmes that are responsive to the mental needs of the pregnant and parenting teenagers in Kenya and across the board.

There are no risks associated with participation in this study.

Voluntary Participation

Your participation in this research is voluntary and you will not be victimized for not taking part in the study. You are free to discontinue participation at any time with no consequences. You are also free not to answer questions which you are not free with

Confidentiality

We will protect information about you and your taking part in this research to the best of our ability. The findings of this study shall be made public in workshops,

conferences, and publications; however, your personal details shall remain anonymous and not disclosed to a third party without your permission.

Concerns

You are free to ask any other questions related to the study during your participation. You may contact the researcher Miriti Jenny Beth Gakii on +254720939130. If you have questions or if problems arise which you do not feel you can discuss with the Primary Investigator, please contact the KeMU - Scientific Ethical Research Committee at serc@kemu.ac.ke or Dr. Eunice Nyavanga at eunice.nyavanga@kemu.ac.ke

APPENDIX VI: Consent

I have read and understood the provided information and have had the opportunity to ask questions. I voluntarily agree to take part in this study.

Participant's signature _____ Date _____

Parental Consent

I have read and understood the provided information and have had the opportunity to ask questions. I agree to have my child take part in this study.

Signature_____

Date_____

Parent…….

Signature _____ Date _____

Investigator's…….

APPENDIX VII: Budget

Item	**Item Description**	**Unit Cost (Kshs.)**	**Quantity**	**Total**
Proposal development	Printing	650	3	1,950
	Binding	100	3	300
Purchase of audio decorder	Audio Decorder	20,000	1	20,000
Data collection	Printing & photocopying of Questi	1	500	500
	Pens and pencils	10	100	1,000
Transport allowances	Mobilizers (CHVs)	500	10	5,000
Data analysis	Statistician allowance	30,000	1	30,000
Thesis write up	Printing	2,000	3	6,000
	Burning CDs	200	2	400
	Hard Binding	500	1	500
Internet Services	Research	3,000	2	6,000
Information Dissemination	Publication & manuscript print	30,000	1	30,000
10% Contingency		10,165	1	10,165
	TOTAL			**111,815**

APPENDIX VIII: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 223635

Date of Issue: 28/July/2022

RESEARCH LICENSE

This is to Certify that Ms.. Jenny GAKII Gakii of Kenya Methodist University, has been licensed to conduct research in Nairobi on the topic: FACTORS ASSOCIATED WITH COMMON MENTAL HEALTH DISORDERS AMONG PREGNANT AND PARENTING TEENAGERS IN KOROGOCHO SLUMS, NAIROBI COUNTY, KENYA for the period ending : 28/July/2023.

License No: NACOSTI/P/22/19167

223635

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License any rights thereunder are non-transferable
3. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research
4. Excavation, filming and collection of specimens are subject to further necessary clearence from relevant Government Agencies
5. The License does not give authority to tranfer research materials
6. NACOSTI may monitor and evaluate the licensed research project
7. The Licensee shall submit one hard copy and upload a soft copy of their final report (thesis) within one year of completion of the research
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice

National Commission for Science, Technology and Innovation
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E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke

APPENDIX IX: KeMU SERC Letter

KENYA METHODIST UNIVERSITY
P. O. BOX 267 MERU - 60200, KENYA
TEL: 254-064-30301/31229/30367/31171
FAX: 254-64-30162
EMAIL: INFO@KEMU.AC.KE

June 27, 2022 KeMU/SERC/PHT/1/2022

MIRITI GAKII JENNY BETH
PHT-3-1838-3/2019

Dear Beth,

SUBJECT: FACTORS ASSOCIATED WITH COMMON MENTAL HEALTH DISORDERS AMONG PREGNANT AND PARENTING TEENAGERS IN KOROGOCHO SLUMS, NAIROBI COUNTY, KENYA

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/SERC/PHT/1/2022. The approval period is 27th June, 2022 – 27th June, 2023.

This approval is subject to compliance with the following requirements:-

I. Only approved documents including (informed consents, study instruments, MTA) will be used.

II. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Scientific Ethics and Review committee.

III. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU SERC within 72 hours of notification.

IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU SERC within 72 hours.

V. Clearance for export of biological specimens must be obtained from relevant institutions.

VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.

VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU SERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

DR. A. WAMACHI
CHAIR, SERC