

**PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING
PSYCHIATRIC TREATMENT AT MATHARI NATIONAL TEACHING AND
REFERRAL HOSPITAL IN NAIROBI, KENYA.**

BY

DR. ALFRED GITONGA MIRITI

H58/ 88048/ 2016

**A RESEARCH PROJECT PREPARED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
MEDICINE IN PSYCHIATRY, SCHOOL OF MEDICINE, UNIVERSITY OF
NAIROBI**

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Name of student: ALFRED GITONGA MIRITI
Registration Number: H58/88048/16
College: HEALTH SCIENCES
Faculty/School/Institute: SCHOOL OF MEDICINE
Department: PSYCHIATRY
Course Name: MASTER OF MEDICINE
Title of the work: **PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT AT MATHARI NATIONAL TEACHING AND REFERRAL HOSPITAL IN NAIROBI, KENYA.**

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Dr. Fredrick Owiti

Department of Psychiatry, (University Of Nairobi).

Supervisor.

Signature 

Date 28th August 2020

Dr. Manasi Kumar

Department of Psychiatry, (University Of Nairobi).

Supervisor.

DEDICATION

To my immediate family without whose inspiration and encouragement, I would not have come this far. To my Dear Grandmother Lydia Igoki Njeru and aunt Esther Ithima Metha without whom I would not have weathered many storms in life, To Dr. Frank Njenga for his tutelage and selfless professional mentorship, to Dr. Fredrick Owiti and Dr. Manasi Kumar for their tireless academic mentorship and immense support, encouragement and inspiration to rise to the occasion and strive to be better than my best.

ACKNOWLEDGEMENT

I wish to give special thanks to Dr. Manasi Kumar (UON), Dr, Fredrick Owiti (UON), Mr. Derrick Ssewanyana (KEMRI), and Dr. Rose Opiyo (UON) who have shared their invaluable expertise and provided me with constant guidance when developing this research proposal. I am also highly indebted to Professor. Fred Were, Albert Tele, Dr. Boniface Chitayi, Ms. Dino Owiti, my colleagues and friends for their input, advice, encouragement and support throughout the course.

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LIST OF ABBREVIATIONS

1. GD - Gambling Disorder
2. DSM - Diagnostic and Statistical Manual of Mental Disorders
3. ICD 10- International Classification of Diseases 10
4. USD - United States Dollar
5. Kshs - Kenya Shillings
6. SPSS - Software Package for Statistical Analysis
7. SUDS - Substance Use Disorders
8. PPGM - Problem and Pathological Gambling Measure
9. ATGS - Attitude Towards Gambling Score
10. BCLB - Betting Control and Licensing Board
11. PWC - Price Waterhouse Coopers
12. NODS - NORC DSM-IV Screen for Gambling Problems
13. CPGI - Canadian Pathological Gambling Index
14. SOGS - South Oaks Gambling Screen

STRUCTURED ABSTRACT

Gambling disorder is a behavioral psychiatric condition exemplified primarily by maladaptive, recurrent persistent patterns of gambling activity leading to personal, social and communal problems. The monumental surge in the supply of different gambling products in Kenya coupled with a lax regulatory environment and ease of access through mobile devices and payment via mobile money has led to widespread participation in the habit among the general public resulting in significant psychiatric morbidity and social problems. The main objective of this study was to determine the prevalence of gambling disorder among patients seeking psychiatric treatment in Mathari National Teaching and Referral Hospital in Nairobi, Kenya. The sample size obtained was 240 participants. The participants were selected using Systematic random sampling. Data collection was through a researcher administered questionnaire. Ethical considerations were adhered to. Data entry and analysis was by SPSS Version 23. Data from 193 questionnaires was deemed fit for analysis giving a response rate of 80.4%. Cumulatively, both Problem and Pathological Gamblers constituted 79.8% of the population of the study and represents the proportion of respondents with gambling disorder. Gambling disorder was most prevalent among males. Cigarette smoking was found to be associated with an increased prevalence of problem and pathological gambling while older Age (above 46 years) was a protective factor. The relationship between problem and pathological gambling and the diagnosed psychiatric disorders was not significant. 76.2% of the respondents had an overall negative attitude towards gambling, This study established the overwhelming presence of gambling disorder amongst a psychiatric population, who are vulnerable members of the society and recommends that the screening and treatment of gambling disorder should be mainstreamed in psychiatric clinical practice in Kenya as it has a high undiagnosed prevalence and co-morbidity rate.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Problem

Gambling is an expansive practice that incorporates assorted events, attempted in a wide array of settings, engaged in by a myriad of individuals, and done in different ways. Gambling as an event involves the intentional risking of value on an event whose outcome is not given (Ssewanyana & Bitanhirwe, 2018). This includes activities like bingo, tables, lottery, betting against others on a match, and sports betting. It is a global activity and has become very popular across age groups and cultures. Overall, in approximately 2.3% of participants, it can proceed to progress and become a psychiatric illness called gambling disorder (GD) (Williams et al., 2012).

Gambling disorder is a psychiatric illness exemplified primarily by maladaptive, recurrent persistent patterns of gambling activity (American Psychiatric Association, 2013). It is also called compulsive betting or gambling addiction. In some individuals gambling develops into an addiction, the feeling and effects that they derive from betting are comparative to the effects an alcoholic gets from alcohol. They crave gambling in a similar manner to that an addict craves a substance of misuse. Compulsive gambling leads to difficulties in relationships, financial hardship and legal dilemmas. People with compulsive gambling often keep their behaviour secret (Everett, 2018). They usually lie to members of their families and significant others in their lives to keep their behaviour secret and may request for assistance with financial matters from others (Everett, 2018). Gambling Disorder is in turn related with decreased quality and enjoyment of life, impaired functioning, and elevated rates of incarceration, divorce and bankruptcy (Grant et al., 2017).

Core components of addictions have been proposed when considering gambling disorder that include: continued involvement in a behavior or activity despite encountering negative consequences, compulsive engagement in the behavior or activity, lack of self-control over involvement in the behavior and a craving state and appetitive urge before the involvement in the behavior. Several of these features, including others like tolerance and withdrawal are relevant to Gambling disorder (Potenza, 2008). High co-morbidity rates have been reported

between individuals with behavioral addiction and substance addictions from research; a meta-analysis done recently concludes that there is a mean co-morbidity rate of 57.5% between substance addiction and gambling disorder (Lorains, et al, 2011). Within the subgroup of individuals with Substance Use Disorders, the odds of having a diagnosis of disordered gambling were increased almost threefold (el-Guebaly et al, 2012). Also, the odds of developing alcohol use disorder increased almost four-times over when gambling disorder was pre-existing (Bland et al, 1993). From clinical research done on the other behavioral addictions, it has been suggested that comorbidity with SUDS is a common occurrence. After controlling for age, gender and depression in a study involving 2453 students in college, the findings demonstrated that the participants who fulfilled the diagnostic criteria for addiction to the internet were approximately two times as likely to consume alcohol harmfully (Yen et al, 2009). When considered communally, the findings from the above studies suggest that there is a common causal pathway and pathophysiology between behavioral addictions and SUDS.

Kenya has witnessed a significant upsurge in the set up and dissemination of different gambling products and gambling is taken to be a fun recreational activity that raises much needed tax revenue. The government allows it and the Betting Control and Licensing Board, which was set up in 1966, regulates it (Geopoll, 2017). Many forms of gambling are allowed in Kenya, this includes mobile phone based gambling and internet gaming. BetKenya.com, which was the first online gambling site was launched in the early months of 2013. Nairobi city with 18 gambling installations, 128 table games, video poker machines and 908 gaming slots is the biggest gambling destination in Kenya (Geopoll, 2017). Among the most liked gambling options, soccer betting reigns with 79% of bets placed on soccer games. Kenya is the pioneer in the greatest sum of cash used on gambling and unlike young people in other African countries, most Kenyan youth bet at least once weekly with an expenditure of USD \$50 per month spent mostly on soccer bets while youth in other jurisdictions have a monthly expenditure that is less than USD \$50 and participate in gambling at least once a month (Biko, 2018). Most participants have never won anything above USD \$50, 75% of those who gamble use their phones and Kenya has the highest number of gamblers who use their phones for betting at 96% while South Africa, which has the greatest magnitude of mobile phone penetration having the least usage of mobile devices for gambling participation at 48% (Geopoll, 2017).

In 2012, the official reported Gross gambling revenue was \$18 million in Kenya, while in Nigeria, the figure was \$31 million (P.W.C, 2017). Buttressed by an economy that is rapidly growing and a vibrant tourism sector, it was projected that the gross gambling revenue to be raised by Kenyan casinos will add up to \$33 million in the year 2017, a 12.9% compounded annual increase (P.W.C, 2017). Financial figures from the government regulatory body, the Betting Control and Licensing Board (BCLB), indicate that the gross gambling revenue generated was \$198m (£151m) for the 2016/2017 financial year – which can be equated to a half of the country's annual healthcare budget (The Standard, 2018).

The continuously expanding sector is a major contributor to the economy of the country by generating jobs and taxes. Kenya's betting tax is the highest in East and central Africa at 35 % compared to other countries in Africa like Rwanda which has a charge of 13%, South Africa which charges 9.6 %, and Uganda 20% (P.W.C, 2017). Indeed, numerous employment opportunities have arisen from the different avenues of access to gambling and sports betting activities, it has an overarching negative consequence that is not receiving significant attention in our geographical zone, gambling addiction (Ssewanyana & Bitanihirwe, 2018). Following the emergence of online sports betting in Kenya, the cybercafé business has undergone a model transformation; many young people have been consumed by the betting wave spending lots of time in cyber cafes placing bets on sporting matches in faraway countries. They pay a 10USD upfront fee to the cybercafés on a daily basis to satisfy their appetitive betting impulses. (Kahura, 2018)

1.2. Statement of the Problem

With a surging supply and commensurate demand for gambling products in the Kenyan market, concerns have emerged over the perceived impact that gambling is having on consumers of these gambling products (Mbithi, 2015). According to recent studies, there are a rising number of people in Kenya who are experiencing moderate to severe gambling addiction problems accompanied by huge spending and loss of wages and income on this sport (Murugi, 2012).

Gambling involvement is a continuous process, People who do not participate in the habit (non-gamblers) lie on one side of this spectrum and people who have difficulties with their risk taking behavior (problem and pathological gamblers) are found at the other end of this spectrum (Abbott et al, 2004). This galvanizes the opinion of gambling difficulties existing in

a scale of severity and the condition having a dynamic presentation where individuals may be found at different points on the scale at different points in their lives and consumption habits (Korn, 1999). A significant number of studies continue to demonstrate that gambling disorder might not be a chronic and progressive medical condition. There are individuals who have been found to have significant problems related to their gambling, but that did not fulfill the diagnostic criteria for gambling disorder (Toce-Gerstein et al, 2003). The monumental surge in the supply of different gambling products in Kenya coupled with a lax regulatory environment and ease of access through mobile devices and payment via mobile money has led to disseminated participation in the habit resulting in personal hardships in managing the quantity of cash and/or time used in gambling participation. This has resulted in adverse events for the gambler, others and the members of the community in general (Kahura, 2018).

Achab et al., (2014) undertook a research project on the Early Detection of Pathological Gambling among general practitioners in Switzerland. Using a 24-item online questionnaire the researcher aimed to gather data on field resources from GPs themselves. The screening practice and knowledge of Swiss French-speaking participants was assessed. The study discovered that Swiss GPs that participated in the study had knowledge of pathological gambling and its existence among their patients. Unfortunately, their awareness of clinical interventions or referral methods was doubtful and the screening of Problem gambling was not systematic. She concluded by the determination that the mismatch between awareness and treatment could be addressed by training, dissemination of information and support for general practitioners.

There is documented evidence that the problem gambling prevalence rises with the increase in gambling availability, and also that the trend within a populations is graduated in a scale like manner with adaptation over time (Robert J. Williams & Volberg, 2013). There is thus a massive unmet need for detection and treatment of problem gambling at primary care level by healthcare practitioners in Kenya which has a very significant contribution to play in the burden of disease among the general population i.e., screening and treating as first line at the point of contact or when needed and possible, referring patients to specialized treatment care programs.

1.3. Research questions

1. What is the prevalence of gambling disorder among psychiatric patients in Mathari National Teaching and Referral Hospital?
2. What is the association between specific psychiatric diagnoses such as substance use disorder, anxiety disorder, mood disorder and gambling disorder in Mathari National Teaching and Referral Hospital?
3. What is the knowledge and attitudes towards gambling among patients that screen positive for gambling disorder in Mathari National Teaching and Referral Hospital?

1.4. Main objective

To determine the prevalence of gambling disorder among patients seeking psychiatric treatment in Mathari National Teaching and Referral Hospital, Nairobi.

1.4.1. Specific objectives

1. To determine the prevalence of gambling disorder among psychiatric patients in Mathari National Teaching and Referral Hospital.
2. To determine the association between specific psychiatric diagnoses such as substance use disorder, anxiety disorder, mood disorder and gambling disorder in Mathari National Teaching and Referral Hospital.
3. To investigate the knowledge and attitudes towards gambling among patients that screen positive for gambling disorder in Mathari National Teaching and Referral Hospital.

1.5 Justification for this research

From the review above, it is evident that the burden of gambling among Kenyan youth and adults is overwhelming. Several studies have attempted to evaluate gambling in Kenya. None however has used a clinical subset for the population of the study and none has used in its methodology standardised screening instruments and a professional clinical criteria for accurate diagnosis of gambling disorder. Without a doubt, a huge gap exists between study findings and their practical application within clinical practice or policy setting on the current subject in Kenya.

It is then incumbent to study the clinically determined prevalence and effects of gambling on the local population to increase treatment access, for enhanced preventive measures to be instituted for problem gamblers and to inform policy makers of the trend and possible directives of value to the health of the people. For clinicians at primary care level, early recognition of gambling disorder for treatment and referral will also lessen the impact of the condition on the patients, their families and dependants. Key industry participants should synergise and bundle their efforts at reducing both the incidence and prevalence of gambling-related harm in the country.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter generally lays out the literature review on material related to gambling disorder in general with a special focus on gambling disorder co-morbidity with substance addiction and other mental health disorders.

2.2. Prevalence of Gambling

According to Volberg et al, (2013) ‘Gambling is an expansive activity that incorporates various events, attempted in a wide array of settings, engaged in by all cadres of society, and done in various ways. It has major interlinkages with other social risk factors like low education, youth unemployment etc. Without appreciating this array of participants and settings, it becomes difficult to fully understand and investigate scientifically the concept of gambling and its antecedent implications. It is also important to keep in mind that some modes of betting are more injurious than others in terms of the development of gambling related harms. The participation in the act has a positive, pleasure invoking effect on the participants, notwithstanding the fact that a significant number develop difficulties of differing severity and the spillover of which can affect their close relations and the wider community at large.

Williams, Volberg, & Stevens, (2012) undertook research to standardize the prevalence rates of problem gambling in order to enable comparisons between territories as well as within the same territory over the course of time. They first identified and collected all unpublished and published work that involved territorial prevalence surveys of problem gambling. 202 studies undertaken between 1975 and 2012 were dissected and the demographic, character, gambling format and environmental correlates of problem gambling in these studies were summarized. They then examined in-depth the impact of methodological differences on the prevalence rates of problem gambling that were obtained. The main objects of methodology that influenced the established prevalence rates of problem gambling are: a) *the instrument used for assessment*; b) *the time period over which problem gambling is assessed (i.e., past year,*

lifetime); *c) the description of the survey to participants*; *d) method of administration (i.e., face-to-face, self-administered,); and e) the determining threshold criteria for when to ask questions on problem gambling.* The methodological approach that produced the most valid prevalence rate (within each of these elements) was identified. Greater than average rates occurred in Belgium and Northern Ireland. The highest rates occurred in Singapore, Hong Kong, Macau and South Africa.

Ssewanyana & Bitanihirwe, (2018) conducted a theoretical review of gambling problems among the youth in sub-Saharan Africa. The emphasis was on gambling participation and patterns, socioeconomic and public health implications of gambling and social health policies and measures for curbing the practice. They noted the massive growth of the recreational risk taking sector in various parts of Sub Saharan Africa, such as Nigeria, Kenya and South Africa, which mostly had weak regulatory oversight leading to scores of the youth exposed to gambling related products. They cited a study conducted amongst adolescents in secondary schools in Ethiopia revealing that 73% of the adolescents had a prior history of gambling participation. Among these, 7% were identified as problem or pathological gamblers while 37% risked developing severe gambling problems as screened using the DSM-IV-Juvenile checklist. A myriad of studies from the region have a common finding that gambling disorder is more common among young males, however young females were increasingly also participating in the habit albeit secretly.

Geopoll (2017), a company that conducts feasible market research in areas that have accessibility difficulties through the mobile phone undertook an African youth charter based survey in Tanzania, Nigeria, Kenya, South Africa and Uganda. Of the 3,879 youth aged between 17 and 35 sampled, it was discovered that 54% of the young people in SSA had gambled in some form or other. At 76%, Kenyan youth were the highest participants in betting, with Ugandan youth at 57% and Ghanaian youth at 42%. Gambling frequency was highest among Kenyan youth who bet more than once weekly, while the rest of the African youth bet once a month most of the time.

Murugi, (2012) undertook a descriptive survey in casinos within Nairobi county to establish the effect of unemployment on youth involvement in gambling practices. The study established that 70% of the youths were heavily engaged in gambling visiting casinos 2-3 times weekly. They gambled to take chances on winning funds. A majority of the respondents

had been gambling actively for 1-5 years gambling both in the day and night time. Youth unemployment however had no significant contribution to their gambling behavior therefore denoting that there were other contributory factors to youth gambling.

2.3. Gambling disorder and Psychiatric Co-morbidities

Saunders (2017) compares and contrasts in the beta draft the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), which was published in mid-2013 and the Eleventh Revision of the International Classification of Diseases (ICD 11) which was released in November 2016 the taxonomy and diagnostic entities of substance use and addictive disorders. Gambling disorder in both systems is placed in the addictive disorders section and moved from the impulse control disorders section. Substance dependence is retained as the 'master diagnosis' in the draft ICD 11 in contrast to the broader and heterogeneous concept of substance use disorder in DSM-5 and there is empirical support for the coherence of substance dependence for prescribed opioids, cannabis, and alcohol.

Gambling disorder is classified as a behavioral addiction. 87% of people with one addiction will have one or more additional addictions, referred to as multiple addictions (Carnes, 2008; MacLaren & Best, 2010); Failure to treat all addictions contributes to poor treatment responses (Carnes, Murray & Charpentier, 2005; Flores, 2004). Nicotine dependence is the most common co morbidity 60.1%, SUD 57.5%, Mood disorder (any) 37.9% and Anxiety disorder (any) 37.4% (Lorains et al., 2011).

Yau & Potenza, (2015) reviewed the recognition and treatment of behavioral addictions including Gambling disorder and other sub categories. They conducted a PubMed database literature search for English language articles on behavioral addictions. Notable revelations about gambling disorder included the fact that the inclusion criteria threshold was decreased to 4 of 9 from 5 of 10; this new classification threshold is thought to reduce the rate of false negatives and improve the classification accuracy. Problem gambling can include needing to gamble with more money to get the same excitement from gambling as before, one feels restless or irritable when trying to reduce or stop gambling, keeps trying to reduce or stop gambling without success, gambling is frequently on the person's mind -- both reliving past gambling experiences and planning future gambling events, gambles when feeling depressed, guilty or anxious, tries to win back gambling losses, lies to cover up how much they are gambling, loses not only money, but also relationships, their job, or a significant career

opportunity as a result of gambling, betting with larger sums of money to receive the same level of desired experience (tolerance) and restlessness or irritability when trying to stop gambling (withdrawal) (American Psychiatric Association, 2013).

Richard, Potenza, Ivoska, & Derevensky, (2018) investigated the association between gambling and use of stimulants amongst adolescents. Adolescence represents an important phase of development in which individuals are involved in risky pursuits including drug and substance abuse and betting. These emergent behaviours have constantly resulted in negative psychological and social results. Few studies have been done to investigate the correlation between gambling and stimulant use although associations have already been demonstrated between mental health complications, alcohol and marijuana. A questionnaire was administered to 6452 secondary school learners aged between 12 and 19 years to investigate the relationships between stimulant drug use and patterns and types of betting. The following drugs [including non-medical use of stimulants, methamphetamine, 3, 4-methylenedioxymethamphetamine (MDMA) and cocaine] were examined. Chi square with odds ratio analyses and calculations revealed that among both males and females, stimulant use of any type was associated with an increase in the odds of gambling participation frequency and consequently gambling related problems. Crack cocaine use carried with it a greater association with frequent gambling and the use of methamphetamine had problem gambling as a high risk. Persons who reported having used stimulants at least six or more episodes in the past year had high occurrence of problem gambling behaviours.

2.4. Social Economic effects of gambling and Attitude towards gambling

(Ssewanyana & Bitanirwe, 2018) in their review of Gambling among Youths in SSA also point out that the gambling industry demonstrated its socioeconomic contribution to the economy with marked revenue generation and impact on job creation. They established the fact that the youth view gambling participation positively as a means to entertainment and relaxation, a potential financial enabler and a tool to showcase masculinity. Gambling participation has however been demonstrated to have negative effects to the individual, their immediate families, the community and society at large, most of which are inadequately investigated regionally. At a personal level, problematic gambling behavior affects a significant number of youthful gamblers and may be expressed in both psychiatric conditions such as sleep deprivation, anxiety and depression and chronic medical conditions such as

hypertension, peptic ulcer disease and cardiovascular disease. Sadly however, few gamblers accept the addictive nature of gambling. Mostly, a diagnosis in clinical or population settings of GD is often missed implying that those in need of medical attention don't access it at critical times of need. The youth who participate in gambling usually have poor academic performance; misuse funds meant for education on betting and participate in harmful behavior such as casual sex and alcoholism. Financial difficulties are common. In South Africa for example frequent gamblers were faced with debts, relationship problems and communal poverty with reports that they spent 12-25% of their income on betting related pursuits. Approximately 63% were in agreement with the view that there was no positive contribution to their home welfare by gambling. A vicious cycle of poverty is set in motion because it is the poorest individuals of the society that delve heavily into gambling and their meager incomes are swallowed up in the habit.

Corti, Lakuma, Katunze, & Mawejje, (2016) conducted a household study on the socio Economic consequences of betting in Kampala, Uganda. The study sought to investigate the frequency of involvement in betting in Kampala, the effects of gambling on social welfare and the economic impact. The study also checked the comprehensiveness of regulatory measures put in place to rein in the gambling sector. The survey used stratified random sampling that was two tiered, with the first tier handling participation levels as urban areas had higher numbers of gamblers compared to rural dwellings. They discovered that in the 12 months preceding the survey, 24.3% of all the adults in the city had participated in a mode of gambling. Age, income, employment status and gender were noted to be major determinants of gambling participation. Males were more likely to gamble than were females. Increasing age had a positive correlation with increased gambling participation and involvement up to a cut-off point where gambling participation decreased with age. Greater than one third (39 percent) of the respondents were aware of prevalent gambling by minors. They concluded that gambling participation affected domestic welfare negatively through displacement effects, thriftiness and domestic violence. The prevalence of problem gambling among adults older than 18 years was estimated to be 5.7%.

Mbithi, (2015) investigated the consequences of gambling on the socio-economic status of casino players in Nairobi county. The study concluded that the main identified consequences were mood changes especially depression and irritability. Gamblers lost interest in usual activities, their sleep patterns changed (they had trouble falling or staying asleep, or they

overslept) and their investments had been greatly affected as they diverted funds to gambling. The study established that gamblers had defaulted on their loans, lost productive time from work or other commitments due to time spent on gambling and they spent a disproportionately long time (8-12 hours) in a day gambling. The main negative consequence of gambling participation noted was problem gambling. The study concluded that prevalence amongst men was two to three times higher than in women and that problem gamblers reported higher than average incidences of job losses, and those who remained at work demonstrated lower productivity through non-attendance, lateness, and preoccupation with gambling.

Mwadime, (2017) queried the Implications of Sports Betting in Kenya. The study aimed to establish the effects of technology on sports betting to establish what effect sports betting had on vulnerable members of society, and to determine the contributory effect legislation had on the industry. The study utilized a descriptive research design. The study population was the individuals who engaged in sports betting within the county of Nairobi. Cumulatively, the estimation was that approximately 2 million people were active participants in sports betting. The study determined that the majority of people that engaged in sports betting were males aged between 21 – 40 years old. Most of the participants were salaried employees. Sport bets were indulged in from the providers' website greater than one time a week. Sportpesa was the most popular company in sports betting. The use of mobile money platforms while betting, which were integrated with the providers provided an efficient portal of access and was a key enabler of the practice. It offered privacy, reliability and consistent. Curiously, the study established that many of the gamblers on the platform were aware of the dangers posed by betting. It was noted that the government was passive in the enactment of protective policies for gamblers and did not enforce laws on promotion, advertisement and exposure.

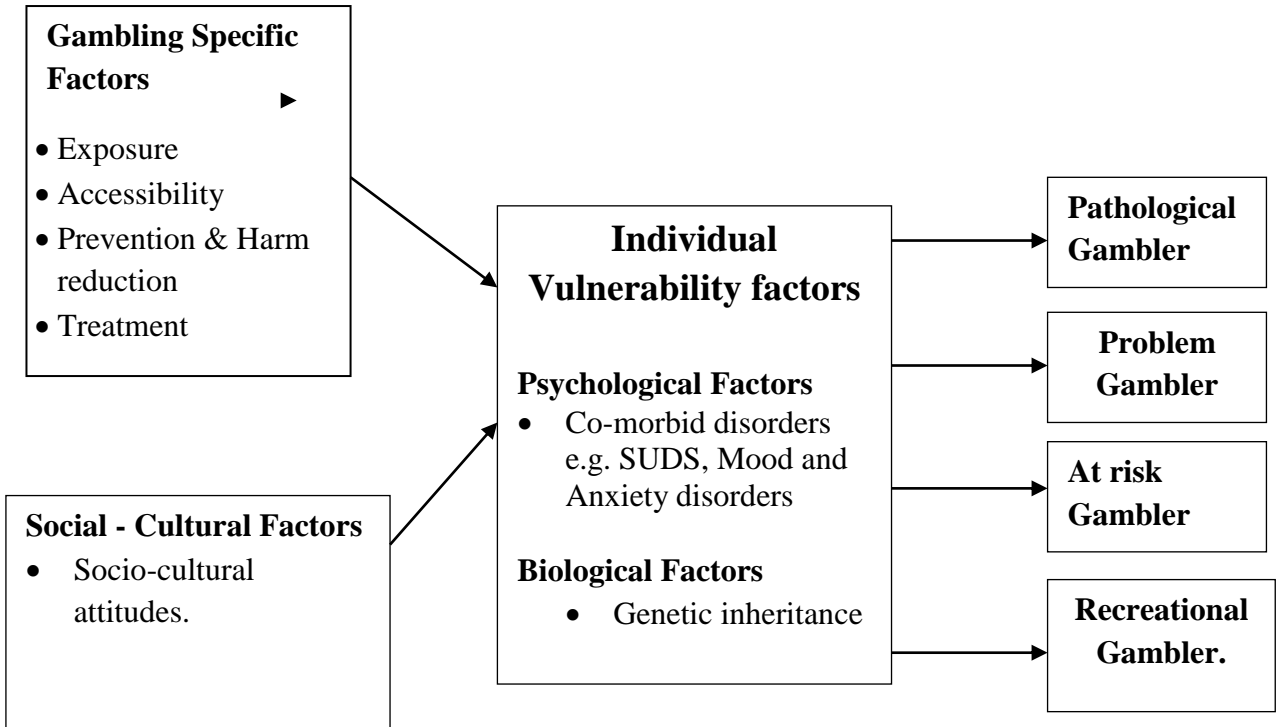
2.5. Research Gaps and Conceptual model

It is evident from the literature review carried out above that no study has undertaken to investigate the prevalence of gambling disorder among patients seeking treatment for psychiatric disorders in Kenya. Given the social economic effects and health related burden of these behavioral addictions, development and constant improvement of treatment and preventive interventions is important. The formulation and development of diagnostic screens

and other diagnostic instruments to examine and diagnose the entire retinue of behavioral addictions will help to lower the public health impact of the disorders (Yau & Potenza, 2015).

There continues to be overwhelming reports of the adverse effects that recreational gambling is having on the general population in both the print and electronic media in Kenya. Comparatively, problem gamblers occasion significant mental health challenges like depression and anxiety, physical health challenges, binge alcohol consumption, tobacco smoking and suicide. Indeed, a lot of suicides related to gambling have been reported. In the year 2016, a university student committed suicide after a loss of a \$790 bet. Since then, domestic violence, bankruptcies and suicides have been incrementally publicized (The Standard, 2018). This then is a welcome addition to the body of knowledge on the topic. It is necessary to investigate the prevalence of gambling disorder from a clinical perspective and among some of the most vulnerable members of society, those suffering from predisposing mental disorders in Kenya.

The increased exposure to gambling related advertising through both print and electronic media and ease of access through mobile phone and internet based betting with little to no targeted prevention, harm reduction and treatment efforts on vulnerable individuals with either pre-existing mental disorders or a genetic predisposition to addiction in an environment with a permissive culture to gambling and lax regulation leads to increased gambling participation with the repercussions that one either becomes a Recreational Gambler, At-Risk Gambler, Problem Gambler, Pathological Gambler, the latter 2 which denote gambling disorder.



INDEPENDENT VARIABLES

MODERATING VARIABLES

DEPENDENT VARIABLES

Figure 1 Conceptual Framework

Source: Author - From Literature review

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the research methodology. First, a presentation of the research design is provided. This is followed by a description of the study site, the target population, sample size determination, description of data collection instruments, explanation of data collection procedures and a breakdown of data analysis procedures.

3.2 Research Design

This study employed an analytical cross-sectional study design. Data was collected by the principal investigator and trained research assistants using a researcher administered questionnaire in a face to face interview.

3.3 Description of study site

Mathari National Teaching and Referral Hospital in Kenya has a documented capacity of 750 inpatient beds (1500 prior to decentralization). The hospital has two wings: maximum security unit for mentally disordered offenders who have been arrested for committing a capital offence and the civil wing for ordinary patients (Njenga, 2002). The institution caters for patients with severe psychiatric disorders who are not able to afford private services and are considered too agitated for successful management in other public facilities or in the community. The hospital runs outpatient follow up clinics for ongoing care for discharged patients on a weekly basis.

3.4 Study Population

The participants of this study were sampled from the patients undergoing outpatient clinical follow up and treatment for psychiatric disorders at Mathari Teaching and referral hospital within the time frame of the study. There are 9 such clinics at the facility that run on a weekly basis. These are wards 2F, 6F, 5M, 6M, 8M, 9M, Clinic for substance abuse treatment (CSAT), Methadone assistance therapy clinic (MAT) and the Psychotherapy Clinic. The time-frame of the study was three months to allow adequate time to fill the sample size. The official daily averages are as below:

Tuesday Clinics:

- ward 2F -40 patients
- ward 6F -42 patients
- ward 5M -22 patients
- ward 6M -24 patients
- ward 8M -26 patients
- ward 9M -26 patients

CSAT clinic- 15 patients (Takes place once a week on Tuesdays)

Methadone Clinic - 531 patients (Takes place every day)

Psychotherapy clinic - 12 patients (Takes place on Wednesdays and Thursdays)

3.4.1. Inclusion Criteria

All adult psychiatric outpatients at the hospital attending scheduled clinical follow up treatment at the SUD and general psychiatric wards in the facility. They had to be clinically stable and could read or write either in English or Kiswahili and gave informed consent to participate in the study.

3.4.2. Exclusion Criteria

Any participant who declined to give consent was excluded from the study. Patients with intellectual impairment and severely ill patients were also excluded.

3.5 Sample Size

Systematic random sampling was used to select the elements. Using Fisher's formula (Rosner et al, 2010) with an expected gambling disorder prevalence rate of 2.3% (Williams et al, 2012), margin of error (precision) of 2% and a confidence interval of 95%. The following formula was used to determine the sample size:

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

Where;

n- Sample size

z- Standard normal deviate for α corresponds to 95% confidence interval.

p- Estimated prevalence of gambling disorder 2.3% (Volberg et al, 2012)

d- Degree of precision set at 0.02 (2%)

$$n = \frac{1.96^2 0.023(1 - 0.023)}{0.02^2}$$

= 216 participants.

Allowing for 10% non-response rate the minimum sample size required was 240 participants. This sample was distributed evenly among the 9 clinics, thus giving 26 patients per clinic. Thus every 9th patient was requested to participate in the study.

3.6 Data Collection Instruments

Data collection was accomplished through three tools amalgamated to form a composite questionnaire with three sections. The tools were obtained from the developers after seeking formal permission to use them in the study. These are the researcher designed socio-demographic questionnaire, the (PPGM) problem and pathological gambling measure a validated screening tool for gambling, and the attitudes towards gambling scale (ATGS-14) a validated instrument for gambling attitude measurement.

3.6.1 Demographic data

The researcher designed socio-demographic questionnaire consisted of two parts. Part one consisted of 9 questions about gender, age, education, employment status and marital status. Part two had questions on county of residence, primary psychiatric diagnosis and tobacco use history.

3.6.2 Problem and pathological gambling measure (PPGM)

The gambling behavior was assessed using the problem and pathological gambling measure (PPGM). In a study assessing the accuracy of classification of the main problem gambling instruments of assessment (NODS, CPGI, SOGS,) the PPGM provided an accurate classification consistently. It is a 14 item assessment instrument with questions organized into three sections: Problems (7 questions), Impaired Control (4 questions), and Other Issues (3 questions). It uses a 12 month time frame, recognizes there to be a dynamic continuum of gambling with 4 categories (Recreational Gambler, At-Risk Gambler, Problem Gambler, Pathological Gambler), and has been field tested and refined over several years with both clinical and general population samples (Volberg et al, 2010). It is a brief, rapid and flexible instrument that is able to pick out Financial Problems, Mental Health Problems, Relationship Problems, Physical Health Problems, School/Work Problems and Criminal Activity. It

consists of 3 sections that are scored separately and the total score gives the severity of an individual's gambling involvement. The result classifies one as either at risk (Total Score of 1 or higher), a problem gambler (Total Score of 2 to 4) or a pathological gambler (Total Score of 5 or higher).

3.6.3 Attitudes towards gambling screen (ATGS-14).

The knowledge and attitudes towards gambling among patients that screen positive for gambling disorder was carried out using the ATGS-14. The 14 item ATGS was validated to be a suitable instrument for gambling attitude measurement (Orford et al, 2009). It has been tested widely in both the UK and in Australia as a survey instrument examining general attitudes towards gambling and found to be a reliable tool for establishing the participants attitudes towards gambling participation in different contexts and jurisdictions. It consists of 14 items and can usually be completed in less than 5 minutes. It has a likert scale with 5 different responses for each question Likert scale: 1 = "strongly agree", 2= "agree", 3 = "neither agree nor disagree", 4 = "disagree" and 5 = "strongly disagree". The sum of items forms the total ATGS-14 score (range 14–70) where a score of 42 represents an overall neutral attitude towards gambling, while scores above 42 indicate a favourable (positive) and those below 42 an unfavourable (negative) attitude.

3.7 Data Collection Procedure

Following approval by the KNH/UON ethics and research committee, and with the approval sought from the Mathari Teaching and Referral Hospital, a pre-test was carried out to detect any factors that may have interfered with the smooth flow of the process and corrective action taken to forestall these. Data was collected from the study participants every Tuesday weekly for a period of 12 weeks from June 2019. The research assistants were distributed in the clinics on the clinic day. They would approach every 9th patient seen by the attending clinician according to the attendance register. Once a patient had been attended to by the hospitals clinical staff, the research assistant would approach them and politely explain the study protocol to them. Upon obtaining informed written consent from the patient to participate in the study, they would administer the study questionnaire. The principal investigator was available to answer questions during the completion of the questionnaires. Participants who scored 2 or higher on the PPGM were referred for management at the hospitals Psychotherapy unit and the outcomes were positive.

3.7.1 Variables

For this study the independent variables were Gambling Specific Factors (Exposure, Accessibility, Prevention & Harm reduction and Treatment) and Social - Cultural Attitudes and the dependent variable was Gambling disorder.

3.8 Data Analysis

After checking the data collected from respondents for correctness and completeness, organizing, tabulation and coding was done. Logistic regression model and cross tabulation methods were used to select the significant variables that are believed to associate with gambling disorder. Two levels of analysis - Cross tabulation (descriptive statistics) and Bivariate logistic regression were conducted. A likert scale was used to investigate the knowledge and attitudes towards gambling participation. The data was then presented in form of tables, charts and figures.

3.8.1. Descriptive analysis

The levels of gambling disorder was established by reporting the proportion. Proportions of participants within each level of gambling were summarized as counts (n) and percentages (%). The cross tabulation analysis was used to determine the association between gambling disorder and each of the socio-demographic and other characteristics of the participants. Reporting chi-square values, frequency, percentage and their P-Values to assess statistical significance

3.8.2. Bivariate logistic regression analysis

Bivariate logistic regression for each independent variable was performed to investigate confounding as well as to provide an initial “unadjusted” view of the importance of each variable itself; the bivariate analysis examined the relationship between the selected socio-economic, other characteristics and the presence of gambling disorder reporting crude odds ratios, *P*-value and associated 95% confidence interval using the bivariate logistic regression method. All analysis was done by SPSS version 23, all tests were two sided and level of significance set at $P < 0.05$.

3.9 Ethical Considerations

3.9.1 Research Approval

This protocol was submitted to the KNH-UON Ethics and Research Committee for review and ethical approval. Once provided, further authorization and approval was sought and obtained from the Mathari Teaching and Referral hospital management for conducting this study within the hospital precincts.

3.9.2 Recruitment of participants

The study was clearly introduced and explained to the potential participants so as to facilitate their informed written consent. They were aware that they had a right to participate and the freedom not to participate or withdraw at any point and that their participation would in no way affect their care at Mathari National Teaching and Referral hospital.

3.9.3 Research participants

The study participants were informed that the data would be treated with anonymity and with strict confidentiality. Participant anonymity was observed by using numerical codes instead of participants' names on questionnaires filled out. The interviews were conducted in a private setting that was confidential and away from distraction. Additionally, in the case of questions perceived as very sensitive by the participants, they were provided with the option of not attempting or declining such items in case they felt that they preferred to keep this information to themselves for personal reasons.

3.9.4 Consent

Detailed explanation of the study process and purpose was given to all study participants. Informed written Consent was sought and taken by the researcher.

3.9.5 Confidentiality

All information obtained in the study was kept confidential. Serial numbers were used to ensure anonymity and filled in questionnaires were kept under lock and key and any data obtained from the study was password protected.

3.9.6 Potential Risks

There were no physically invasive procedures performed during the study.

3.9.7 Potential Benefits

Those patients found with undetected gambling disorder were counseled and engaged in a management program by the hospital psychotherapy unit in conjunction with the researcher.

3.9.8 Compensation for participation

There was no monetary compensation for participating in this study.

3.9.9 Use of the study

The results obtained were shared with the department of psychiatry, University of Nairobi, the Mathari National Teaching and referral Hospital and will be presented in scientific conferences.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the analysis of the data gathered from the respondents. The results are presented according to the study objectives which were:

1. To determine the prevalence of gambling disorder among psychiatric patients in Mathari.
2. To determine the association between specific psychiatric diagnoses such as substance use disorder, anxiety disorder, mood disorder and gambling disorder in Mathari.
3. To investigate the knowledge and attitudes towards gambling among patients that screen positive for gambling disorder in Mathari.

4.2 Response Rate

The sample size of the population for the study was 240 Participants. The researcher managed to interview 193 participants achieving a response rate of 80.4%.

4.3 Socio-demographic Characteristics of the participants

Table 1 Socio-demographic Characteristics of the participants

Variable	Category	Frequency (N=193)	Percentage (%)
Age	18-24 Years	35	22.0
	25-31 Years	39	24.5
	32-38 Years	33	20.8
	39-45 Years	18	11.3
	46+ Years	34	21.4
	<i>Did not disclose</i>	34	
Gender	Male	134	69.8
	Female	58	30.2
	<i>Missing</i>	1	
Marital Status	Single/Never Married	64	34.0
	Living with Partner	24	12.8
	Married	82	43.6
	Divorced/Separated/widowed	18	9.6
	<i>Non response</i>	5	
Education Level	Less than High School	43	22.9
	Completed high school	48	25.5
	College Certificate / Diploma	62	33.0
	University Diploma/Degree	35	18.6
	<i>Non response</i>	5	
Schooling	No	143	75.3
	Yes	47	24.7
	<i>Non response</i>	3	
Employment status	Unemployed	73	38.8
	Employed	62	33.0
	Self-employed	53	28.2
	<i>Non response</i>	5	
Income - Kshs	<10,000	54	37.2
	10,000-20,000	32	22.1
	21,000-30,000	23	15.9
	31,000-40,000	22	15.2
	41,000 and Above	14	9.7
	<i>Non response</i>	48	
Smoking	Yes	92	47.7
	No	101	52.3

According to table 1 above, the participants age varied from 18 years to 46 years and above. Majority of the respondents 24.5% (39) were aged between 25 – 31years of age, 22% (35) aged between 18-24 Years, 46+ Years at 21.4% (34) and 32-38 Years at 20.8% (33). A significant number (34) declined to reveal their age.

69.8% (134) of the respondents were male, and the remaining 30.2% (58) were Female. 43.6% (82) were married, 34% (64) were single, 12.8% (24) were living with a partner and 9.6% (18) were divorced, separated or widowed.

At least 33% (62) had a college certificate or diploma, 25.5% (48) had completed high school 22.9% (43) had less than a high school education, 18.6% (35) had a university degree. 24.7% (47) were currently schooling.

It was noted that 38.8% (73) of the respondents were unemployed, 33% (62) were employed and 28.2% (53) were self-employed.

Smokers comprised of 47.7% (92) of all respondents. The income levels reported were classified as <10,000 as 37.2% (54), 10,000-20,000 as 22.1% (32), 21,000-30,000 as 15.9 % (23), 31,000-40,000 15.2% (22) and 41,000 and above at 9.7% (14) in Kenyan shillings respectively.

4.4 Prevalence of Gambling Disorder

Table 2 Severity of Gambling

Measure	Category	Frequency (N=193)	Percentage (%)	95% C.I.	
				Lower	Upper
Problem and Pathological Gambling (PPGM)	Not at Risk	34	17.6	13.0	22.8
	At Risk	5	2.6	0.5	5.2
	Problem Gambler	10	5.2	2.1	8.8
	Pathological Gambler	144	74.6	68.4	80.3
Problem and Pathological Gambling	No	39	20.2	15.0	25.9
	Yes	154	79.8	74.1	85.0
Pathologic gambling	No	49	25.4	19.7	31.6
	Yes	144	74.6	68.4	80.3

As shown on Table 2 above and figure 4.4.1 below, a significant proportion of respondents 74.6% (144) were Pathological gamblers, 17.6% (34) were recreational gamblers, 5.2% (10) were problem gamblers and 2.6% (5) were at risk gamblers. Cumulatively, both Problem and Pathological Gamblers constituted 79.8% of the population of the study and represents the proportion of respondents with gambling disorder.

Figure 2 Severity of gambling problems

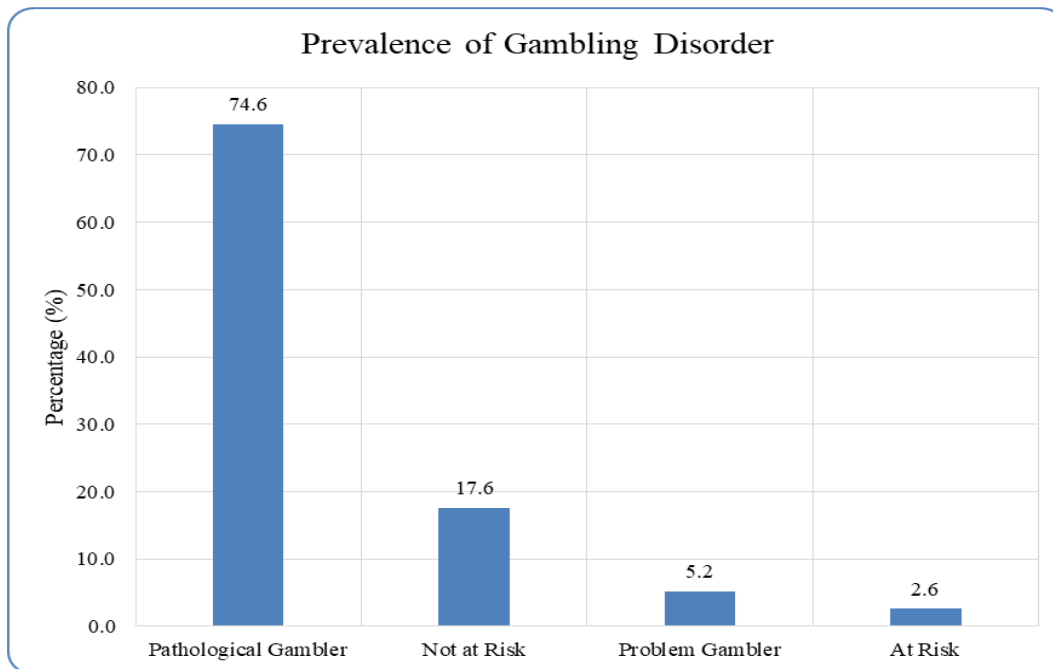


Table 3 Problem and Pathological Gambling Measure (PPGM).

Measure	Mean	Median	S.D.	Min.	Max.
1. Problem Scores Sub-Scale (PPGM)	3.5	4.0	2.1	0	7
2. Impaired Control Subscale (PPGM)	1.7	2.0	1.2	0	4
3. Other Issues Subscale (PPGM)	1.7	2.0	1.3	0	3
4. Total Problem and Pathological Gambling (PPGM)	6.9	8.0	4.2	0	14
5. Attitude Towards Gambling Total Scores (ATGS)	38.8	38.0	4.4	27	59
6. Age Years	34.1	32.0	11.4	18	69

The mean score of the PPGM across the different domains was 6.9 on a scale of 0-14 indicating that close to half of all the study participants had gambling related problems.

4.5 Prevalence of psychiatric diagnoses

Table 4 Prevalence of psychiatric diagnoses

Diagnosis	Frequency (N=193)	Percentage (%)
Acute Psychosis	14	7.4
Drug Induced Psychosis	56	29.5
Bipolar Mood Disorder	45	23.7
Schizophrenia	57	30.0
Others	18	9.5
Missing	3	

The most common psychiatric diagnosis was Schizophrenia at 30%, (57) and the least frequent was acute psychosis at 7.4% (14). Drug Induced Psychosis and Bipolar Mood Disorder had 29.5% (56) and 23.7% (45) respectively.

4.6 Attitude towards gambling

Table 5 Attitude towards gambling Scores

Measure	Category	Frequency (N=193)	Percentage (%)	95% C.I.	
				Lower	Upper
Attitude Towards Gambling Total Scores (ATGS)	Negative Attitude	147	76.2	69.9	82.4
	Neutral	14	7.3	3.6	11.4
	Positive Attitude	32	16.6	11.4	22.3
Attitude Towards Gambling Total Scores (ATGS)	Negative	161	83.4	77.7	88.6
	Positive	32	16.6	11.4	22.3

A total of 147 respondents (76.2%) had an overall negative attitude towards gambling, a total of 14 respondents (7.3%) had an overall Neutral attitude while a total of 32 respondents (16.6%) had a positive attitude towards gambling.

Table 6 Relationship between Gambling and Socio demographic Factors

Variable	Category	Problem and Pathological Gambler		χ^2	d.f.	sig.
		No	Yes			
Age	18-24 Years	4(11.4%)	31(88.6%)	10.5	4	0.033
	25-31 Years	8(20.5%)	31(79.5%)			
	32-38 Years	5(15.2%)	28(84.8%)			
	39-45 Years	4(22.2%)	14(77.8%)			
	46+ Years	14(41.2%)	20(58.8%)			
Gender	Male	18(13.4%)	116(86.6%)	13.0	1	<0.001
	Female	21(36.2%)	37(63.8%)			
Marital Status	Single/Never Married	8(12.5%)	56(87.5%)	4.7	3	0.198
	Living with Partner	4(16.7%)	20(83.3%)			
	Married	21(25.6%)	61(74.4%)			
	Divorced/Separated/widowed	5(27.8%)	13(72.2%)			
Education Level	Less than High School	12(27.9%)	31(72.1%)	2.4	3	0.487
	Completed high school	10(20.8%)	38(79.2%)			
	College Certificate / Diploma	10(16.1%)	52(83.9%)			
	University Diploma/Degree	6(17.1%)	29(82.9%)			
Currently a Student	No	30(21.0%)	113(79.0%)	0.8	1	0.361
	Yes	7(14.9%)	40(85.1%)			
Employment status	Unemployed	10(13.7%)	63(86.3%)	3.2	2	0.204
	Employed	16(25.8%)	46(74.2%)			
	Self-employed	10(18.9%)	43(81.1%)			

Income	<10,000	10(18.5%)	44(81.5%)	1.9	4	0.752
	10,000-20,000	7(21.9%)	25(78.1%)			
	21,000-30,000	4(17.4%)	19(82.6%)			
	31,000-40,000	7(31.8%)	15(68.2%)			
	41,000 and Above	3(21.4%)	11(78.6%)			
Smoking	Yes	9(9.8%)	83(90.2%)	11.8	1	0.001
	No	30(29.7%)	71(70.3%)			

From the table 6 above, there is a significant relationship between age ($p=0.033$), gender ($p<0.001$), smoking ($p=0.001$) and problem and pathological gambling. The age category with the most significant association with problem and pathological gambling was 18-24 years $p = 0.033$. The Male gender was also most significantly associated with the incidence of problem and pathological gambling $p = <0.001$, as was cigarette smoking $p = 0.001$.

Table 7 Relationship between Psychiatric conditions and Gambling

Variable	Category	Problem and Pathological Gambler		χ^2	d.f.	sig.
		No	Yes			
Diagnosis	Acute Psychosis	3(21.4%)	11(78.6%)	3.9	4	0.417
	Drug Induced Psychosis	8(14.3%)	48(85.7%)			
	Bipolar Mood Disorder	11(24.4%)	34(75.6%)			
	Schizophrenia	15(26.3%)	42(73.7%)			
	Others	2(11.1%)	16(88.9%)			

There was no relationship between problem and pathological gambling and diagnosed psychiatric disorders ($p>0.05$). However, of the 154 individuals with problem and pathological gambling, the incidence of problematic gambling was highest amongst individuals diagnosed with other conditions 88.9% (16) followed closely by drug induced psychosis 85.7% (48).

Table 8 Odds ratio for Gambling against Age, Gender and Smoking

Parameter	Category	A.O.R.	95% C.I.		Sig.
			Lower	Upper	
Age Years	46+ Years	0.152	0.041	0.567	0.005
	39-45 Years	0.441	0.089	2.195	0.317
	32-38 Years	0.672	0.156	2.892	0.593
	25-31 Years	0.552	0.144	2.115	0.386
	18-24 Years	1			
Gender	Female	0.430	0.171	1.082	0.073
	Male	1			
Smoking	No	0.341	0.130	0.892	0.028
	Yes	1			

There is a significant relationship between smoking and pathological and problem gambling $p=0.028$, C.I (0.130-0.892) and AOR=0.341. The odds of having pathological gambling was 0.341 times less among those who don't smoke as compared to smokers. The odds of having a gambling disorder was 0.152 times less among participants who were aged 46+Years as compared to those aged 18-24 years.

CHAPTER FIVE

5.1 Summary

- A significant proportion of the respondents 24.5% (39) ages ranged between 25-31 years and 69.8% (134) were male while females were 30.2% (58).
- 43.6% (82) were married, 34% (64) were single, 12.8% (24) were living with a partner and 9.6% (18) were divorced, separated or widowed.
- 69.8% (134) were male while females comprised 30.2% (58).
- 24.7% (47) of the respondents were students currently schooling, with 38.8% (43) reported to be unemployed, 33% (62) employed and 28.2% (53) self-employed.
- 33% (62) had at least a college certificate, 25.5% (48) had completed high school, 22.9% (43) had less than a high school education.
- 38.8% (73) were unemployed and a majority of the respondents 37.2% (54) earning less than Kshs. 10000 per month.
- A significant number of the respondents were smokers 47.7% (92).
- 74.6% of the respondents were Pathological gamblers, 17.6% were recreational gamblers, 5.2% were problem gamblers, 2.6% were at risk gamblers.
- Both Problem and Pathological Gambling constituted 79.8% of the population of the study who represent the subset of the population with gambling disorder.
- The most common psychiatric diagnosis was Schizophrenia at 30%, (57) and the least frequent was acute psychosis at 7.4% (14). Drug Induced Psychosis and Bipolar Mood Disorder had a prevalence of 29.5% (56) and 23.7% (45) respectively.
- Gambling disorder was most prevalent among males 86.6% (116) while females had a proportion of 63.8% (37).
- Comparatively, respondents who were smokers were found to have a higher prevalence 90.2% (83) as opposed to non-smokers who had 70.3% (71).
- 76.2% (147) of the respondents had an overall negative attitude towards gambling, a total 7.3% (14) had an overall Neutral attitude while a total of 32 respondents (16.6%) had a positive attitude towards gambling.
- There was no relationship between problem and pathological gambling and diagnosed psychiatric disorders ($p>0.05$).
- The incidence of problematic gambling was highest amongst individuals diagnosed with drug induced psychosis 85.7% (48).

Multivariate Scores

- There is a significant relationship between pathological and problem gambling and smoking $p=0.028$, C.I (0.130-0.892) and AOR=0.341. The odds of having pathological gambling was 0.341 times less among those who don't smoke as compared to smokers.
- There is a significant relationship between pathological and problem gambling and age $P=0.005$ C.I (0.041-0.567) and AOR = 0.152. The Odds of having problem and pathological gambling was highest within the 18 – 24 years age bracket as compared to all other age categories.

5.2 Discussion

Any kind of distress or adverse consequences caused by, arising from or exacerbated by an individuals participation in gambling or betting is known as Gambling harm. Harm can be social, personal or economical and is categorized as financial harms, those harms relating to relationships, emotional or psychological harms, impacts on the person's health, impacts on work, study or economic activity and criminal acts. (Langham et al., 2016). Problem and Pathological gambling (Gambling disorder) can be exacerbated by the influence of comorbidities or existing dysfunction and often leads to disability. The scoring and differentiation of gambling disorder in this study was based on the presence of criteria items in the DSM based PPGM tool. The total score gave the severity of an individual's gambling involvement classifying one as either at risk (Total Score of 1 or higher), a problem gambler (Total Score of 2 to 4) or a pathological gambler (Total Score of 5 or higher).

This study found that One hundred and fifty four (154) of the respondents had positive features of problematic gambling behavior or gambling disorder. Most of the participants were young males between the age of 18-24 years, vulnerable young people who were unemployed and were still schooling with a monthly income less than Kshs. 10,000 which corroborates prior studies that found similar results (Biko 2018).

The statistically significant relationship between gambling and smoking 47.7% is corroborated by extensive literature suggesting the same, which evidence a link between gambling and substance abuse comorbidity (Lorains,et al, 2011). A significant relationship was found to exist between problem and pathological gambling and gender, with males participating more than females, a finding that is supported by previous research that demonstrates the skewed nature of adverse effects towards male participants (Geopoll, 2017).

Lower income people consistently contribute proportionally more of their income to gambling than do middle and high income groups' hence compounding socioeconomic inequality (Toce-Gerstein et al., 2003). This has been demonstrated by this study as almost all the patients that visit Mathari Hospital are financially disadvantaged and further stresses the need for prevention and education around the potential harms of gambling among the general public and installation of the requisite responsible gambling policies to further control the

habit and protect consumers from the adverse consequences. It is estimated that for every person with a gambling problem, there are 5-10 other people affected by it. Also due to stigma, only about 15% of problem gamblers seek help and psychological treatments have been shown to be more effective than no treatment at all.

One hundred and forty seven (147) respondents reported holding a negative attitude towards gambling and despite this, were actively participating in the activity, delineating the addictive nature of the habit. Although the relationship between gambling and the psychiatric diagnosis was not significant, the study established that Forty eight (48) of the respondents with problem and pathological gambling had drug induced psychosis hence further corroborating the findings of previous studies on the association between gambling disorder and substance abuse (Yau & Potenza, 2015).

Gambling is a demerit good and worldwide, the practice is subject to heavy taxation or direct control to reduce consumption because of the potential harm to consumers. It has been invariably associated with commercial immorality, divorce, suicide, increased insecurity and a general degradation of societal values in addition to comorbid alcohol, tobacco and illegal drug use. Its advent can be traced to around 2300 BC in China. Studies have demonstrated that increases in gambling availability tends to be associated with increases in rates of problem gambling. Also increases in problem gambling and related indices are most likely to be reported after the initial introduction of gambling to a new jurisdiction and less likely to be repeated with extended exposure (Williams, R.J., Volberg, R.A. & Stevens, 2012).

Gambling disorder is classified as a behavioral addiction. 87% of people with one addiction will have one or more additional addictions, referred to as multiple addictions (Carnes, 2008; MacLaren & Best, 2010); Failure to treat all addictions contributes to poor treatment responses (Carnes, Murray & Charpentier, 2005; Flores, 2004). Nicotine dependence is the most common co morbidity 60.1%, SUD 57.5%, Mood disorder (any) 37.9% and Anxiety disorder (any) 37.4% (Lorains et al., 2011). These findings are corroborated by this study. It is also more common among the male gender and as has been demonstrated by this study, a higher prevalence among the 18-24 year olds than any other age grouping. The public health implication of this is a longer period of disability (DALY'S) for the affected youth as they transition through life with mortality and suicide rates being significantly elevated among individuals with GD (Karlsson & Håkansson, 2018).

This study has established the overwhelming presence of gambling disorder amongst a psychiatric population, who are vulnerable members of the society. Hitherto an undiagnosed condition in Kenya, the consequences over the longer term could be the precipitation of an increased incidence of co morbid psychiatric conditions which will further complicate treatment outcomes for the affected people and lead to more prevalent and fulminant mental illness in the general populace.

5.3 Limitations

- The data collection relied on self-report and there was no corroborative history of gambling behavior.
- The clinics of interest during data collection took place once a week only necessitating a longer period of data collection.
- The data reflects the circumstances of patients in a mental health facility and thus may not be generalizable to the entire population.

5.4 Recommendations

- The screening and treatment of gambling disorder should be mainstreamed in clinical practice in Kenya as it has a high undiagnosed prevalence. Psycho education about gambling and the propensity of developing mental health conditions should be done in Mathari Teaching and Referral Hospital for the clinical care staff and in other government facilities throughout the country.
- The authorities should conduct training and disseminate information and support to general practitioners in the country's health institutions on awareness and the requisite clinical care interventions for addressing gambling disorder to decrease the incidence of advanced complications and co morbidities. Establishment of a problem gambling research and treatment center and integrating its services within the broader health system would further reduce harm.
- The government and relevant authorities need to get more engaged in prevention, regulation and treatment of unsafe gambling products with intrinsic design features that have been shown to be associated with uncontrolled problematic consumption and impaired decision making that causes considerable harm to individuals, families and communities. So far, the laws that have been passed and enacted have been pro taxation and revenue generation and none has been directed at consumer protection despite obvious potential for psychological and financial harm to participants.
- Jurisdictions consistently acknowledge the harms of gambling by setting aside funds for problem gambling treatment/counseling, public education and awareness campaigns and for research into problem gambling, its measurement and the social and economic impact of gambling. For example, national, provincial and/or state gambling measurement studies to monitor prevalence and incidence of problem gambling are routinely conducted in most regulated and developed gambling jurisdictions around the world including Canada, United States, Australia, New Zealand, the UK, and in Europe (Hancock et al., 2008). The Kenyan authorities should also insist on a fund where the gaming operators contribute a percentage of their gross gaming yield for the same.

- Further studies need to be conducted to establish the prevalence and long term effects of continued participation in gambling on the general population, as studies have demonstrated increased prevalence rates of problem and pathological gambling with time (Robert J. Williams & Volberg, 2013).

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APPENDICES

Appendix 1: Socio-Demographic and Patient Clinical Data Questionnaire

1. Serial No. _____ Date. _____
2. County of residence _____
3. What is your Religion?
- Christian
 - Muslim
 - Other specify _____
4. In what year were you born? _____
- Refused/don't know
5. Gender (do not ask)
- Male [] or Female []
6. At the present are you married, living with a partner, widowed, divorced, separated, or have you never been married?
- never married
 - living with partner
 - married
 - divorced or separated
 - widowed
 - Refused/don't know
7. What is the highest level of education you have completed? _____
- Less than high school graduation
 - Completed high school and/or some post-secondary
 - Trades certificate (Polytechnic) or diploma
 - College certificate or diploma
 - University diploma or degree
 - Refused/don't know

8. Are you currently a full or part-time student?

- No
- Part time student
- Full time student
- Refused/don't know

9. Are you presently working for pay in a full-time or in a part-time job?

- No
- Employed part-time
- Employed full-time
- Self Employed
- Refused/don't know

10. To the nearest Kshs 10,000, what is your approximate income per month? *Would you say (keep on reading options until respondent provides answer)*

- Less than Ksh.10, 000 Ksh.10, 000
- Ksh.20, 000
- Ksh.30, 000 Ksh.40, 000
- Ksh.50, 000 Ksh.60, 000
- Ksh.70, 000 Ksh.80, 000
- Ksh.90, 000 Ksh.100, 000
- Ksh.110, 000 Ksh.120, 000
- More than Ksh.120, 000
- Exact amount _____
- Refused/don't know

11. Do you smoke?

- Yes
- No

12. How many cigarettes do you smoke in a day?

13. Psychiatric Diagnosis (From File)

Appendix 2: Problem and Pathological Gambling Measure (PPGM).

1a. Has your involvement in gambling caused you either to borrow a significant amount of money or sell some of your possessions in the past 12 months? (Yes/No).

1b. Has your involvement in gambling caused significant financial concerns for you or someone close to you in the past 12 months? (Yes/No). (Note: **do not score 1 for 1b if 1 has already been scored for 1a**).

2. Has your involvement in gambling caused significant mental stress in the form of guilt, anxiety, or depression for you or someone close to you in the past 12 months? (Yes/No).

3a. Has your involvement in gambling caused serious problems in your relationship with your spouse/partner, or important friends or family in the past 12 months? (Note: **Family is whomever the person themselves defines as “family”**)(Yes/No).

3b. Has your involvement in gambling caused you to repeatedly neglect your children or family in the past 12 months? (Yes/No). (Note: **do not score 1 for 3b if 1 has already been scored for 3a**).

4. Has your involvement in gambling resulted in significant health problems or injury for you or someone close to you in the past 12 months? (Yes/No).

5a. Has your involvement in gambling caused significant work or school problems for you or someone close to you in the past 12 months? (Yes/No).

5b. Has your involvement in gambling caused you to miss a significant amount of time off work or school in the past 12 months? (Yes/No). (Note: **do not score 1 for 5b if 1 has already been scored for 5a**).

6. Has your involvement in gambling caused you or someone close to you to write bad cheques, take money that didn't belong to you or commit other illegal acts to support your gambling in the past 12 months? (Yes/No).

7. Is there anyone else who would say that your involvement in gambling in the past 12 months has caused any significant problems regardless of whether you agree with them or not? (Yes/No).

PROBLEMS SCORE

X/7

8. In the past 12 months, have you often gambled longer, with more money or more frequently than you intended to? (Yes/No).

9. In the past 12 months, have you often gone back to try and win back the money you lost? (Yes/No).

10a. In the past 12 months, have you made any attempts to either cut down, control or stop your gambling? (Yes/No). (go to 11 if 'no') (this item not scored)

10b. Were you successful in these attempts? (Yes/No). (score '1' for no and '0' for yes)

14. In the past 12 months, is there anyone else who would say that you have had difficulty controlling your gambling, regardless of whether you agreed with them or not? (Yes/No).

**IMPAIRED CONTROL
SCORE**

x/4

In the past 12 months, would you say you have been preoccupied with gambling? (Yes/No).

13. In the past 12 months, when you were not gambling did you often experience irritability, restlessness or strong cravings for it? (Yes/No).

14. In the past 12 months, did you find you needed to gamble with larger and larger amounts of money to achieve the same level of excitement? (Yes/No).

OTHER ISSUES SCORE

X/3

Appendix 3: The Attitudes Towards Gambling Screen (ATGS)

1. There are too many opportunities for gambling nowadays

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

2. People should have the right to gamble whenever they want

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

3. Gambling should be discouraged

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

4. Most people who gamble do so sensibly

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

5. Gambling is a fool's game

- Strongly agree
- Agree

- Neither agree nor disagree
- Disagree
- Strongly disagree

6. Gambling is dangerous for family life

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

7. Gambling is an important part of cultural life

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

8. Gambling is a harmless form of entertainment

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

9. Gambling is a waste of time

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

10. On balance, gambling is good for society

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

11. Gambling livens up life

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

12. It would be better if gambling was banned all together

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

13. Gambling is like a drug

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

14. Gambling is good for communities

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Appendix 4: Facilitation of research

CURRICULUM VITAE

DR ALFRED GITONGA MIRITI

Cell: +254 722 892 966 | Email: drgitonga@gmail.com | P. O. Box 51758 – 00200 Nairobi, Kenya

CAREER OBJECTIVE

I seek to contribute to improved quality of life through implementation of novel ventures in healthcare. As a self-starter who is not afraid to take initiative, I have the ability to work both independently and as part of a team in an environment of change, challenge, multiple deadlines and priorities.

PROFESSIONAL PROFILE

I am an experienced medical doctor and public health practitioner who is passionate about transforming healthcare and have all of the competencies necessary for the effective daily operation and general management of a medical practice with emphasis on efficiency through workflow improvements, detail-oriented process changes, and increased focus on customer satisfaction.

Unique blend in medicine, social science and business management abilities gained through relevant education credentials and experience in health care provision, administration, program implementation, monitoring and evaluation.

Other areas of professional strength include:

- ※ *Project management:* accomplished in breaking down complex assignments into organized and attainable tasks, participating in implementation, monitoring and evaluation of impact
- ※ *Stakeholder networking:* gained expertise in establishing and engaging stakeholders at different levels in the medical profession and at community level
- ※ *Capacity building:* 3 years' experience in training healthcare workers as well as providing mentorship
- ※ *Leadership:* problem solver with an entrepreneurial spirit, sees the big picture and able to provide effective leadership towards achieving timely results
- ※ *Team player and communication skills:* worked with multifunctional teams and conveyed critical information through written reports and oral presentations
- ※ *Personal attributes:* persistent, decisive, results oriented, flexible and able to work under pressure and multitask

Appendix 5: Study Eligibility Check List

PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT IN MATHARI HOSPITAL IN NAIROBI

Date:

Clinician signature:

Part A: Inclusion criteria (if any of the criteria is marked NO the participant is not eligible for enrolment)

Yes No

1. Psychiatric outpatient

2. Participant who is mentally stable

3. Participants who can read in English or Swahili

Is the participant eligible for the study?

Yes No

This form will be completed by the clinician attending to the patient then handed to the researcher or research assistant through the participant.

Appendix 6a: Consent Explanation Form

Title: PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT IN MATHARI HOSPITAL IN NAIROBI

To be read and questions answered in language in which the subject is fluent in (Kiswahili or English).

Introduction

My name is Dr. **Alfred Gitonga Miriti**, a postgraduate student in Psychiatry at the University of Nairobi. As part of my training I am required to carry out a research project. This study by my team and I seeks to determine the PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT IN MATHARI HOSPITAL IN NAIROBI. I would like to seek your permission to participate in the study.

Your agreement to enroll is voluntary and you will be at liberty to opt out from the study any time. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled to.

Study Title

PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT IN MATHARI HOSPITAL IN NAIROBI

Objectives

To determine the prevalence of gambling disorder among patients seeking psychiatric treatment in Mathari Teaching and Referral Hospital, Nairobi.

Confidentiality

Study participants will be assured of confidentiality and anonymity. Their names will only appear on the consent form, which will be signed and kept separately by the principal investigator for identification.

Other study documents and research instruments will be identified only by a serial number. Access to the data will be limited to the principal investigator.

Study Implementation

The researcher will interview and administer the questionnaires to you. The administration of questionnaire will take 15 to 20 minutes. All information will be handled with confidentiality and will only be used for the purpose of this study.

Participation

Your agreement to participate in this study is voluntary. You are free to opt out from the study at any point without necessarily giving any reason and this will not in any way jeopardize the care that you are receiving at this hospital.

Benefits

The findings of the study will assist the clinicians in formulating better treatment strategies.

Risks

Participant will be asked some questions concerning their private life.

Participants will be asked some questions concerning their social life.

There are no anticipated physical risks which will occur during your participation in the study. The research will involve use of interviews and questionnaires to collect data and no physical examination or invasive procedures will be used.

Question

In case of any questions or clarifications about the study, you are free to contact me on my telephone number **0722892966** or the Secretary of Kenyatta National Hospital /University of Nairobi /Ethical and Research Committee (KNH/UoN-ERC on telephone number 2726300 Ext 44102 or P.O Box 20723 – 00202, Nairobi.

I, therefore, kindly request you to sign the attached consent form. Thank you for your consideration.

Appendix 6b: Fomu ya Maelezo ya Kukubali

Ugonjwa wa kupiga kamari Miongoni mwa Wagonjwa wa Akili Katika Hospitali ya Mathari
Inchini Kenya

Isomwe kwa lugha anayoilewa mshiriki.

Utangulizi

Jina langu ni **Dr. Alfred Gitonga Miriti**; Mwanafunzi wa shahada ya udhamini wa magonjwa ya chuo kikuu cha Nairobi. Nafanya utafiti juu ya Ugonjwa wa kupiga kamari Miongoni mwa Wagonjwa wa Akili Katika Hospitali ya Mathari inchini Kenya.

Hivyo basi, nakuomba kwa ruhusa yako ukubali kushiriki katika utafiti huu. Tafadhali jisikie huru kuuliza maswali yoyote wakati ninapokupatia maelezo ya nini kitafanyika.

Utafiti

Ugonjwa wa kupiga kamari Miongoni mwa Wagonjwa wa Akili Katika Hospitali ya Mathari
inchini Kenya

Malengo

Lengo kuu la utafiti huu ni kubainisha athari za upigaji kamari miongoni mwa wagonjwa wa akili.

Utekelezaji wa Utafiti

Utafiti itakuwa kwa njia ya mahojiano na kujibu maswali. Hi yote itachukua muda wa dakika 15 hadi 20. Taarifa yote itachukuliwa kwa siri na kutumika tu kwa ajili ya utafiti huu pekee.

Ushiriki

Kukubali kwako kushiriki katika utafiti huu ni hiari. Uko huru kujitoe katika utafiti huu katika hatua yoyote bila lazima ya kutoa taharifa na hii haitaathiri kwa aina yoyote huduma anazopata katika hospitali ya Mathari.

Faida

Matokeo ya utafiti itasaidia daktari kuunda njia bora ya kutibu magonjwa yako.

Ikiwa utapatika kuwa na shida na ikiwa utakuwa na swali lolote kuhusu utumizi wa madawa yako utasaidiwa njia ya kupunguza shida hizo.

Hatari

Baadhi ya maswali yatahusu maisha yako ya kibinafsi kwa mfano habari kuhusu maisha yako ya mapenzi.

Baadhi ya maswali yatahusu mahusiano yako na waku wengine wa karibu. Maswali haya yanaweza uhisi vibaya.

Hakuna matarajia ya hatari ya kimwili ambayo yatatokea wakati wa kushiriki kwako katika utafiti.

Utafiti utafanyika kwa njia ya matumizi ya mahojiano na maswali na hakuna uchunguzi wa kimwili utakaofanyika.

Usiri

Taharifa zote utakazotoa zitatumika kwa usiri mkubwa, namba zitatumika badala ya jina lako kwa ajili ya kuhifadhi utambulisho wako, taharifa zitakazokusanywa zitahifadhiwa na mtafiti mkuu pekee kipindi chote cha utafiti.

Maswali

Kwa maswali zaidi au ufafanuzi juu ya utafiti huu unaweza kuwasiliana na yeyote kati ya anwani zilizoandikwa hapo chini. Kama una wasiwasi wowote wa kimaadili au maswali kuhusu haki zako kama mgonjwa unaweza kuwasiliana nami kwa nambari 0722892966 au katibu wa hospitali ya taifa ya Kenyatta/chuo kikuu cha Nairobi/Kamati ya maadili ya utafiti (KNH/UON-ERC). Mawasliano kamili hapo chini 2726300 Ext 44102 or P.O Box 20723 – 00202, Nairobi.

Appendix 7a: Consent Declaration Form

Title: PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT IN MATHARI HOSPITAL IN NAIROBI

I (.....), being 18 years and more and having full capacity to consent, hereby do consent to voluntarily participate in this study. The nature of the study has been explained to me by the principal investigator and I have been given opportunity to ask questions concerning the study which have been answered to my satisfaction. The benefits and risks of this study have been clearly explained to me and I am aware that I am free to withdraw from this study at any point and this will not jeopardize the care I receive at the hospital.

I therefore give consent to be interviewed and answer the questionnaires and that information from my file can also be used having understood the purpose of the study.

Signature:

Date:

Researcher’s Declaration Statement

IBeing the study researcher have adequately explained to the above named participant on the nature and purpose of the study and has agreed to voluntarily participate in the study.

Signature:

Date:

Contacts: 0722892966.

Appendix 7b: Thibitisho la Kushiriki

Mimi..... (jina la mshiriki), nikiwa na umri wa miaka 18 au zaidi na nikiwa na akili timamu ya kushiriki kwenye utafiti huu. Ninakubali kushiriki kwenye utafiti huu. Aina ya utafiti na yatakayofanyika nimeelezwa kwa ufasaha na mtafiti mkuu, nimepewa fursa ya kuuliza maswali na kupata ufafanuzi zaidi, nimeridhika. Faida ya matokeo ya utafiti huu nimeelezwa na nimeelewa kwamba naweza kujitoa katika utafiti huu wakati wowote bila kuhathiri huduma ninazopata hospitalini hapa.

Kwahiyo ninaruhusu kuulizwa maswali na kujibu maswali na kuchukuliwa kwa taharifa za matibabu yangu katika faili langu kwa madhumuni ya utafiti huu.

Sahihi:

Tarehe:

Azimio la Mtafiti

MimiNikiwa mtafiti wa utafiti huu nimeelezea vya kutosha mshiriki juu ya asili na madhumuni ya utafiti na amekubali kwa hiari kushiriki katika utafiti.

Sahihi :

Tarehe:

Numbari ya simu : 0722892966

Appendix 8: Curriculum Vitae

CURRICULUM VITAE

DR ALFRED GITONGA MIRITI

Cell: +254 722 892 966 | Email: drgitonga@gmail.com | P. O. Box 51758 – 00200 Nairobi, Kenya

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I seek to contribute to improved quality of life through implementation of novel ventures in healthcare. As a self-starter who is not afraid to take initiative, I have the ability to work both independently and as part of a team in an environment of change, challenge, multiple deadlines and priorities.

PROFESSIONAL PROFILE


I am an experienced medical doctor and public health practitioner who is passionate about transforming healthcare and have all of the competencies necessary for the effective daily operation and general management of a medical practice with emphasis on efficiency through workflow improvements, detail-oriented process changes, and increased focus on customer satisfaction.

Unique blend in medicine, social science and business management abilities gained through relevant education credentials and experience in health care provision, administration, program implementation, monitoring and evaluation.


Other areas of professional strength include:

- ※ *Project management*: accomplished in breaking down complex assignments into organized and attainable tasks, participating in implementation, monitoring and evaluation of impact
- ※ *Stakeholder networking*: gained expertise in establishing and engaging stakeholders at different levels in the medical profession and at community level
- ※ *Capacity building*: 3 years' experience in training healthcare workers as well as providing mentorship
- ※ *Leadership*: problem solver with an entrepreneurial spirit, sees the big picture and able to provide effective leadership towards achieving timely results
- ※ *Team player and communication skills*: worked with multifunctional teams and conveyed critical information through written reports and oral presentations
- ※ *Personal attributes*: persistent, decisive, results oriented, flexible and able to work under pressure and multitask


Appendix 9: KNH Ethical Approval Letter



UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel: (254-020) 2726300 Ext 44355



KNH-UoN ERC
Email: uonknh_erc@uonbi.ac.ke
Website: <http://www.erc.uonbi.ac.ke>
Facebook: https://www.facebook.com/uonknh_erc
Twitter: [@UONKNH_ERC](https://twitter.com/UONKNH_ERC) https://twitter.com/UONKNH_ERC



KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 725300-0
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/456

2nd December , 2019

Dr. Fredrick C. Mbutia
Reg. No.H58/74897/ 2014
Dept. of Surgery
School of Medicine
College of Health Sciences
University of Nairobi

Dear Dr. Mbutia

RESEARCH PROPOSAL: INCIDENCE AND RISK FACTORS OF POST-OPERATIVE ILEUS IN ADULT PATIENTS AT KENYATTA NATIONAL HOSPITAL (P804/09/2019)

This is to inform you that the KNH- UoN Ethics & Research Committee (KNH- UoN ERC) has reviewed and approved your above research proposal. The approval period is 2nd December 2019 – 1st December 2020.


This approval is subject to compliance with the following requirements:

- Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- All changes (amendments, deviations, violations etc.) are submitted for review and approval by KNH-UoN ERC before implementation.
- Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
- Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
- Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
- Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
- Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website <http://www.erc.uonbi.ac.ke>

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Yours sincerely,



PROF. M. L. CHINDIA
SECRETARY, KNH-UoN ERC

c.c. The Principal, College of Health Sciences, UoN
The Director, CS, KNH
The Chairperson, KNH- UoN ERC
The Assistant Director, Health Information, KNH
The Dean, School of Medicine, UoN
The Chair, Dept. of Surgery, UoN
Supervisors: Dr. Kiptoon Dan, Dept. of Surgery, UoN
Dr. Daniel Kinyuru Ojuka, Dept. of Surgery, UoN

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Appendix 10: Plagiarism report

Turnitin Originality Report

PREVALENCE OF GAMBLING DISORDER AMONG PATIENTS SEEKING PSYCHIATRIC TREATMENT AT MATHARI NATIONAL TEACHING AND REFERRAL HOSPITAL IN NAIROBI, KENYA

by Alfred Gitonga Miriti



From Psychiatry (Master of Medicine)

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Jérémie Richard, Marc N. Potenza, William Ivoska, Jeffrey Derevensky. "The Stimulating Nature of Gambling Behaviors: Relationships Between Stimulant Use and Gambling Among Adolescents". *Journal of Gambling Studies*, 2018