DETECTION OF PSYCHIATRIC DISORDERS AMONG ADOLESCENTS ATTENDING PRIMARY HEALTHCARE FACILITY IN KIAMBU COUNTY AND RELATED CLINICIAN FACTORS.

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DECLARATION

I, Mercy Wanjiru Chege, do hereby declare that this dissertation is my original work and that it has not been presented for the award of any degree or to any other University.

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CERTIFICATE OF APPROVAL

This thesis has been submitted for examination with our full approval as supervisors;

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DEDICATION

This research is dedicated to all adolescents in Kenya at large who go through adverse life experiences early in life and also face the impact of undetected psychiatric disorders.

LIST OF ABBREVIATIONS

ANC-Antenatal care

CCC-Comprehensive care center

DSM-Diagnostic statistical manual

ICD 10-International Classification of Disease 10^{th} edition.

MINI kid-mini international neuropsychiatric interview

MOH-Ministry of health

PHC-Primary health care

SES-Socio economic status

SDQ-Socio demographic questionnaire

SPSS-Statistical package for social sciences

USA-United States Of America

WHO-World health organization

OPERATION DEFINITIONS

DSM-This is a tool used in mental disorders diagnosis that offers a common language and standard criteria for classification of mental disorders.

ICD 10-This is a system used by health care providers to classify and code all diagnoses, symptoms and procedures recorded in conjunction with hospital care in the United States.

MINI kid-A tool used in the diagnosis of psychiatric disorders among children and adolescents**.**

Psychiatric disorders-These are behavioral and mental patterns that cause impairment in one's life and functioning.

Primary health care –This is health care service provided at low-level health facilities such as health centers and dispensaries.

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ABSTRACT

Introduction. Adolescence is a period of physical growth spurt and extensive changes.

It is during this time that mental disorders such as anxiety, depression, and thought disorders, may first appear or become apparent. Studies have indicated that there is only a 4.1% detection rate of psychiatric disorders by clinicians in primary health care facilities.

Aim: This study seeks to establish undetected psychiatric diagnosis among adolescents attending primary health care facilities.

Objectives: The overall objective of this study was to determine the percentage of undetected diagnosis of psychiatric disorders among youth attending a primary health care facility.

The specific objectives were to determine; the prevalence and pattern of adolescent psychiatric morbidity among adolescents attending Limuru rural health facility in Kiambu County-Limuru Sub-County; determine the percentage of missed psychiatric diagnosis; examine socio-demographic correlates of psychiatric disorders among adolescents; determine perceived health care provider factors that lead to undetected psychiatric diagnosis and establish government referral pathways

Methods:

The quantitative part of study used a cross-sectional design and was carried out in a rural primary health care facility, in Kiambu County, Limuru Sub-County. A sample size of 300 adolescents was randomly sampled and included adolescents aged 11-21 years who met the inclusion criteria. Data was collected over a period of 6 weeks using researcher developed

sociodemographic questionnaire, MINI-KID tool, and researcher developed a semi-structured clinician assessment tool.

Data Analysis: Descriptive and inferential analysis results was generated through SPSS V.25. Data was presented through tables, charts, graphs, and narratives.

Results: The adolescents were aged between 11-21 years. Mean age was 16 years, standard deviation 3, mode 12 and median 16 years. Prevalence of psychiatric disorders was 67% according to MINI Kid. Clinicians were able to diagnose 9% of the adolescents with a psychiatric disorder. There was no correlation between socio demographic factors and detected psychiatric disorders.

The perceived clinician factors that contributed to undetected psychiatric diagnosis included lack of adequate knowledge, Lack of communication skills, Time, Lack of assessment tools.

Most commonly diagnosed psychiatric disorder was stress and psychosis.

Most clinicians did not give a psychiatric diagnosis if they suspected one

Conclusion:

The study concluded that there was a prevalence of psychiatric disorders among adolescents attending primary health care facilities and the most prevalent psychiatric condition was depression.

The study also found that the clinicians were not able to detect the psychiatric disorders and there were variety of factors that led to the low detection rate among the clinicians

Recommendation

Continuous medical education among health workers

Increase in health education on psychiatric disorders among patients attending outpatient department

Mental health promotion among school going children through increase in school health mental health activity

Training health workers on mental disorders and encouraging health workers to go back to school.

Training community health workers/Volunteers on identification of psychological disorders and referral system and also instilling them with psychological first aid skills.

CHAPTER ONE

1.0. INTRODUCTION

1.1 Introduction and background.

Mental disorder refers to a psychological or physiological pattern that occurs in an individual and is associated with disability or distress that is not part of normal development or culture, although recognition and understanding of mental disorders have changed over time. Mental disorders are also linked to other problems like physical health problems and social problems. (Patel et al, 2007).

Mental health conditions are a growing public health issue. The world mental health report states that more than 450 million people currently live with mental health conditions. This places mental health conditions among the leading causes of illness and disability and Children and adolescents are not left out in this statistic. (World health report, 2001). A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents found a pooled prevalence of 13.4% (Polanczyk et al 2015). From this meta-analysis, it is clear that mental disorders affect many children and adolescents worldwide.

A study done in Kenya in 2016 found the prevalence of mental disorders among school children in Kenya to be 37.7%, with somatic disorders being the most prevalent. This indicates that most of the physical symptoms that adolescents are treated for are actually somatic representations of mental disorders. The study also brought out the importance of implementing screening tools to help in the early detection of mental disorders so as to help the well being of the young people and also rule out the cause of the main cause of the physical symptoms. (Ndetei et al., 2016).

Adolescence is a period of physical growth spurt and extensive changes (Sharon, 2018). During this time, adolescents begin to transition from childhood to adulthood and there are many changes that take place.

Changes occur in, physical, psychological and behavioral domains (Jodi, 2014). During this time, adolescents struggle with issues of identity crisis, sexuality, and independence (Shanon, 2017). It is during this time that mental disorders such as anxiety, depression, and thought disorders, may first appear or become apparent (Shanta, 2017). Psychosocial disorders may also become apparent for the first time during this stage of development, and suicide rate peaks during this stage (Sharon, 2018).

During this period the adolescents are also likely to engage in unhealthy lifestyles in the different domains, hence problem in one domain, may lead to a spill over into other domains, having the potential of long-term effects (Jodi, 2014). This indicates why it is vital for clinicians to be able to detect mental disorders among adolescents early enough to enable early treatment and reduce the impact of mental disorders among adolescents and those around them.

A study carried out in the Coastal and Eastern regions of Kenya, among children and adolescents found that there was only a 4.1 % clinician detection rate for mental disorders (Ndetei et al., 2009). This shows that most psychiatric diagnosis ends up undetected by the attending non-psychiatric clinicians. In primary health facilities, early detection and treatment of mental disorders is usually the job of non-psychiatric clinicians, who at times have little knowledge on mental disorders and their presentation hence making detection of mental disorders harder task for the clinicians (Ndetei et al., 2009). While most patients presenting at the health facilities present with medical rather than psychiatric complaints, there is always a high chance of missing a psychiatric diagnosis, especially in elevated somatic complaints (Drayer et al., 2005).

The government has also not been keen in providing extensive training in mental health among non-psychiatric clinicians. This has been a contributory factor to the rise of undetected mental disorders (Rachel et al., 2010). There is a paucity of data on prevalence and detection rate of psychiatric disorders among Kenyan adolescents attending primary health care facilities in Kenya, hence making it hard to

convince policy implementors on the need to implement policies that would help in early detection and treatment of mental disorders in primary level health facilities. This study aims to detect the prevalence of undetected psychiatric diagnosis and also seeks to identify factors leading to undetected psychiatric diagnosis among clinicians.

Studies have shown that most adults who are diagnosed with a psychiatric disorder, usually first met the diagnostic criteria during childhood or adolescence, yet patterns of prediction are yet to be firmly established (William, Lily , Costello, & Adrian, 2009). The research also indicated that three-quarters of young adults with a psychiatric diagnosis had their first diagnosis between the ages of 11 and 18. This shows that adolescence is a critical period in assessment and diagnosis of mental disorders. A study by Evans and Seligman pointed out that the adolescent period is an important period in mental health because most of the mental disorders begin not in childhood but during this period. After onset during the adolescent period, most mental disorders become chronic and hence continues leading to a significant health impairment during adulthood. The effect is also not only on the major mental health disorders but also influences a range of health habits that influence behavior and sometimes also medical diseases. (Evans & Seligman, 2005). Lack of proper and early diagnosis of mental health problems among adolescents leads to impoverished mental health and hence the poor quality of life among adolescents (Ndetei et al., 2009).

Therefore, there is a great need for early and effective identification and intervention of childhood and adolescent psychiatric disorders which if not treated can persist and lead to a downward spiral in quality of life: poor academic performance, low chances of employment opportunities hence leading to poverty (Ndetei et al., 2018). While people with mental disorders are already attending primary health care facilities, only those with psychosis are easily diagnosed, as it is considered easy to diagnose. Those with other mental disorders like anxiety, depression and other common mental disorders are usually

misdiagnosed as having a physical illness (Rachel et al., 2010). This indicates that there is a problem in diagnosing mental disorders by primary health clinicians attending to the outpatients, especially among adolescents due to various reasons including lack of adequate knowledge on mental health, lack of use of screening tools (Ndetei et al., 2009); although there is no published data showing the percentage of missed diagnosis in primary health care facilities, it is likely that it is high at any given time.

This research will help in bridging the knowledge gap that is there on detection of mental disorders among adolescents attending primary health care facilities, hence lead to more research on intervention strategies that could help improve early detection and treatment of mental health conditions, improving the prognosis of most mental health disorders, and also reducing disease morbidity and mortality rate. The research will also help in the creation of interventions to help improve the quality of mental health and also a quality of life among adolescents and also in adulthood.

A cross-sectional study design will be used.

1.2 Problem statement

The current global epidemiologic study indicates that 20% of children and adolescents suffer from disabling mental health conditions, up to 50 % of all adult mental health disorders usually have an onset in adolescence. (Myron , 2008). Studies on mental health problems among adolescents in Kenya have shown a high prevalence (Ndetei et al., 2016; Mbwayo & Mathai, 2016; Kangethe, 1988).

Shanta (2017) pointed that there is a relationship between physical conditions and psychiatric conditions among adolescents (Shanta , 2017). A study by Mulupi showed a 45.1 % prevalence of mental disorders among adolescent attending a high population density primary health care facility in Nairobi. (Mulupi, 2006). Although there is treatment of physical medical conditions in adolescent in primary health care

facilities, there is low capacity in early detection and diagnosis of psychiatric disorders, which is also the first point of contact within the health care system.

A study by Ndetei et al (2009) found that there was only a 4.5% detection rate of psychiatric disorders among adolescents while 41.3% had child depression inventory scores that suggested moderate depression (Ndetei et al., 2009). This suggests that there are many patients presenting in health facilities who have mental health problems but are not detected. There is a paucity of literature, there is a problem in diagnosing and subsequent treatment of mental disorders, hence the need for the study. There is also no data to show why health workers in primary health care facilities are not detecting and managing psychiatric disorders among adolescents. This study will, therefore, fill this knowledge gap by looking at the percentage of detection of psychiatric disorders among adolescents and also health workers perceived factors that lead to undetected diagnosis over a six week period.

CHAPTER TWO

2.0. LITERATURE REVIEW

2.1. Prevalence of mental disorders among children and adolescents.

A meta-analysis done in 2015, estimating worldwide prevalence of mental disorders in children and adolescents found a pooled prevalence of mental disorders among children and adolescents to be 13.4%. The study was conducted in 27 countries from every continent. These findings showed that mental health disorders were prevalent among children and adolescents from all over the world. (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Another study done in Germany on the prevalence of mental health problems among children and adolescents in Germany showed that 14.5 % of the children and adolescents aged between 7-17years fulfilled the criteria of at least one mental health problem. (Ravens-sieberer et al., 2008).

In 2013, studies on children and adolescents demonstrated that there was a high prevalence of psychiatric disorder in primary health care settings (Rakesh, Shashikant, Nilesh, & Tushar, 2013) which could also be as a result of the low rate of detection and lack of assessment on mental disorders. Another study done in India among children and adolescents aged 5-14 years, found that there was a prevalence of 14.8% in the study population and 5.5% of the cases were associated with comorbid disorders (Rakesh, Shashikant, Nilesh, & Tushar, 2013).

In Brazil, a study found that the prevalence of mental disorders among adolescents was 30%, and higher in girls (38.4%) compared to boys (21.6%) and also found that the prevalence increased with age for both sexes. The study also found out that the symptoms are always not very clear hence not easy to be diagnosed by the school administration or health service provider (Lopes et al., 2016). This study shows a clear indication that mental health issues among adolescents are a global burden.

In Australia, the prevalence of mental health problems among adolescents aged between 10-18 years, found an overall prevalence of 21.9 %. (Wagner et al., 2017),

In Chennai South India, a study on assessment of psychopathology and functional impairment among patients attending an adolescent health clinic found that 8% of the adolescents attending the clinic had a psychopathology and also satisfied ICD 10 diagnosis. (Ravens-sieberer et al., 2008). Those who had psychopathology were also found to be functionally impaired (Polanczyk et al., 2015).

A cross-sectional study conducted in South Africa on the prevalence and detection of psychiatric disorders among children and adolescents attending primary health care clinics showed that the ability of primary health care health providers to identify disorders was low. Health care providers were only able to identify 10.8% of the adolescents (Robertson, 2010). This showed a very low rate of detection of mental health disorders by doctors attending to adolescents at the primary health care facilities.

A study on the pooled prevalence of psychopathology among children and adolescent showed a prevalence rate of 19.8 %. There was also clear evidence of socio-demographic correlates of psychopathology which places children in areas of deprivation at great risk. (Cortina et al 2012).This indicates that socio-demographic factors are a predisposing risk factor for adolescents developing a mental health disorder.

Kangethe showed that there was a prevalence rate of 20% of psychiatric conditions among adolescents and children attending primary health care facilities. (Kangethe, 1988). In a later study, Mulupi found that there was a prevalence rate of 41.2 % among 255 of the sampled adolescents had a mental health disorder in a similar setting (Mulupi, 2006). This statistics indicate a rising need for the development of more appropriate adolescent care and also call for more screening of mental disorders among adolescents attending primary health care facilities in the Kenyan setup.

Another study done at Kenyatta National Referral Hospital found that there was a comorbidity rate of 41.6%, with most comorbidities being major depression and substance use disorder and also physical disorders. (Kamau, Omigbodun, Bella-Awusah, & Adedokun, 2017).

Presence of multiple risk factors and the absence of protective factors have been linked with a high increase in psychiatric disorders prevalence (Opler et al, 2010). A study done in Mumbai by Atilola et al; showed a 4.7% prevalence of affective disorders, 30.7 % anxiety disorders and 21.3% of psychotic disorders. (Atilola et al; 2017) The findings also showed that little or no primary psychiatric services were offered and also there was no evidence of mental health screening and intervention in the service framework of the institutions.

This shows that there is a low rate of mental illness diagnosis among adolescents attending primary health care facilities, while indeed there is a very high prevalence of mental disorders among this age group. It also indicates that there is a need to improve on the rate of detection of mental illness among adolescents at primary health care setups.

Given the high prevalence of psychiatric disorders among adolescents and the adverse effects on adolescents and their families, early detection and management is a key issue. Psychiatric disorders have been shown to lead to poor physical health, poor social relationships and impaired role functions. They have also been shown to have long-term adverse effects on quality of life in adulthood (Sharon, 2018).

2.2. Association between physical diagnosis and psychiatric diagnosis.

Mental disorders are rated as a risk factor for chronic medical illnesses. While people with mental disorders are found to be at a higher risk of developing chronic medical conditions (WHO, 2004). Many mental disorders have significant evidence of having a medical basis (William Dikel, 2018). It is vital to

understand the link between mind and body to help in reducing mental illness and physical conditions from co-existing (WHO, 2004). A world mental health survey from 17 countries done in 2016, showed that there was an association between 16 mental disorders and subsequent onset or diagnosis of physical diagnosis that were statistically significant. This study showed that all mental disorders are associated with a high risk of onset of a wide range of chronic physical conditions (Bruffaerts & Caldas-de-almeida, 2017).

High incidence of chronic physical conditions and their association with early mortality among individuals with severe mental disorders and those with common mental disorders has been reported (Lawrence, Hancock & Kisely, 2013). For example, an international multicenter study reported that 69% of patients with depression had somatic symptoms as the reason for their visit. Another study reported that among patients attending primary care facilities who had chronic conditions, had comorbid depression and were associated with decreased self-care, poor adherence to treatment and also amplification of somatic symptoms (Kieling et al., 2011).

A study done in 2003 showed that most of the common symptoms in primary care, for example, fatigue, chest pain, dizziness, and headaches end up as an unrecognized medical diagnosis in half of the cases (Khan, Harezlak et al, 2003). Studies also indicate that in primary health care level facilities, 70% of patients with the major depressive disorder often present with physical complains rather than affective symptoms (Cortina, Sodha, Fazel , & Ramchandani , 2012).

2.3 The frequency of detection of psychiatric diagnosis.

A study done in Gaza showed that general practitioners were more able to detect illnesses among those aged 25-34 years compared with those younger ones aged 16-24 years. This shows that the ability of

practitioners to diagnose varies and there is a tendency to miss a diagnosis of mental disorders among adolescents (Afana, Dalgard, & Bjertness, 2002).

Studies have shown that early detection of mental health problems can lead to a substantially shorter and less disabling course of illness (Burden, 2017). A significant number of patients in primary health care facilities show signs of depression yet approximately half go untreated (Burden, 2017). Primary health care providers are positioned to play a vital role in addressing mental health issues, but there are persistent problems in detection, treatment and also referral. (Levitt, Saka, Romanelli, & Hoagwood, 2007).

A study carried out in Malawi on patients attending the outpatient department showed that 30% had a mental illness while the detection rate was 0%. All the patients were treated for physical health conditions, while the study showed that 30% met the criteria for depression on the research tool. (Udedi, 2014). In Kenya a study done by Ndetei et al (2009) showed that there was only a 4.5 % detection rate of psychiatric disorders among children and adolescents .(Ndetei et al., 2009).

There has been scarcity of information on depression in primary health care settings, which has led to increased numbers of cases of medically unexplained somatic symptoms like musculoskeletal, abdominal pains seen at the healthcare facilities (Jenkins, et al., 2012). Studies also indicate that comorbidity between depression and physical illness complicates detection, treatment, and prognosis (Achenbach & Ndetei, 2012).

2.4 Socio-demographic factors associated with psychiatric morbidity among adolescents.

A comparative study done in the USA by Wolchic found that adolescents from divorced families were more likely to developmental disorders, drop out of school, become pregnant and also engage in drug use (Wolchik, Sandler, Millsap, & Plummer, 2002). Another research was done in India also showed that

there was a relationship between prevalence and socio-demographic variables. It indicated that the prevalence was higher in males than in females. Children with mothers with low levels of education were also more predisposed to the psychiatric disorder. Other relevant demographic factors included the type of nuclear family and the size of the family (Rakesh, Shashikant, Nilesh, & Tushar, 2013).

In Turkey, a study also found out that being a female of age between 15-16 years, and having a lower socioeconomic status predisposed one to develop a mental disorder. (Harhay & King , 2012) . A study done in Croatia found that female adolescents who had a perception of low economic status in their families and whose biological parents did not live together showed more internalizing problems; while late adolescents whose families lived in large cities but had low or average financial status, tended to show more externalizing symptoms (Bulat, 2018). Prevalence has been seen to be higher especially among female adolescents who perceived their family to be having financial difficulties and also biological parents not living together. (Marina , Linda, & Nika , 2018).

Studies have also indicated more externalizing problems are seen more in late adolescent from either low or average income families. While low parental education and single parenthood have been linked to poor mental health outcomes among children and adolescents (Varga, Piko, & Fitzpatrick, 2014).

2.5. Perceived factors leading to a low detection rate

There are a variety of factors that contribute to lack of detection of psychiatric disorders among adolescents when they present at primary health care facilities. Sometimes symptoms overlap which may blur boundaries between diagnostic considerations and the perceptions of informants on mental disorders, which is necessary for the assessment of adolescents (Kieling et al; 2011). The low detection rate is attributed to the vagueness of patients in describing their symptoms; patients somatizing their emotional

symptoms and also time limitations to do any assessment due to the long list of patients hence low detection rate. (Kieling et al; 2011).

Clinicians also are not able to recognize psychological symptoms that are associated with physical illnesses, unless the symptoms are very apparent while also the time spent with the patient is far too little, usually 5-10 minutes, to enable the service provider to do a comprehensive assessment. (Evaline Lang'at & Lillian, 2015).

There is also a general lack of an accepted definition in primary health care facilities of what constitutes a psychiatric disorder. Service providers are not familiar with a psychiatric diagnosis such as DSM and hence may apply their own conceptual knowledge in place of an accepted DSM diagnosis.(Afana et al., 2002) (Afana, Odd, Espen, & Berthhold, 2002).The lack of diagnostic vigilance therefore leads to an increased frequency of undetected psychiatric disorders.

Clinicians mostly do not detect mental disorders because they focus on finding the cause of physical symptoms but don't ask questions that assess psychiatric comorbidity. (Croicu, Chwastiak, & Katon, 2014).A study done in Kenya in 2009, indicated the detection rate of mental disorders in general facilities was 4.5%. This indicates that mental disorders in general facilities remain highly undetected (Ndetei et al., 2009).

Another study indicated that although clinicians were aware of psychosocial problems, they were reluctant in labeling and treatment of the psychiatric diagnosis, which they felt did more harm to the patient than good; although non recognition was also factored to be due to lack of diagnostic skills and vigilance. This study indicated that clinicians would do better if the mental or psychological symptoms were verbalized by the patient. (Afana et al., 2002). The study also found that the average time a patient spends with a clinician in a Primary Healthcare facility (PHC) is usually 5-10 minutes. This is due to the heavy

outpatient workload, which makes it very difficult to perform a thorough mental assessment to establish any mental disorder.

Table 1. The table below shows some of the other factors leading to undetected diagnosis.

Intelligence and knowledge	This refers to the ability to engage in high-level cognitive tasks such as reasoning, problem-solving and also decision making. (Croskerry & Musson, 2009).Sufficient knowledge base of both biological science and disease conditions is important. The extent of a health provider's knowledge base may depend on both memory capacity and training, which vary among individual health providers.
Age and experience	Older and more experienced clinicians are better able to apply system one processes in diagnosis because they have well developed mental models of diseases. However also as the clinicians grow older they also develop problems considering alternative models and switching tasks during the diagnostic process. (Croskerry and Musson 2009).
Personality & physical state	Personality influences can affect clinical reasoning and decision making (Croskerry and Musson 2009). For example, arrogance may lead to overconfidence, this personality trait is highly identified as a source of diagnostic error. (Berner and Graber, 2008).Other traits such as openness, agreeableness help in positive decision making because clinicians are open to divergent views and feedback. Certain physical states can impede correct decision making. For example, burn out, sleep deprivation have been found to impede system 2 processing interventions on system 1 process (crockery and Musson, 2009).

2.6. Referral structure of public medical facilities in Kiambu County Kenya.

Table 2.

Hospital	Services provided
1. National hospital (Kenyatta National Hospital)	1. All services provided Has mostly, specialists and general doctors.
2. County hospitals (Kiambu and Thika County Hospitals)	2. All services provided Five or more doctors, 1 or 2 specialists Limited services provided
3. Sub-County hospitals (Tigoni Hospital)	3. Generally 5 or fewer doctors, usually few specialists.
4. Health centers (Limuru Health Center).	4. Primary health care reproductive services. No doctors and so mainly served by nurses and Clinical Officers.
5. Dispensaries (Rironi Health Center).	5. Mostly served by at least two nurses and only offers general outpatient service. No doctors and no clinical officers.

Source (MOH, 2014-2030)

The referral structure of public medical facilities in Kenya with some of the hospitals in Kiambu as a representative model.

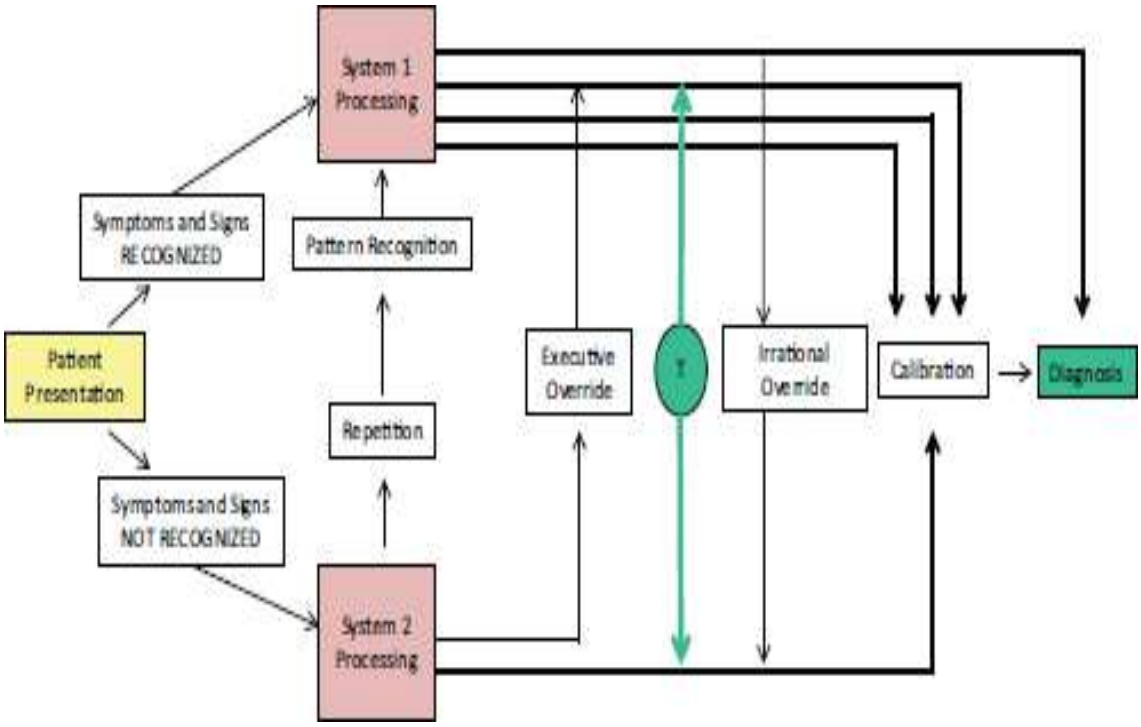
The Kenya health system is structured into six broad levels: National referral hospital is the highest point (level 6),county general hospital(level 5), Sub-county hospitals (level 4), while health centers are at level 3, dispensaries at level 2 and the community at level 1.Kenya has in the past decade been trying to integrate mental health into levels 1,2 and 3 of the health system but the heavy healthcare worker workload severely restricts the provision of mental health care. There are very few dmental health workers in each district (Rachel, et al., 2010). This has led to mental health services being given by available clinicians who are not trained in mental health.

2.6. Theoretical framework

Dual process model theory.

This theory was first stated by Jonathan Evans in 1975 (Evans J. S., 2007).The theory states that there are two different and distinct types of processes or cognitive systems that underlie thinking and reasoning. These are referred to as system 1 and system 2.(Evans, 2003) . System 1 is referred to as the fast system, while system 2 is referred to as the slow system of reaching a diagnosis.

FIGURE II. THE DUAL PROCESS MODEL OF DIAGNOSTIC DECISION MAKING.



2.7. The dual process model of diagnostic decision making. (Evans, 1984)

System 1, this is the fast system, here a clinician employs mental shortcuts that are automatically and unconsciously employed. This can facilitate decision making, although it can also lead to errors. System 1 process is used mostly when patients present with typical signs and symptoms of a disease. How information is processed through system 1 and system 2, tells how a clinicians subsequent diagnostic performs. (Evans, 2003).

Systems 2 is used in situations where there is novelty and difficulty, where the signs and symptoms are atypical or when clinicians lack expertise (Evans & Stanovich, 2013). In regard to this research, it means that clinicians only pay close attention to symptoms when they have not encountered the symptoms before, hence engage in an analytic process to help them come up with a diagnosis. System 2 processes, are slow and serial, hence only one arrow stemming from system 2 processes depicting analytical decision making. This could be the reason why clinicians prefer system 1 to system 2.

The executive override pathway shows that system 2 surveillance has the potential to overrule system 1 decision making which leads to improved decision making because analytical thinking may correct inaccuracies, although it is not a guarantee for correct decision making.

When system 1 is correct and there is an override from system 2, this can lead to incorrect decision making. However also when system 1 overrides system 2, this can lead to irrational decision making. The way in which data is processed through system 1 and 2, determines the health care providers' diagnostic abilities and limitations. This includes comparing a patient's signs and symptoms with the health care provider's mental model of diseases. This may involve comparing the illness script with prototypes. If a match occurs, then a diagnosis is made. This is an example of a fast system, which what happens mostly at the primary health care level hospitals.) (Evans J. S., 2007)

Sometimes symptoms are not recognized or they trigger several mental disease models at once. When this happens, slow system 2 may be applied and the health care provider will continue to gather, integrate and interpret potential and relevant information to reach a working diagnosis and also communicate the diagnosis to the patient.

System 1 and 2, perform best in different types of clinical settings. System 1 performs optimally in high, reliable and predictable environments but may fall short in uncertain and irregular settings, for example, the primary health care levels, where most clinicians are young and not specialized. System 2 works in relaxed and unhurried environments.). (Evans J. S., 2007).

A Novice health care provider is more likely to use system 2 processing which involves analytical reasoning throughout the diagnostic process compared to health care providers who have greater expertise and well-developed mental models of disease which lead to more reliable matchmaking; that is system 1 processes. (Croskerry,2009).

In regard to the current study, primary health care facilities mostly tend to use system 1 in diagnosis. This involves coming up with a diagnosis according to a previous similar treated case with similar symptoms. Because of a large number of patients and limited time, this could be the reason clinicians apply system 1, to help them in fast diagnosis and treatment. While in primary health care facilities there are no specialists who work better with system 1, this means that the error margin in a wrong diagnosis could rise up. Also in primary health care level, while patients may need investigations to help come up with a diagnosis, which is in system 2, patients are rarely sent for investigations unless the symptoms are new, making it hard to apply system 1.

2.8 Rationale

Studies indicate that there is a high prevalence of undetected psychiatric disorders among adolescents attending primary healthcare facilities in Kenya and around the world. Udedi did a study and found that mental disorders are not easily diagnosed by clinicians attending to them. He found that there was a 0% detection rate of mental disorders in the outpatient department, while there was a 30% prevalence of mental disorders. (Udedi, 2014).

In Kiambu county, there has been no research carried out to show how often psychiatric disorders are missed. Adolescents in Kiambu will still continue to suffer silently from undiagnosed mental disorders if research is not done in this area to create knowledge, hence greatly lowering the quality of life of adolescents. It is therefore important to conduct a study in Kiambu County, to help create a database that can be used in making policies and also enhance doing further research to help in creating interventions. These interventions will greatly help in meeting the mental health needs of adolescents attending primary health care facilities and improving their quality of life.

2.9. Significance of the study.

1. Rural health facilities management is going to be involved in the study and this will help them to be aware of the presence or absence of psychiatric morbidity among adolescents attending their institutions.

2. Findings will also help in showing the need for the establishment of primary psychiatric services among rural health facilities, and mental health screening and intervention among adolescents attending the outpatient department.

3. The study hopes to provide additional information to the current database of information on the prevalence of psychiatric morbidity among adolescents. The research will help form a basis for generalization with other researches.

4. This research will help in filling the knowledge gap that is there on the prevalence of mental disorders, how often they are missed, and also factors that lead to undetected diagnosis among adolescents in the study area. The results will also give a basis for more research studies on intervention that will in help in policy making and implementation regarding diagnosis and treatment of adolescents and in turn greatly impact the quality of mental health led by adolescents in Kiambu

5. This study will help in filling the knowledge gap that is there in Kiambu county, Limuru Sub-County on how prevalent and how often the psychiatric disorders are diagnosed, and also factors contributing to lack of detection of psychiatric diagnosis attending Limuru health center facility

2.10. Research questions.

Are psychiatric disorders in adolescents detected at primary health care facilities in Kiambu by health care workers?

2.11. Hypothesis

This study hypothesizes that there is a low detection of psychiatric disorders among adolescents by primary health care workers.

2.13. Objectives

2.13.1 Main objective

The overall objective of this study is to determine the missed diagnosis of psychiatric disorders among adolescents attending a primary health care facilities.

2.13.2 Specific objectives

The specific objectives are to determine;

1. the prevalence and pattern of adolescent psychiatric morbidity among adolescents attending Limuru rural health facility in Kiambu County-Limuru Sub-County;
2. the percentage of undetected psychiatric diagnosis;
3. examine socio-demographic correlates of psychiatric disorders among adolescents;
4. perceived health care provider factors that lead to undetected psychiatric diagnosis.

CHAPTER 3

3.0 METHODOLOGY

3.1. Study design

The study was a descriptive cross-sectional design.

3.2. Study area

The study was conducted at Limuru health center which is in Limuru sub-county, Kiambu County, Kenya. Limuru health center is a rural health facility located at the town center of Limuru, approximately 30km from Nairobi. It caters to the population living in Limuru town and its outskirts. The health center has an Outpatient Department service for adults and children over 5 years, Mother-Child clinic, Antenatal clinic, HIV Comprehensive Care Center, laboratory and also an inpatient Maternity Wing. It has a total of 3 clinical officers, 12 nurses, 2 lab technicians, and 2 voluntary counseling and testing counselors. There is no trained staff in mental health who attends to the outpatients. The health facility serves a total of approximately 2000 outpatient department clients per month, which aged of 5 years and above. Children under five yaers of age are seen at the Mother-Child Clinic.

3.3. Study population.

The study targeted adolescents both male and female aged between 11-21 years old attending Limuru health center. The patients came from an area neighboring the hospital, mostly from low socio-economic setups and from all religious backgrounds. This age group comprised mainly of upper primary pupils and high school students and a small population from early years of college and not in college.

3.4. Inclusion criteria.

1. Adolescents attending Limuru health center facility in Kiambu County, Limuru Sub County.

2. Adolescents whose parents agreed to give written consent for eligibility, and those over 18 years, who gave their own written consent.

3. Adolescents who were willing to participate in the interview by giving assent and consent and were between 11 and 21 years.

3.5. Exclusion criteria

1. Unaccompanied adolescents below the age of 18 years attending Limuru health center facility.
2. Very sick adolescents
3. Adolescents who did not give assent and consent.
4. Adolescents who did not meet the age group criteria that is those under 11 years and those above 21 years.
5. Adolescents within the age bracket but whose parents refused to give consent.

3.6. Sample size

The size was calculated using Cochran's formulae

$$n=\frac{z^2 p(1-p)}{e^2}$$

n=minimum sample size=355

The standard value of the standard deviation that referred to the area under the normal distribution of values.1.96

P=the percentage of the population with characteristic under investigation.50%

D=Degree of accuracy desired that is the error margin set at 5%.

e=desired level of precision i.e margin error.

Z=Standard normal deviate corresponding to 95%confidence level (1.96)

Final sample size =300

Since target population is < 10,000, the study samples will be proportionally adjusted as follows:

$$nf = \frac{n}{1 + \left(\frac{n-1}{N}\right)}$$

Where

Nf is the proportionally adjusted sample size since the population is <10,000

n is the desired sample size when the population is greater than 10000

N is the population

Final population=300

3.7. Variables.

Independent variable

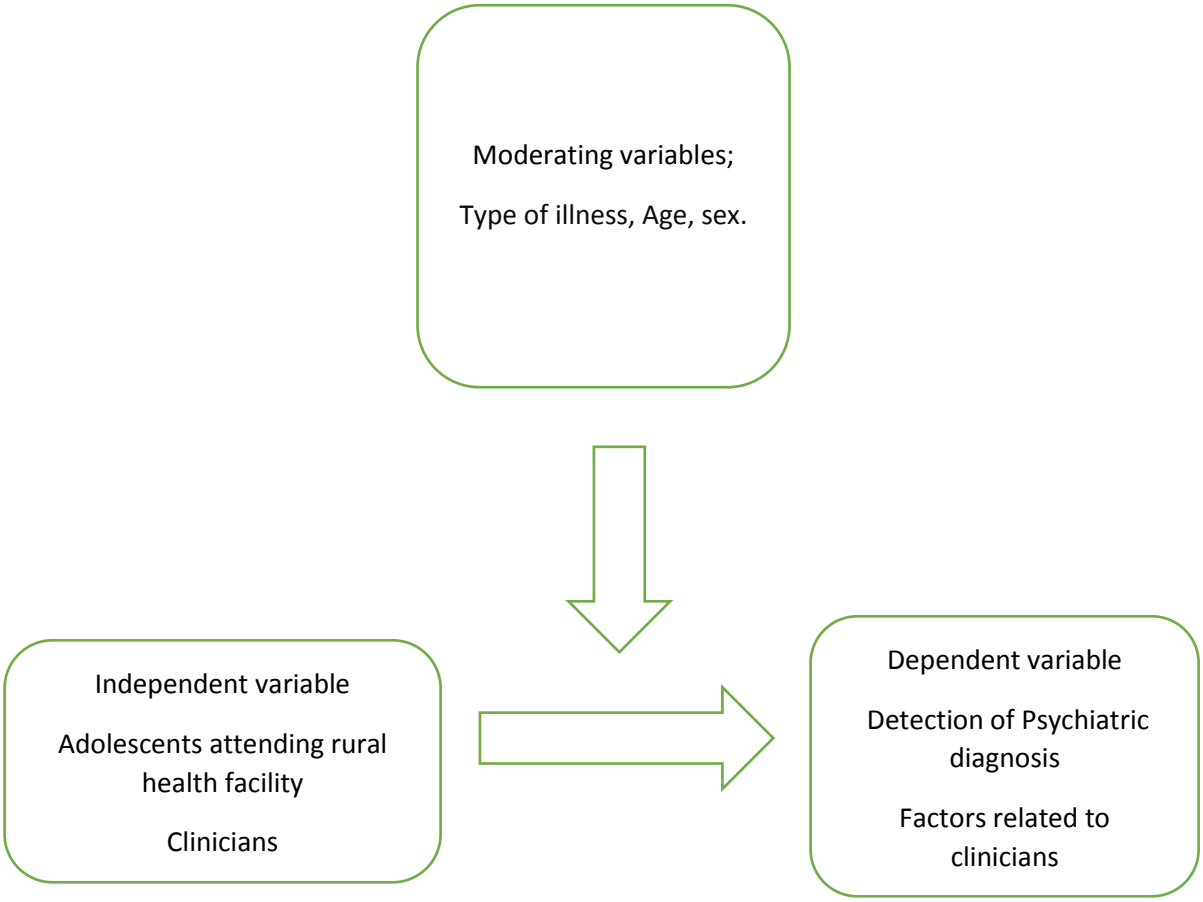
The independent variable was being an adolescent and having a psychiatric disorder and clinicians.

Dependent variable

Dependent variable was the detection of a psychiatric disorder among the identified adolescent and factors among clinicians leading to lack of detection.

It was hypothesized that there is a low detection of psychiatric disorders and also that there are factors leading to undetected psychiatric diagnosis among adolescents by health care providers. Being an adolescent predisposes one to develop a mental disorder which in turn can be missed during diagnosis. The moderating variables included type of illness, age and sex. See Fig.ii.

FIGURE III



3.8. Sampling.

Random sampling technique was used to pick participants from the adolescents attending the outpatient department at Limuru health center who meet the criteria. The adolescent were picked from the queue after consultation with the attending clinician and before they picked their prescribed treatment from the pharmacy. All the adolescents attending the health facility and meeting the inclusion criteria were chosen regardless of their sex

3.9. Data collection tools

Study participants were all subjected to the same questions in the socio demographic questionnaire and MINI kid tool. The questionnaires was administered directly by the researcher. Dr.Mbwayo (Department of psychiatry UON and study supervisor) trained the researcher on how to use the MINI Kid tool before data collection.

3.9.1 A socio-demographic questionnaire

This was designed by the researcher to capture the socio-demographic variables of the adolescent. The information captured included: age, gender, marital status, level of education/current class, employment, type of job, parent's occupation, parents income, their religion and how many people live in their household. The questionnaire also contained questions on health data which will include; how long the participant has had the complaints that they came to the hospital with, how many times they had visited the hospital in the last one year and whether they had ever been diagnosed with a mental health condition before.

3.9.2 Mini-international Neuropsychiatric interview (M.I.N.I kid).

The Mini-international Neuropsychiatric interview is a short diagnostic interview that was developed jointly by clinicians and psychiatrists in Europe and the United States. It is designed to help meet the need for short and also accurate psychiatric interview. It is designed to give a brief structured interview for major psychiatric disorders in the DSM. Its administration takes approximately 15 minutes and M.I.N.I screen of approximately 5 minutes. The MINI kid assesses 30 common mental disorder and disorder subtypes (Sheehan et al., 1998).It has acceptable validity and reliability and clinicians need relatively brief training sessions. MINI kid has been used in Kenya for various studies. It was used in 2013, to carry out a study on prevalence of psychiatric morbidity among juvenile offenders committed to borstal institutions in

Kenya (Okwara, 2013) .The researcher will be using the current version of MINI kid English version 7.0.2 standard. Which was used together with the DSM 5.

3.9.3 Clinician self-structured questionnaire.

This questions was developed by the researcher to help assess clinicians' knowledge on treatment and management of psychiatric disorders among adolescents. The questions comprised of open-ended questions. The questionnaire assessed challenges experienced by clinicians during the diagnostic process of psychiatric disorders, common types of psychiatric disorders, their attitude towards giving a psychiatric diagnosis and their feelings about engaging in training involving mental health service provision.

3.10 Testing.

Testing of the sample size and the tool was done at Rironi Health center, which attends to approximately the same number of adolescents in a year.

3.11 Procedure of administration

. The interview was done over a period of 6 weeks, taking 5 days a week, conducting approximately ten interviews per day. Each interview will take approximately 30 to 40 minutes.

Upon arrival at the facility, the researcher obtained permission from the clinician in charge. The researcher picked the participants through random sampling at the triage area as they awaited to be attended by the clinician according to the participants who meet the inclusion criteria. The researcher explained to the adolescent and the parent what the research is about.

After the adolescents had been attended to by the clinician, the researcher then directed them to a room near the pharmacy department, where the interview took place. They were reminded once again the

purpose of the study and if they were still willing to take part, consent and assent information document was read to them and explained to.

The researcher first obtained assent from participants aged less than 18 years, and then obtain consent from the parent. When consent has been obtained the researcher will then administer the socio-demographic questionnaire to the participant, and then administer the MINI Kid. The responses were recorded as the participant answered. After the interview , the participant was thanked and compensated with a bottle of water. Confidentiality was ensured during the whole period of data collection. Those identified to have psychiatric disorders were reported to the clinician in charge and referral made appropriately. The filled questionnaires, consent and assent forms, were put in a box at the end of each day, the box was sealed and transported to the data analysis site. Debriefing was also be done for those participants who got overwhelmed by the questions asked.

After data had been collected from the adolescent participants, data was then collected from the clinicians. The clinicians were approached in the morning and assembled in a room, before the day's procedures started, the research was explained to them, consent was obtained and the questionnaires given out to those who agreed to participate. Those who were not willing to participate were thanked and released. They were to fill the questionnaire, and they were later collected by the researcher. The participating clinicians were then thanked for participating and any questions they may have answered. Collected data will then be put in a box, which will be sealed and transported to the data analysis site.

3.12. Quality assurance procedures

Before the research was conducted, the participants will be briefed on the nature of the study and necessary instructions will be given. Each child will be presented with an assent form, which will be read and explained to them. The parents will also be given a copy of the consent form, and they will also be

read to and any clarifications needed will be clarified. They will also receive a copy indicating the institution, identity of the researcher, the supervisors, the purpose and also the procedure of administration. They will also be informed that participation is voluntary and will be allowed to withdraw if they want.

Questionnaires will be administered by the researcher .Questions will be read out to the participant in the language they understand best, and the tools will be filled as the participant responds to the question.

Pretest of the questionnaire will also be done to assure the quality of the data collected .The researcher will use coded serial numbers on each questionnaire without names to ensure confidentiality.

Information that will be obtained will be safely stored by the researcher in safe boxes and sealed as they await analysis to ensure confidentiality. Privacy and confidentiality will be maintained throughout the research period.

3.13. Ethical considerations

The process began by obtaining approval from the Department of Psychiatry, University of Nairobi and then application of ethical clearance from Kenyatta National Hospital Research and Ethics Committee. The researcher then sought

Permission from Limuru sub-county was sought, as Limuru health center is under Limuru sub-county.

The research did not involve any invasive procedures.

Consent was obtained from the parents. The consent form was read and explained to the parent and any clarifications needed were made. Assent was obtained from the adolescents and they were not to be forced to participate in the study if they didn't want to. They were informed that they can withdraw if they wanted to with no penalties.

Adequate time was allowed for the participant to consider whether they wanted to participate.

The researcher's contacts were availed to the adolescents who wanted further directions or referral for management and treatment of psychiatric disorders.

Confidentiality was maintained during the whole data collection process .The filled consent forms and research instruments were put in a box that was sealed and only be accessible to the researcher. Clients' names were not put on any of the forms and tools and serial numbers were used instead.

There were no invasive procedures that were carried on the participants .Client who felt uncomfortable or are affected in any way by the questions were assisted accordingly through counselling and proper referral.

There was no direct benefit to the participant and that was explained to both the parent and the participants. But adolescents found to be having mental health conditions, were properly referred for treatment and management.

3.14. Data management

At the end of each day, all questionnaires filled were put in a box that was sealed. This was then transported to the data entry point. All research materials including the informed consent and assent forms, researcher designed socio-demographic questionnaires, MINI-KID tool, Clinician self-structured questionnaires, and the results were kept safe by locking them in a safe box. Soft copies in the computer drives were password protected.

3.15. Data analysis

All data collected was checked before analysis, there was double entry, cleaning and then analysis

The questionnaires were entered and analyzed using SPSS version 25.Descriptive and inferential statistics (Chi square test, frequency, proportions mode , mean, median) was used to define variables .Findings were presented in the form of text, charts, graphs, and tables .

The data from semi structured questionnaires was analyzed question by question, which was then summarized into themes and presented through narrative and verbatim.

3.16. Presentation of data

The analyzed data was presented in tables, graphs charts, and narratives

3.17. Benefits

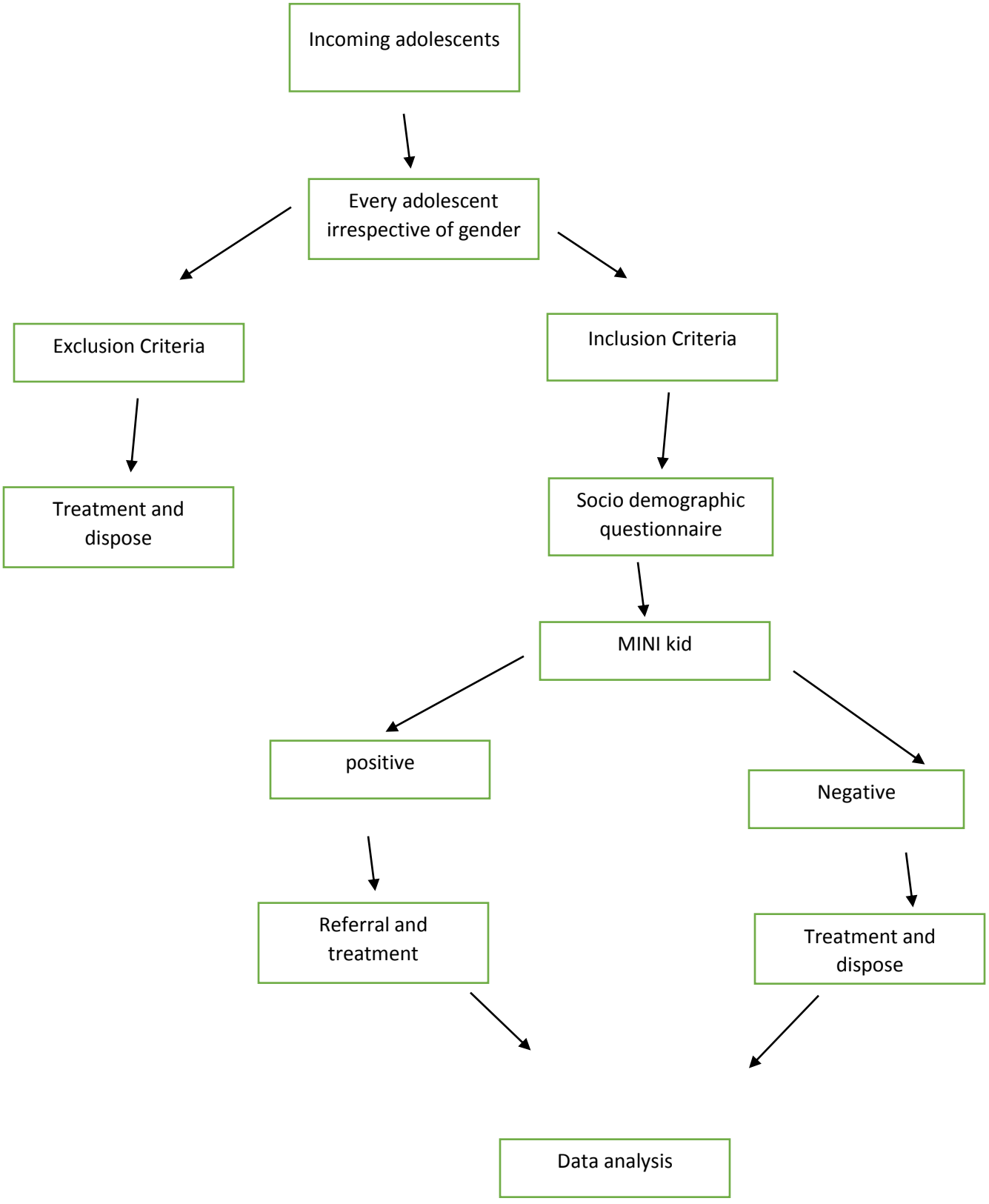
Findings will help in the establishment of measures to enable proper screening of mental health disorders among adolescent, hence early diagnosis and treatment.

The study will be of great help to the ministry of health and also Kiambu County in showing the gap in mental health screening and diagnosis, and also the probability of increased morbidity rate among this age group.

It will also provide more current statistics on prevalence and help assess whether the prevalence has gone up or down.

The participating adolescents will also get a chance to do a self-assessment on themselves on the probability of having a mental a mental disorder.

FIGURE IV. FLOW CHART



CHAPTER 4

4.0 RESULTS

A total of 300 adolescents were interviewed over a period of 8 weeks :A total of 180 females(60%) and 120 males (40%).Thus a ratio of female to male of 3:2.The study involved adolescent participants aged between 11-21 years attending Limuru health center facility.300 participants were interviewed. Most participants were between the ages of 14-21 which accounted to 71%.Out of the 300 adolescents interviewed 67% had a positive psychiatric diagnosis, and the clinicians were able to detect 4% of the detected psychiatric diagnosis.

TABLE 3

Variable	Frequency	Percent
Age categories		
11-13	88	29.3
14-17	112	37.3
18-21	100	33.3
Gender		
Male	120	40
Female	180	60
Marital status		
Married	19	6.3
Single	281	93.7
Education Level of the participants		
Primary	113	37.8
Secondary	165	55.2
College	21	7.0
Employed		
Yes	23	7.7
No	277	92.3
Occupation		
Unskilled	34	11.3
Student	259	86.3
No occupation	7	2.3
Religion		
Christian	293	97.7
Muslim	7	23.3

TABLE 4. PARENTS SOCIO DEMOGRAPHICS

Variable	Frequency	Percent
Parents marital status		
Single	68	22.7
Married	192	64
Separated,widowed	40	13.3
Parents income(Cumulative)		
1000-10000	19	6.3
10,000-20,000	202	67
More than 20,000	79	26.3

While there was a prevalence of 67% adolescents with a psychiatric diagnosis, the clinicians were only able to detect 9% of the psychiatric diagnosis without any accurate diagnosis 33% had no psychiatric diagnosis.

FIG III . PREVALENCE OF PSYCHIATRIC DISORDERS

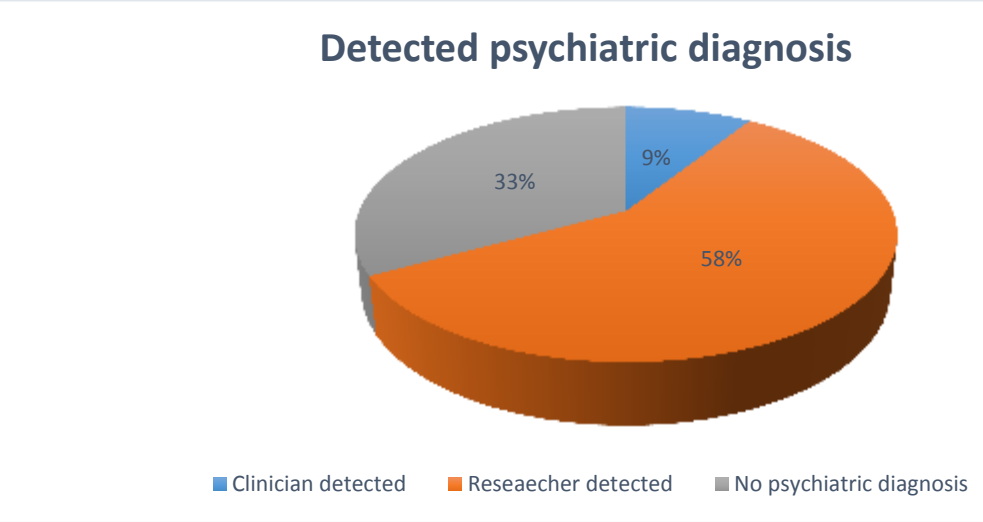


TABLE 5. DISTRIBUTION OF NUMBER PARTICIPANTS IN DIFFERENT AGEGROUPS AND GENDER.

Age category	**Male**	**Female**	**Total**
11-13	26	27	53
14-17	33	48	81
18-21	18	50	68
Total	77	125	202

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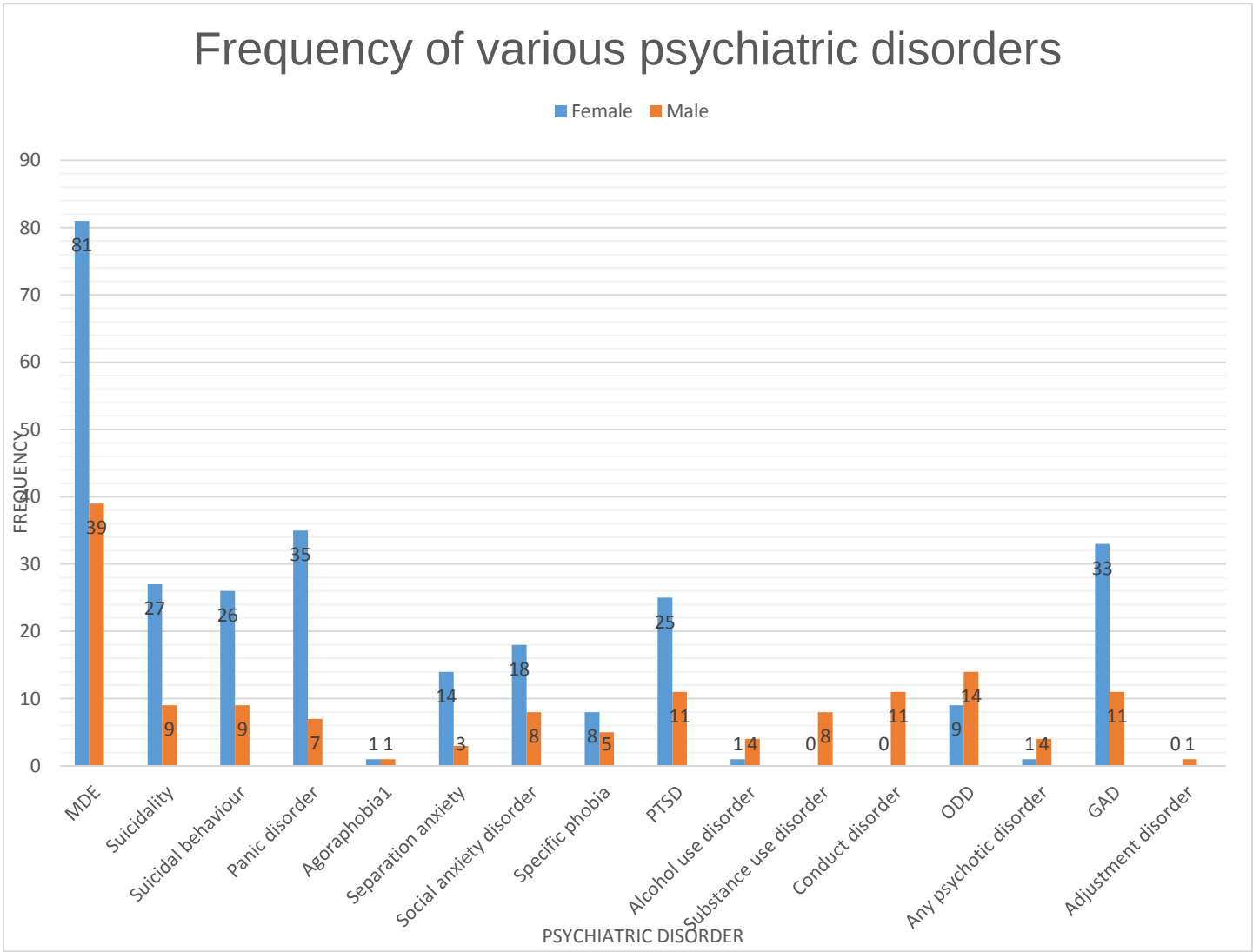
FIGURE V. FREQUENCY OF VARIOUS PSYCHIATRIC DIAGNOSIS



Female participants had a higher number of most psychiatric disorders with major depressive disorder having the highest number with 81 females. Male seemed to be more prone than females to conduct disorder, substance use disorder and ODD.

TABLE 6 .CROSS TABULATION BETWEEN VARIOUS PSYCHIATRIC DIAGNOSIS AND GENDER

Psychiatric diagnosis	**Gender**		**Total**	**Chi square**	**P value**
	Male	Female			
MDE	39	81	120	4.6888	**0.03**
Suicidality Current episode	9	27	36	3.835	**0.05**
Suicidal behavior Current	7	23	30	5.470	0.125
General anxiety disorder	11	33	44	4.384	**0.028**
Social anxiety	8	18	26	1.011	0.315
Panic disorder	7	35	42	11.079	**0.01**
Specific phobia disorder	5	8	13	.013	.908
Post-traumatic stress disorder	11	25	36	1.520	.218
Conduct disorder Childhood onset	11	0	11	17.128	**.000**
Separation anxiety	3	14	17	3.752	0.053
Oppositional defiant disorder	14	9	23	4.520	**0.033**
Substance use disorder	8	0	8	12.239	**0.000**

There was more comorbidity in female participants compared to males, with 65 female participants having 2 or more comorbid psychiatric disorders.

TABLE 7. PSYCHIATRIC COMORBIDITIES

Comorbidities	Male	Female	Total	Percent
1 psychiatric disorder	30	41	71	23.7
2 psychiatric comorbid	11	27	38	12.7
3 or more psychiatric comorbid	28	38	66	22

No of hospital visits

There was a total of 801 hospital visits by all the adolescents, with a minimum of 1 visit and a maximum of 13 hospital visits. The mean was 2. Most of the adolescents had visited the hospital at least 3 times in the last one year which amounted to 30 % of the total visits. Age categories 14-21 had the highest number of visits which equated to (212) 80 % in both categories.

TABLE 8: NO OF HOSPITAL VISITS IN THE LAST ONE YEAR

No of hospital visits.	**Total no of hospital visits**										
Age categories	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**10**	**13**	**Total**
11-13	**23**	**21**	**29**	**10**	**3**	**1**	**0**	**0**	**1**	**0**	**88**
14-17	**25**	**29**	**32**	**17**	**5**	**1**	**1**	**0**	**2**	**0**	**112**
18-21	**26**	**26**	**29**	**8**	**7**	**0**	**0**	**1**	**2**	**1**	**100**
Total	**74**	**76**	**90**	**35**	**15**	**2**	**1**	**1**	**5**	**1**	**300**

FIG VI: NO OF HOSPITAL VISITS MADE BY THOSE DIAGNOSED WITHIN DIFFERENT AGE CATEGORIES (MALE).

Most of the male participants diagnosed with a psychiatric disorder had come to the hospital at least 3 times .Age category 14-17 made the most hospital visits but the number went down again as they got older. Also those who came for 4 visits seemed to increase as the age categories went up.

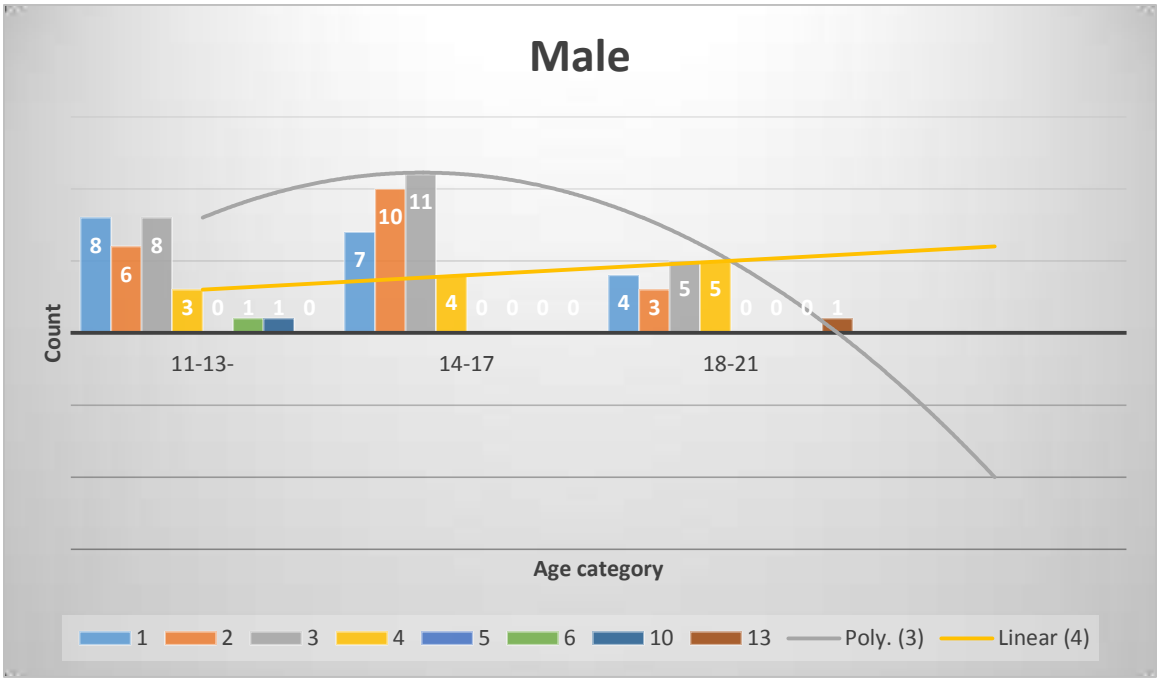
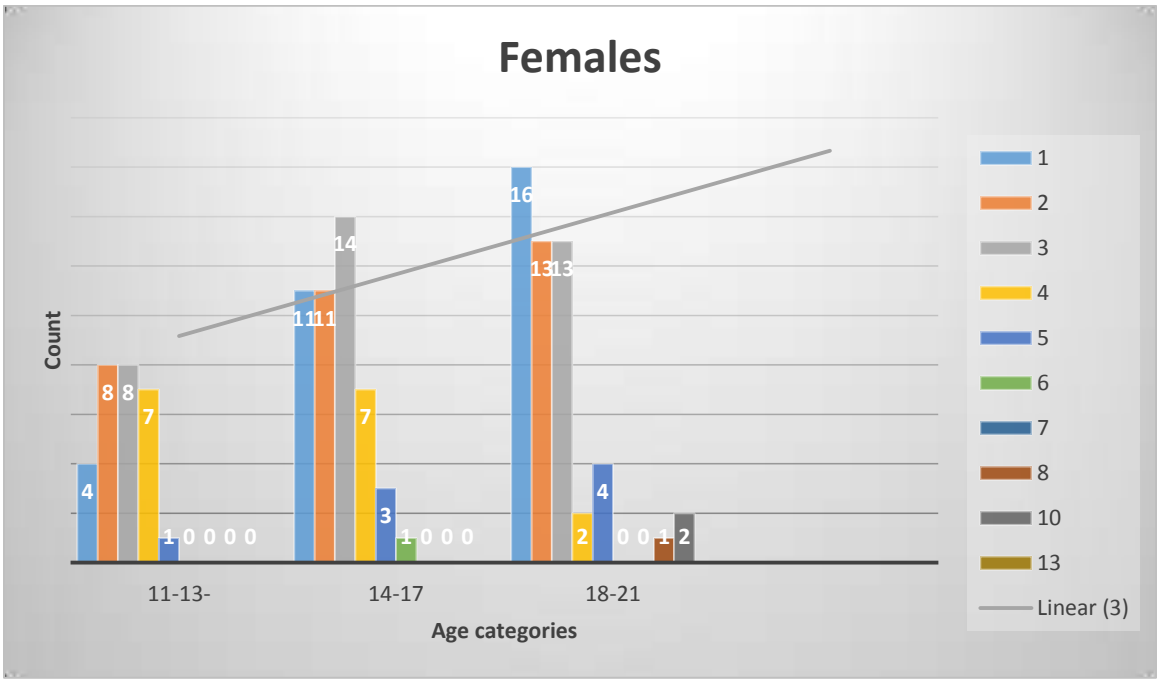


Fig vi: no of hospital visits made by those detected with a psychiatric diagnosis within different age categories (female)



Physio-biological Systems (Somatic complaints) of those diagnosed with a psychiatric disorder.

Most of the participants had come to the hospital with complaints related to the respiratory systems with 76 participant. The number of participants whose GIT was affected increased as the age categories went up. Others included malaria, dysmenorrhea, soft tissue injuries and suspected tumors and fractures.

There was no correlation between the diagnosed psychiatric disorders and the Physio-biological systems (somatic complaints) of the participants.

Table 9: physio-biological systems (somatic complaints) of those diagnosed with a psychiatric disorder.

System affected	**Frequency of those diagnosed with a psychiatric diagnosis**				
	Psychiatric Disorder diagnosed		**No psychiatric disorder**		**Total**
	Male	**Female**	**Male**	**Female**	
Respiratory system	31	43	16	22	112
Dermatological	13	3	7	3	26
Gastro intestinal	12	21	10	6	49
Musculoskeletal	13	26	4	13	56
UTI	1	4	1	3	9
Central nervous system	0	0	0	1	1
Other	7	28	4	8	43
Total	77	125	42	56	300

Figure vii: systems of those affected with a psychiatric condition

Table 9.relationship between diagnosed psychiatric disorders and socio demographic factors .

		No	Yes	Total	Chi-Square	P value
Education	Primary	38	75	113	2.847	.241
	Secondary	49	116	165		
	College	10	11	21		
Participant's marital status	Single	90	191	281	.822	.365
	Married	8	11	19		
Income	No income	88	189	277	1.481	.477
	1000-5000	7	10	17		
	5001-10000	3	3	6		
Occupation	Unskilled,skilled	11	23	34	.338	.844
	student	84	175	259		
	unskilled self employed	3	4	7		
Religion	Christian	96	197	293	.055	.815
	Muslim	2	5	7		
Income	1000-10000	5	14	19	2.492	.288
	10001-20000	72	130	202		
	More than 20000	21	58	79		
Previous diagnosis of mental illness	Yes	0	2	2	.977	.323
	No	200	98	298		
Gender	Male	43	77	120	.912	.340
	Female	55	125	185		

Perceived factors that lead to undetected psychiatric diagnosis.

Qualitative data analysis

11 participants participated in the study. All the participants were from Limuru health center. The criteria for participation, was all the health workers who attended to adolescents in the outpatient department through treatment and diagnosis. This included nurses and clinicians at the health center.

Data was collected inform of self-structured questionnaires with open ended questions. Participants were called together and explained to about the study. Consent was obtained and they were given the questionnaires to go with them at their respective departments as per request. Questionnaires were collected after one hour.

QUALITATIVE DATA

Qualitative data was analyzed thematically per question.

Table 10: qualitative data

Question	Theme	Sub themes
1- what are some of the challenges you experience when faced by an adolescent with a Mental disorders	Challenges	Knowledge
		Communication skills
		Time
		Tools
2. Which are the common psychiatric disorders that you encounter at your clinic	Common Mental Disorders	Depression
		Psychosis/Schizophrenia
		stress
		Violence
		Anxiety
		Tantrums
		Lack of proper feeding
3. When you encounter an adolescent with a mental disorder, do you usually write the psychiatric diagnosis on the patient's card? For example schizophrenia. If not give reasons why?	Diagnosing	No ,We treat physical symptoms
4. Are there any tools you use in confirming your psychiatric diagnosis?	Use of tools	None
5. What do you usually do, when you make a diagnosis of a psychiatric disorder or suspect an adolescent may be suffering from a psychiatric disorder	Management	Referral
6. Do you feel that you have adequate knowledge to help you in diagnosing and	Knowledge on diagnosis	None

treatment of mental disorders among adolescent?		
7. Would you consider engaging in training on mental health, treatment, and management of adolescents with psychiatric disorders?	Continuous studies in mental disorders	yes

Challenges

- **Knowledge**

Participants reported that they did not have enough knowledge to help them in diagnosing mental disorders and making treatment. One participant reported that apart from lack of knowledge on issues pertaining mental disorders they were also not aware of the needs of that age group. "*I don't have proper understanding on the needs of that age group".* In a different question, all the participants reported that they felt that they had inadequate knowledge to help them diagnose and treat mental disorders among adolescents. "*I don't have enough knowledge on how to diagnose".*

- **Communication skills**

Most participants also reported that they felt they did not know how to communicate effectively with the adolescents, hence found it a challenge in making a diagnosis. Most participants reported that adolescents result to being mute when asked questions and they did not know how to handle that. *"When I ask the adolescent question, they result in silence and I don't know how to deal with that".* Apart from silence, the participants also felt that the adolescent did not trust them, probably leading to communication breakdown between clinicians and adolescents. *"They don't always disclose their issues, so it's hard to deal with them".*

- **Time**

  Few participants felt that time factor was a real challenge for them .They felt they did not have enough time to keep probing the adolescent. *"I don't have that much time to spend with them because I have to attend to many patients".*

- **Tools**

  A few percentage also felt that they felt challenged because they did not have tools to help them make diagnosis. While they could send the patients to the lab for physical symptoms to ascertain presence of a disease, they did not know what to do with mental disorders. *"While I send patients to the lab for their physical symptoms, I don't know what to do with mental ones because there are no tools to help me in diagnosing".*

Common mental disorders

All the participants seemed to have encountered one disorder or the other .Most of the participants said they had encountered depression and schizophrenia, other commonly encountered were drug use and stress. *"The most common mental condition I have encountered is psychosis and stress".* Few of the participants reported that they had encountered violence, anxiety, throwing of tantrums and lack of proper feeding.

Diagnosing

Most participants said they did not write a mental diagnosis on the adolescent's card. This is because when they suspected a mental disorder they refereed the case, others were not sure how to go about the diagnosis, while others felt they had inadequate knowledge on diagnosing and treatment of mental disorders.One participant when asked whether she writes a diagnosis on the patient's card said *"No, because I don't feel like I have adequate knowledge to diagnose and treat mental disorders".* One

participant simply said *"No, I am not a psychiatrist".* Another participant said, *"No, I just write and treat the medical symptoms and refer to a psychiatrist for the other diagnosis".*

One of the participants said that they wrote the diagnosis, for easier follow up by the next health worker. *"Yes I write for better follow up by the next clinician".* Few others simply said yes.

Use of tools

Most of the participants reported that they did not use any tools in confirming of mental disorders diagnosis. Few participants said yes. *"Yes, I use the patient's history as a tool to make diagnosis".*

Referral

All the participants reported that they usually refer any adolescent they suspect to have a mental disorder .Some of said they would simply make referrals to the next level hospital, while other said they would refer the adolescent specifically to a psychiatrist or psychologist. A few participants said they simply refer the adolescent to a counselor of their choice.

CHAPTER FIVE

5.0. DISCUSSION

5.1. PSYCHIATRY MORBIDITY PREVALENCE AND DETECTION

The study found that there was a prevalence of psychiatric disorders among the adolescents attending Limuru health center outpatient department, with 67% being diagnosed with various psychiatric disorders.

The clinicians were only able to detect 9% of the participant found to have had a psychiatric disorder and they did not give the exact right diagnosis. This shows that the undetection rate was 91% of all participants diagnosed with a psychiatric disorder by MINI Kid.

A similar study by Ndetei found that although there was a 41..3% children and adolescents with psychiatric disorders, clinicians were only able to detect 2.5% of the sample studied. (Ndetei, Khasakhala, Mutiso, & Mbwayo, 2009).

Overall Ndetei's study found that although there was an overall prevalence of depression,the rate of detection was very low,which is similar to this study.

5.2. COMMON PSYCHIATRIC DISORDER

The current study found that depression was the most prevalent mental disorder among both male and female participants with a cumulative percent of 40%.

Other similar study done in Ethiopia found that depression was the leading non communicable disease among the Ethiopian population.

5.3. RELATIONSHIP BETWEEN SOCIO DEMOGRAPHIC FACTORS

There was also no significant correlation between other socio demographic factors with development of a psychiatric disorder among the adolescents attending the primary health care facility. This is in contrast with other studies which have shown a significant correlation between sociodemographic characteristics.

In the study there was no much difference in economic status of the patients Most of the patients families earned between 10,000-20000.

A study in Romania showed that adolescents who came from low socio economic backgrounds tended to exhibit mental health problems more and also more subjective health complains.(Varga, Piko, & Fitzpatrick, 2014).

5.4. PERCEIVED FACTORS THAT LEAD TO UNDETECTED PSYCHIATRIC DIAGNOSIS

The study found that the clinicians did not have adequate knowledge on psychiatric disorders to enable them to make correct diagnosis.

The Clinicians also did not have proper communication skills to enable them interview the adolescents or react to their silence which is also linked to inadequate knowledge. Similar study by Ndetei found that there was a gap in knowledge on psychiatric disorder among health care workers in general (Ndetei et al;2011).

The study also found that there was inadequate time because of the many patients clinician ratio, hence the clinician had to spend minimum time possible with every patient, which did not allow for screening of common psychiatric disorders.

Similar studies done in Gaza showed that PHC spent an average of 5 to 10 minutes with each patient, which was inadequate a mental health assessment. (Afana et al 2002).

Afana also found that psychiatric disorder treatment was not feasible because of time and financial constraint.

Apart from time there are also no tools to help in screening of psychiatric disorders except symptomatically. While there were tools to help screen for physical disorders like TB, STI's, there was no tool to help the clinicians to be able to detect psychiatric disorders among the attending adolescents, a similar study showed that clinicians were not able to detect psychiatric disorders due to lack of diagnostic vigilance(Afana et al 2002).

The study also found that the common psychiatric disorders that the clinicians were able to diagnose included psychosis, stress and substance use whose symptoms are forthright. A similar study documented that general health workers who were non psychiatric were more likely not to be able to detect a psychiatric disorder in patients visiting the hospital (Ndetei et al;2011).

The study also found that the clinicians did not write a psychiatric diagnosis if they suspected one because they concentrated on the physical symptoms, they preferred to refer to the next level hospital. A similar study in Delta state, Nigeria found that non psychiatric health workers believed that psychiatric disorders could only be diagnosed and managed by psychiatrists.(Ethno. Med 2009).

CHAPTER 6

6.1. CONCLUSION

This study was done with an objective of finding out whether there were psychiatric disorders among adolescents attending primary health care facilities and whether the health care professionals were able to detect the psychiatric disorders, and also factors that could have led to low detection. While integration of mental health services into primary health care is important to help in meeting the needs of the community, quantitative data indicated that there was a high prevalence of various psychiatric disorders among adolescents attending the primary health care facility, and also a very low detection rate by the clinicians.

Qualitative data also indicated that there was a variety of factors that led to low detection among this age group. The hypothesis generated was that there is very low detection of psychiatric diagnosis among adolescents attending primary health care facilities.

The findings highlight a need for continuous trainings among health care professionals on psychiatric disorders among adolescents.

While studies indicate that Kenya is among the 70% of countries that set less than 1% of its health budget on healthcare; (Duncan , 2012); this study emphasis the need of increasing resources allocated to mental health at the primary health care level.

6.2 RECOMMENDATION

Future research is recommended to help in development of strategies and protocols to improve efficiency and effectiveness in detection of this psychiatric disorders among adolescents attending primary health care facilities in Kenya.

6.3 LIMITATION

Sampling in the small waiting bay within the corridor of the outpatient department caused a stir among the patient.

Some adults could add their children's age so as they could be assessed.

There was no proper channel to refer those who were found positive of psychiatric diagnosis.

The clinicians participating in the study, were not all available the same day hence researcher had to go different shifts to get the health workers.

TABLE 10. STUDY BUDGET

Category	**Remarks**	**Units**	**Unit cost**	**Total in cash**
Proposal printing	Printing	3	600	1800
Proposal	Kenyatta National Hospital Ethics Research Committee.	1	2000	2000
Data collection	Stationary pack(Papers, pencil, pens)	4	500	5000
	Photocopying socio-demographic questionnaire and Mini Kid tool	4000	3	12,000
Data analysis	Statistician-For data result interpretations	1	25000	25,000
	Printing Thesis (final copy	4	1000	4000
Transport	Transport to the research site.	100	30	3000
Water	Bottle of water for each participant	20	300	6000
Contingency Fund(10% of total expenses)				3500
Total cost				62,300

Table 11: Time frame

Description	Months								
	May-June 2018	July-August	September	October-November	December-January	February-April	May-June	July-August	August-September
Proposing topic									
Proposal writing									
Literature review									
Proposal defense and correction									
Ethics and research board									
Data collection									
Data analysis									
Compilation and preservation									
Results presentation									

CHAPTER 7

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APPENDIX 1: PARTICIPANT INFORMATION AND CONSENT FORM

PARENTAL CONSENT FORM.

Title of Study: Missed psychiatric diagnosis among adolescence attending Primary Healthcare facility in Kiambu county and related clinician factors.

Principal Investigator: Mercy Wanjiru Chege

Institutional affiliation: University of Nairobi

Introduction:

I would like to tell you about a study being conducted by the above researcher. The purpose of this consent form is to give you the information you will need to help you decide whether or not your child should participate in the study. Feel free to ask any questions about the purpose of the research, what happens if your child participates in the study, the possible risks and benefits, the rights of your child as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide if you want your child to be in the study or not. This process is called 'informed consent'. Once you understand and agree for your child to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your child decides to participate is entirely voluntary ii) You child may withdraw from the study at any time without necessarily giving a reason for his/her withdrawal iii) Refusal to participate in the research will not affect the services your child is entitled to in this health facility or other facilities.

May I continue? YES / NO

For children below 18 years of age, we give information about the study to parents or guardians. We will go over this information with you and you need to give permission in order for your child to participate in this study. We will give you a copy of this form for your records.

WHAT IS THE PURPOSE OF THE STUDY?

The researcher named above is interviewing individuals who are between the ages of 11-21. The purpose of the interview is to find out Missed psychiatric diagnosis among adolescence attending Primary Healthcare facility in Kiambu county and related clinician factors. Participants in this research study will be asked questions about their living circumstances and their mental health.

There will be approximately 300 participants in this study randomly chosen. We are asking for your consent to consider your child to participate in this study.

WHAT WILL HAPPEN IF YOU DECIDE YOU WANT YOUR CHILD TO BE IN THIS RESEARCH STUDY?

If you agree for your child to participate in this study, the following things will happen:

Your child will be interviewed by the researcher in a private area where they will feel comfortable answering questions. The interview will last approximately 20 minutes. The interview will cover topics such as mental health and their general wellbeing

.

ARE THERE ANY RISKS, HARMS, DISCOMFORTS ASSOCIATED WITH THIS STUDY

Medical research has the potential to introduce psychological, social, emotional and physical risks. Effort should always be put in place to minimize the risks. One potential risk of being in the study is a loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify your child in a password-protected computer database and will keep all of our paper records in a

locked file cabinet. However, no system of protecting confidentiality can be absolutely secure so it is still possible that someone could find out your child was in this study and could find out information about your child.

Also, answering questions in the interview may be uncomfortable for your child. If there are any questions they do not want to answer, they can skip them. They have the right to refuse the interview or any questions asked during the interview.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

We will refer your child to a hospital for care and support if necessary. Also, the information you provide will help us better understand your child and provide advice concerning their mental health. This information will be a major contribution to science and to the county of Kiambu.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

Being in this study will not cost you any financial costs, but will cost you your time as you wait for your child to be interviewed.

_____

IS THERE REIMBURSEMENT FOR PARTICIPATING IN THIS STUDY?

There will be no reimbursement of any form

_____

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about your child participating in this study, please call or send a text message to the researcher at the number provided at the bottom of this page.

For more information about your child's rights as a research participant, you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

WHAT ARE YOUR OTHER CHOICES?

Your decision to have your child participate in this research is voluntary. You are free to decline or withdraw participation of your child in the study at any time without injustice or loss of benefits.

Just inform the study staff and the participation of your child in the study will be stopped. You do not have to give reasons for withdrawing your child if you do not wish to do so. Withdrawal of your child from the study will not affect the services your child is otherwise entitled to in this health facility or other health facilities.

For more information contact Mercy Wanjiru Chege at 0720814503 from

8 am to 5 pm,Monday to Friday.

CONSENT FORM (STATEMENT OF CONSENT)

The person being considered for this study is unable to consent for him/herself because he or she is a minor (a person less than 18 years of age). You are being asked to give your permission to include your child in this study.

Parent/guardian statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions answered by him or her in a language that I understand. The risks and benefits have been explained to me. I understand that I will be given a copy of this consent form after signing it. I understand that my participation and that of my child in this study is voluntary and that I may choose to withdraw at any time.

I understand that all efforts will be made to keep information regarding me and my child's personal identity confidential.

By signing this consent form, I have not given up my child's legal rights as a participant in this research study.

I voluntarily agree to my child's participation in this research study:

Yes No

I agree to have my child undergo the interview.

I agree to provide contact information for follow-up: Yes No

Parent/Guardian signature /Thumb stamp: _____ Date _____

Parent/Guardian printed name: _____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given his/her consent.

Printed Name: _____ **Date**: _____

Signature: _____

Role in the study: _____ *[i.e. study staff who explained informed consent form.]*

Witness Printed Name (*If witness is necessary*) _____

Signature: _____ **Date**; _____

APPENDIX 2: KISWAHILI PARENT CONSENT FORM.

Kichwa cha Utafiti: Ukosefu wa ugonjwa wa akili unapotea kati ya ujana wa kuhudhuria kituo cha huduma ya afya ya msingi katika kata ya Kiambu na sababu zinazohusiana na daktari.

Mtafiti Mkuu : Mercy Wanjiru Chege

Uhusiano wa taasisi: Chuo Kikuu cha Nairobi

Utangulizi:

Ningependa kukuambia kuhusu utafiti uliofanywa na mtafiti hapo juu. Madhumuni ya fomu hii ya idhini ni kukupa taarifa unayohitaji ili kukusaidia kuamua ikiwa mtoto wako au lazima afanye kushiriki katika utafiti huo. Jisikie huru kuuliza maswali yoyote kuhusu madhumuni ya utafiti, kinachotokea ikiwa mtoto wako anashiriki katika utafiti, hatari na faida iwezekanavyo, haki za mtoto wako kama kujitolea, na chochote kingine kuhusu utafiti au fomu hii ambayo sio wazi. Tunapojibu maswali yako yote kwa kuridhika kwako, unaweza kuamua kama unataka mtoto wako awe katika utafiti au la. Utaratibu huu unaitwa 'kibali cha habari'. Mara unapoelewa na kukubaliana na mtoto wako awe katika utafiti, nitawaombea kusaini jina lako kwenye fomu hii. Unapaswa kuelewa kanuni za jumla ambazo zinatumika kwa washiriki wote katika utafiti wa matibabu: i) Uamuzi wako wa mtoto wa kushiriki ni kikamilifu kwa hiari ii) Mtoto anaweza kujiondoa kwenye utafiti wakati wowote bila kutoa sababu ya kuondolewa kwake iii) Kukataa kushiriki katika utafiti hautaathiri huduma ambazo mtoto wako ana haki katika kituo hiki cha afya au vifaa vingine.

Naweza kuendelea? NDIO LA

KNH-UoN / ERC / FORM / IC02

Ukurasa wa 4 Version 1.1 Aprili, 2016

Kwa watoto walio chini ya umri wa miaka 18 tunatoa maelezo juu ya utafiti kwa wazazi au walezi. Tutaenda juu ya habari hii na wewe na unahitaji kutoa ruhusa ili mtoto wako atashiriki katika utafiti huu. Tutakupa nakala ya fomu hii kwa rekodi zako.

Ongeza maoni juu ya kuongezeka (e.g Ikiwa mtoto ana umri anaweza kufahamu kile kinachofanyika yeye / yeye atahitajika kukubali kushiriki katika utafiti baada ya kuwa na habari kamili).

NINI MADA YA UTAFITI?

Mtafiti aliyeitwa hapo juu anahojiana na watu walio kati ya umri wa miaka 11-21. Madhumuni ya mahojiano ni kujua Ukosefu wa ugonjwa wa akili wakati wa ujana unahudhuria kituo cha huduma ya afya ya msingi katika kata ya Kiambu na sababu zinazohusiana na daktari. Washiriki katika utafiti huu wa utafiti wataulizwa maswali kuhusu mazingira yao ya maisha na afya yao ya akili.

Kutakuwa na washiriki karibu 300 katika utafiti huu kwa nasibu waliochaguliwa. Tunaomba ridhaa yako kufikiria mtoto wako kushiriki katika utafiti huu.

NINI KITAKACHO FANYIKA USIPOKUBALI MTOTO WAKO KUSHIRIKI UTAFITI HUU?

Ikiwa unakubaliana na mtoto wako kushiriki katika utafiti huu, mambo yafuatayo yatatokea:

Mtoto wako atahojiwa na mhojiwaji mwenye ujuzi katika eneo la kibinafsi ambako watahisi vizuri kujibu maswali. Mahojiano itaendelea dakika 20. Mahojiano itafikia mada kama afya ya akili na ustawi wao mkuu

.

NINI KITAKAHO FANYIKA UKIITKISHA MTOTO WAKO KUSHIRIKI KATIKA UTAFITI HUU?

Utafiti wa matibabu una uwezo wa kuanzisha hatari za kisaikolojia, kijamii, kihisia na kimwili. Jitihada zinapaswa kuwekwa daima ili kupunguza hatari. Hatari moja ya kuwa katika utafiti ni kupoteza faragha. Tutaweka kila kitu unachotuambia kama siri iwezekanavyo. Tutatumia namba ya nambari ili kutambua mtoto wako katika database ya salama ya kompyuta iliyohifadhiwa na itaweka rekodi zote za karatasi kwenye baraza la mawaziri lililofungwa. Hata hivyo, hakuna mfumo wa kulinda siri unaweza kuwa salama kabisa na bado inawezekana kwamba mtu anaweza kujua mtoto wako katika utafiti huu na anaweza kupata habari kuhusu mtoto wako.

Pia, kujibu maswali katika mahojiano inaweza kuwa na wasiwasi kwa mtoto wako. Ikiwa kuna maswali yoyote ambayo hawataki kujibu, wanaweza kuwapiga. Wana haki ya kukataa mahojiano au maswali yoyote yaliyoulizwa wakati wa mahojiano.

Je, kuna faida yoyote kuwa katika utafiti huu?

Tutaelekeza mtoto wako kwa hospitali kwa ajili ya huduma na msaada ikiwa ni lazima. Pia maelezo unayoyatoa itatusaidia kuelewa vizuri mtoto wako na kutoa ushauri kuhusu afya ya akili. Taarifa hii itakuwa mchango mkubwa kwa sayansi na kata ya Kiambu.

KUNA GHARAMA YOYOTE ITAKAYO NIGHARIMU KATIKA KUSHIRIKI KWA HII UTAFITI?

Kuwa katika utafiti huu hakutakulipia gharama yoyote ya kifedha, lakini itawabidi wakati wako unapojaribu mtoto wako kuhojiwa.

_____

Je, kuna rejea kwa ajili ya kushiriki katika hii kujifunza?

Hakutakuwa na malipo yoyote ya fomu

_____

Je ukiwa na maswali baadaye?

Ikiwa una maswali zaidi au unatafuta kuhusu mtoto wako kushiriki katika utafiti huu, tafadhali piga simu au tuma ujumbe wa maandishi kwa mtafiti kwa nambari iliyotolewa chini ya ukurasa huu. Kwa habari zaidi kuhusu haki za mtoto wako kama mshiriki wa utafiti unaweza kuwasiliana na Katibu / Mwenyekiti, Chuo Kikuu cha Taifa cha Kenyatta-Chuo Kikuu cha Nairobi Kamati ya Maadili na Utafiti Namba ya 2726300 Ext. 44102 barua pepe uonknh_erc@uonbi.ac.ke. NINI CHANGO CHINI CHINI? Uamuzi wako wa kuwa na mtoto wako kushiriki katika utafiti huu ni hiari. Wewe ni huru kupungua au kuondoa ushiriki wa mtoto wako katika utafiti wakati wowote bila udhalimu au kupoteza faida. Wajulishe watumishi wa utafiti na ushiriki wa mtoto wako katika utafiti utaacha. Huna haja ya kutoa sababu za kumtoa mtoto wako ikiwa hutaki kufanya hivyo. Kuondolewa kwa mtoto wako kutoka kwenye utafiti haitaathiri huduma ambazo mtoto wako ana hakika katika kituo hiki cha afya au vituo vingine vya afya. Kwa habari zaidi wasiliana na Mercy Wanjiru Chege saa 0720814503 kuanzia saa 8 asubuhi hadi 5:00, Jumatatu hadi Ijumaa.

Fomu ya Mwezi 1.1 Aprili, 2016 Fomu ya

(TAARIFA YA KUITIKIA)

Mtu anayezingatiwa kwa ajili ya utafiti huu hawezi kujikubali kwa sababu yeye ni mdogo (mtu chini ya umri wa miaka 18). Unatakiwa kutoa kibali chako cha kuingiza mtoto wako katika utafiti huu. Taarifa ya mzazi / mlezi Nimeisoma fomu hii ya idhini au nilisoma habari. Nimekuwa na fursa ya kujadili utafiti huu wa utafiti na mshauri wa utafiti. Nimekuwa na maswali yangu akajibu naye kwa lugha ambayo ninaelewa. Hatari na faida zimeelezewa kwangu. Ninaelewa kuwa nitapewa nakala ya fomu hii ya idhini baada ya kuisaini. Ninaelewa kwamba ushiriki wangu na wa mtoto wangu katika utafiti huu ni hiari na kwamba nipate kuchagua kuchagua wakati wowote. Ninaelewa kuwa jitihada zote zitafanywa kuweka habari kuhusu mimi na siri ya utambulisho wa mtoto wangu. Kwa kusaini fomu hii ya kibali, sijaacha haki za kisheria za mtoto wangu kama mshiriki katika utafiti huu wa utafiti. Mimi kwa hiari kukubali ushiriki wa mtoto wangu katika utafiti huu wa utafiti: Ndiyo Hapana Nakubali kuwa mtoto wangu apate mahojiano. Ninakubaliana kutoa maelezo ya mawasiliano kwa ajili ya kufuatilia: Ndio Hapana Msaidizi wa Mzazi / Msaidizi / Nguzo ya Thumb: _____ Tarehe _____ Mzazi / Taarifa ya Mwandishi: _____ Taarifa ya Mtafiti Mimi, aliyechaguliwa, ameelezea kikamilifu maelezo ya utafiti wa utafiti huu kwa mshiriki aliyechaguliwa hapo juu na kuamini kwamba mshiriki ameelewa na ametoa idhini yake kwa ujuzi. Jina la kuchapishwa: _____ Tarehe: _____ Saini: _____ Jukumu katika utafiti: _____ [yaani,. wasomaji ambao walielezea fomu ya kibali cha habari.] Jina la Mashahidi Kuchapishwa (Ikiwa ushahidi ni muhimu) _____ Saini: _____ Tarehe; _____

APPENDIX 3: MINOR ASSENT DOCUMENT

Project Title: Missed psychiatric diagnosis among adolescence attending Primary Healthcare facility in Kiambu county and related clinician factors.

Principle Investigator: Mercy Wanjiru Chege

I am doing a research study about adolescents mental health.

Permission has been granted to undertake this study by the Kenyatta National Hospital-University of Nairobi Ethics and Research Committee (KNH-UoN ERC)

This research study is a way to learn more about adolescent's mental health. At least 300 adolescents aged between 11-21 will be participating in this research study with you.

If you decide that you want to be part of this study, you will be asked to questions about living circumstances and where you live, questions about your general health and about your mental health. The whole interview will take approximately 20 minutes.There will be no invasive procedures that will be carried out on you.

There are some things about this study you should know. These are; you may be asked questions that are likely to make you feel uncomfortable, or that may provoke emotions, the interview may take some of your time.

Not everyone who takes part in this study will benefit. A benefit means that something good happens to you. We think these benefits might be getting referred for mental health care if need be.

If you do not want to be in this research study, you are allowed to drop out and no penalties will be suffered, and you will be directed where to go.

When we are finished with this study we will write a report about what was learned. This report will not include your name or that you were in the study.

You do not have to be in this study if you do not want to be. If you decide to stop after we begin, that's okay too. Your parents know about the study too.

If you decide you want to be in this study, please sign your name.

I, _____, want to be in this research study.

_____ _____ (Signature/Thumb stamp)

Date

Kitambulisho cha Usajili

Kichwa cha Mradi: Ukosefu wa ugonjwa wa akili ulipoteza miongoni mwa vijana wanaohudhuria kituo cha huduma ya afya ya msingi katika kata ya Kiambu na sababu zinazohusiana na daktari.
Mtafiti Mkuu: Mercy Wanjiru Chege
Ninafanya utafiti wa utafiti kuhusu vijana wenye afya ya akili.
Ruhusa imetolewa kufanya utafiti huu na Kliniki ya Taifa ya Kenyatta-Chuo Kikuu cha Nairobi Kamati ya Maadili na Utafiti (KNH-UoN ERC)
Utafiti huu wa utafiti ni njia ya kujifunza zaidi kuhusu afya ya akili ya vijana. Watoto angalau 300 wenye umri kati ya 11-21 watashiriki katika utafiti huu wa utafiti na wewe.
Ikiwa unaamua kuwa unataka kuwa sehemu ya utafiti huu, utaulizwa maswali kuhusu hali ya maisha na mahali ulipo, maswali juu ya afya yako ya jumla na kuhusu afya yako ya akili. Mahojiano yote yatachukua muda wa dakika 20. Hakutakuwa na taratibu za uvamizi ambazo zitafanyika kwako.
Kuna baadhi ya mambo kuhusu utafiti huu unapaswa kujua. Hizi ni; unaweza kuulizwa maswali ambayo yanaweza kukufanya usihisi wasiwasi, au ambayo inaweza kusababisha hisia, mahojiano inaweza kuchukua muda wako.
Si kila mtu anayeshiriki katika utafiti huu atafaidika. Faida ina maana kwamba kitu kizuri kinatokea kwako. Tunadhani faida hizi zinaweza kupata usaidizi wa huduma za afya ya akili ikiwa ni lazima.
Ikiwa hutaki kuwa katika utafiti huu wa utafiti, unaruhusiwa kuacha na hakuna adhabu zitakabiliwa, na utaelekezwa wapi kwenda.

Tunapomaliza na somo hili tutaandika ripoti kuhusu kile kilichojifunza. Ripoti hii haitajumuisha jina lako au ulikuwa katika utafiti.
Huna budi kuwa katika utafiti huu ikiwa hutaki kuwa. Ikiwa unaamua kuacha baada ya kuanza, hiyo ni

sawa pia. Wazazi wako wanajua kuhusu utafiti pia. Ikiwa unaamua unataka kuwa katika somo hili, tafadhali saini jina lako. Mimi, _____, nataka kuwa katika utafiti huu wa utafiti.

_____ _____ (Sawa ya saini / Thumb)

Tarehe

APPENDIX 4: SOCIO-DEMOGRAPHIC DATA:

Serial No.....

Clinical Card No.....

Ascribed diagnosis by health care provider…….

1. Age

2. Sex Male ☐ Female….. ☐

3. Marital status (tick where appropriate)

☐ Single

☐ Married

☐ Widowed/Separated

☐ Other

4. Current level of education

☐ None

☐ Primary

☐ Secondary

☐ College

☐ University

5. Are you employed? ☐ Yes No ☐

6. What is your occupation?

☐ Skilled

☐ unskilled

☐ Student

☐ Others (Specify)

7. If working what is your monthly income?

☐ 1000-5000

☐ 5001-1000

☐ More than 10,000

8. What is your parent/Guardian's occupation?

9. What is your parent's income?

☐ 1000-10000

☐ 10001-20000

☐ More than 20001

10. What is your religion? (Please tick one)

Christian Muslim Other

11. How many people live in your household?

Health Data

12. How many visits have you made to this health center in the last 12 months?

13. For how long have you had the symptoms? (Tick where appropriate)

☐ Days

☐ Weeks

☐ Months

☐ Years

14. Have you ever been diagnosed with a mental disorder? (Tick where appropriat ☐ Yes…..
☐ No

15. If yes which one.

APPENDIX 5: CLINICIAN'S CONSENT FORM

PARTICIPANT INFORMATION AND CONSENT FORM

SAMPLE ADULT CONSENT

FOR ENROLLMENT IN THE STUDY

(To be administered in English or any other appropriate language e.g Kiswahili translation)

Title of Study: Detection of psychiatric diagnosis among adolescents attending primary health facility in Kiambu county and Clinician related factors.

Principal Investigator: Mercy Wanjiru Chege

Institutional affiliation: University of Nairobi, Department of psychiatry

Introduction:

I would like to tell you about a study being conducted by the above researcher. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES / NO

This study has approval by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol.

WHAT IS THIS STUDY ABOUT?

The researchers listed above are interviewing clinicians. The purpose of the Interview is to find out if psychiatric disorders among adolescents are detected in the outpatient department. Participants in this research study will be asked questions about the diagnosis they make at the outpatient department and their knowledge on mental health.

There will be approximately 20 participants in this study randomly chosen. We are asking for your consent to consider participating in this study.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen:

You will be interviewed by the researcher in a private area where you feel comfortable to answering questions. The interview will last approximately 15 minutes. The

Interview will cover topics such as knowledge on mental health.

We will ask for a telephone number where we can contact you if necessary. If you agree to provide your contact information, it will be used only by people working for this study and will never be shared with others.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional and physical risks.

Effort should always be put in place to minimize the risks. One potential risk of being in the study is loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be absolutely secure, so it is still possible that someone could find out you were in this study and could find out information about you.

Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview or any questions asked during the interview. We will do everything we can to ensure that this is done in private.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

There is no direct or monetary gain from participating in this research but the information you provide will help us better understand whether psychiatric disorders among adolescents are detected in the rural facilities and clinician related factors that contribute to lack of diagnosis. This information is a contribution to science and will lead to further research that enhance interventions.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

Being in the study will not cost you anything financially but it will take some of your time,15 minutes.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the principle investigator at 0720814503.

For more information about your rights as a research participant you may contact the

Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research

Committee Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

The researcher will pay you back for your charges to these numbers if the call is for study-related

Communication.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant's statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my personal identity confidential.

By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: Yes No

I agree to have (define specimen) preserved for later study: Yes No

I agree to provide contact information for follow-up: Yes No Participant printed name: _____

Participant signature / Thumb stamp _____ Date _____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant

named above and believe that the participant has understood and has willingly and freely given

his/her consent.

Researcher's Name: _____ Date: _____

Signature _____

Role in the study: _____ [i.e researcher.]

For more information contact _____ at _____ from

_____ to _____

Witness Printed Name (If witness is necessary, A witness is a person mutually acceptable to both the researcher and participant)

Name _____ Contact information _____

Signature /Thumb stamp: _____ Date; _____

APPENDIX 6: CLINICIAN SELF-STRUCTURED QUESTIONNAIRE.

1. What are some of the challenges you experience when faced by an adolescent with a mental disorder?
2. Which are the common psychiatric disorders you encounter in your clinical work?
3. When you encounter an adolescent with a mental disorder, do you usually write the psychiatric diagnosis on the patient's card? For example schizophrenia. If not give reasons why?
4. Are there any tools you use in confirming your psychiatric diagnosis?
5. What do you usually do, when you make a diagnosis of a psychiatric disorder or suspect an adolescent may be suffering from a psychiatric disorder?
6. Do you feel that you have adequate knowledge to help you in diagnosing and treatment of mental disorders among adolescent?
7. Would you consider engaging in training on mental health, treatment, and management of adolescents with psychiatric disorders?

APPENDIX 7: MINI KID TOOL

M.I.N.I. KID

MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW

FOR **CHILDREN** AND **ADOLESCENTS**

English Version 7.0.2

For

DSM-5

DISCLAIMER
Our aim is to assist in the assessment and tracking of patients with greater efficiency and accuracy. Before action is taken on any data collected and processed by this program, it should be reviewed and interpreted by a licensed clinician. This program is not designed or intended to be used in the place of a full medical and psychiatric evaluation by a qualified licensed physician – psychiatrist. It is intended only as a tool to facilitate accurate data collection and processing of symptoms elicited by trained personnel. It is not a diagnostic test.

Patient Name: Patient Number:

Date of Birth: Time Interview Began:

Interviewer's Name: Time Interview Ended:

Date of Interview: Total Time:

MEETS PRIMARY

MODULES TIME FRAME CRITERIA ICD-10-CM DIAGNOSIS

A MAJOR DEPRESSIVE EPISODE Current (2 weeks) ☐

Past ☐

Recurrent ☐

MAJOR DEPRESSIVE DISORDER Current (2 weeks) ☐ F32.x ☐

Past ☐ F32.x ☐

Recurrent ☐ F33.x ☐

B SUICIDALITY Current (Past Month) ☐ ☐

Lifetime attempt ☐ ☐ Low ☐ Moderate ☐ High ☐

SUICIDE BEHAVIOR DISORDER Current ☐ (In Past Year) ☐

In early remission ☐ (1 - 2 Years Ago) ☐

C MANIC EPISODE Current ☐

Past ☐

HYPOMANIC EPISODE Current ☐

Past ☐ ☐ Not Explored

BIPOLAR I DISORDER Current ☐ F31.0 - F31.76 ☐

Past ☐ F31.0 - F31.76 ☐

BIPOLAR II DISORDER Current ☐ F31.81 ☐

Past ☐ F31.81 ☐

OTHER SPECIFIED BIPOLAR AND RELATED DISORDER Current ☐ F31.89 ☐

Past ☐ F31.89 ☐

D PANIC DISORDER Current (Past Month) ☐ F41.0 ☐

Lifetime ☐ F40.0 ☐

E AGORAPHOBIA Current ☐ F40.00 ☐

F SEPARATION ANXIETY DISORDER Current (Past Month) ☐ F93.0 ☐

G SOCIAL ANXIETY DISORDER (Social Phobia) Current (Past Month) ☐ F40.10 ☐

H SPECIFIC PHOBIA Current (Past Month) ☐ F40.218 – F40.298 ☐

I OBSESSIVE-COMPULSIVE DISORDER Current (Past Month) ☐ F42.2 ☐

J POSTTRAUMATIC STRESS DISORDER Current (Past Month) ☐ F43.10 ☐

K ALCOHOL USE DISORDER past 12 Months ☐ F10.10 - F10.21 ☐

L SUBSTANCE USE DISORDER (Non-alcohol) Past 12 Months ☐ F11.10 - F19.21 ☐

M TOURETTE'S DISORDER Current ☐ F95.2 ☐

PERSISTENT (CHRONIC) MOTOR TIC DISORDER Current ☐ F95.1 ☐

PERSISTENT (CHRONIC) VOCAL TIC DISORDER Current ☐ F95.1 ☐

PROVISIONAL TIC DISORDER Current ☐ F95.0 ☐

N ADHD COMBINED PRESENTATION past 6 Months ☐ F90.2 ☐

ADHD PREDOMINANTLY INATTENTIVE PRESENTATION past 6 Months ☐ F90.0 ☐

ADHD PREDOMINANTLY HYPERACTIVE TYPE PRESENTATION past 6 Months ☐ F90.1 ☐

O CONDUCT DISORDER past 12 Months ☐ F91.1/F91.2/F91.9 ☐

P OPPOSITIONAL DEFIANT DISORDER past 6 Months ☐ F91.3 ☐

Q ANY PSYCHOTIC DISORDER Current ☐ F20.xx-F29 ☐

Lifetime ☐ F20.xx-F29 ☐

MAJOR DEPRESSIVE DISORDER WITH PSYCHOTIC FEATURES Current ☐ F32.3/F33.3 ☐

Past ☐ F32.3/F33.3 ☐

BIPOLAR I DISORDER WITH PSYCHOTIC FEATURES Current ☐ F31.2/F31.5/F31.64 ☐

Past ☐ F31.2/F31.5/F31.64 ☐

R ANOREXIA NERVOSA Current (Past 3 Months) ☐ F50.01/F50.02 ☐

S BULIMIA NERVOSA Current (Past 3 Months) ☐ F50.2 ☐

T BINGE-EATING DISORDER Current (Past 3 Months) ☐ F50.81 ☐

U GENERALIZED ANXIETY DISORDER Current (Past 6 Months) ☐ F41.1 ☐

V ADJUSTMENT DISORDERS Current ☐ F43.20 – 43.25 ☐

W MEDICAL, ORGANIC, DRUG CAUSE RULED OUT ☐ No ☐ Yes ☐ Uncertain

X AUTISM SPECTRUM DISORDER cannot be ruled out ☐ F84.0 ☐

IDENTIFY THE PRIMARY DIAGNOSIS BY CHECKING THE APPROPRIATE CHECK BOX.

(Which problem troubles you the most or dominates the others or came first in the natural history?)

INTERVIEWER INSTRUCTIONS

INTRODUCING THE INTERVIEW

The nature and purpose of the interview should be explained to the child or adolescent prior to the interview. A sample introduction is provided below:

"I'm going to ask you a lot of questions about yourself. This is so that I can get to know more about you and figure out how to help you. Most of the questions can be answered either 'yes' or 'no'. If you don't understand a word or a question, ask me, and I'll explain it. If you are not sure how to answer a question, don't guess - just tell me you are not sure. Some of the questions may seem weird to you, but try to answer them anyway. It is important that you answer the questions as honestly as you can so that I can help you. Do you have any questions before we start?"

For children under 13, we recommend interviewing the parent and the child together. Questions should be directed to the child, but the parent should be encouraged to interject if s/he feels that the child's answers are unclear or inaccurate. The interviewer makes the final decision based on his/her best clinical judgment, whether the child's answers meet the diagnostic criterion in question. With children you will need to use more examples than with adolescents and adults.

GENERAL FORMAT:

The MINI is divided into **modules** identified by letters, each corresponding to a diagnostic category.

• At the beginning of each diagnostic module (except for psychotic disorders module), screening question(s) corresponding to the main criteria of the disorder are presented in a **gray box**.

• At the end of each module, diagnostic box (es) permit the clinician to indicate whether diagnostic criteria are met.

CONVENTIONS:

Sentences written in «normal font» should be read exactly as written to the patient in order to standardize the assessment of diagnostic criteria.

Sentences written in «CAPITALS» should not be read to the patient. They are instructions for the interviewer to assist in the scoring of the diagnostic algorithms.

Sentences written in «bold» indicate the time frame being investigated. The interviewer should read them as often as necessary. Only symptoms occurring during the time frame indicated should be considered in scoring the responses.

Answers with an arrow above them (➡) indicate that one of the criteria necessary for the diagnosis or the diagnoses is not met. In this case, the interviewer should go to the end of the module and circle «NO» in all the diagnostic boxes and move to the next module.

When terms are separated by a *slash (/)* the interviewer should read only those symptoms known to be present in the patient (for example, question L2b).

Phrases in (parentheses) are clinical examples of the symptom. These may be read to the patient to clarify the question.

FORMAT OF THE INTERVIEW

The interview questions are designed to elicit specific diagnostic criteria. The questions should be read verbatim. If the child or adolescent does not understand a particular word or concept, you may explain what it means or give examples that capture its essence. If a child or adolescent is unsure if s/he has a particular symptom, you may ask him/her to provide an explanation or an example, to determine if it matches the criterion being investigated. If an interview item has more than 1 question, the interviewer should pause between questions to allow the child or adolescent time to respond.

Questions about the duration of symptoms are included for diagnoses when the time frame of symptoms is a critical element. Because children may have difficulty estimating time, you may assist them by helping them connect times to significant events in their lives. For example, the starting point for "past year" might relate to a birthday, the end or beginning of a school year, a particular holiday or another annual event.

RATING INSTRUCTIONS:

All questions must be rated. The rating is done at the right of each question by circling either YES or NO. Clinical judgment by the rater should be used in coding the responses. The rater should ask for examples when necessary, to ensure accurate coding. The child or adolescent should be encouraged to ask for clarification on any question that is not absolutely clear.

The clinician should take each dimension of the question into account (for example, time frame, frequency, severity, and/or alternatives).

Symptoms better accounted for by an organic cause or by the use of alcohol or drugs should not be coded positive in the MINI Kid. The MINI Kid has questions that investigate these

issues (Module W). For any questions, suggestions, need for a training session or information about updates of the MINI Kid, please contact:

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email: dsheehan@health.usf.edu