EFFICACY OF BRIEF MOTIVATIONAL INTERVIEWING INTERVENTION FOR TREATING GAMBLING DISORDER AMONG UNIVERSITY STUDENTS IN KENYA: A RANDOMIZED CONTROLLED TRIAL

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or for any other award.

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DEDICATION

I dedicate this research to individuals who struggle with gambling and other behavioural addictions and encourage them that it is possible to overcome the challenge. I also dedicate this work to everyone trying to come up with Kenyan solutions for Kenyan problems.

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May God bless you all.

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ABBREVIATIONS AND ACRONYMS

ABC	Abstinence, Be Faithful, Change of attitude
AFEPOC	Assessment, Feedback, Exploration, Psycho - education, Options, Challenge
ANOVA	Analysis of Variance
BI	Brief Interventions
BMII	Brief Motivational Interviewing Intervention
CBGT	Cognitive Behavioural Group Therapy
DSM-IV	Diagnostic and Statistical Manual for Mental Disorders (Fourth Edition)
DSM-V	Diagnostic and Statistical Manual for Mental Disorders (Fifth Edition)
FRAMES	Feedback, Responsibility, Advice, Menu, Empathy and Self efficacy
mhGAP	Mental health Gap Action Plan
MI	Motivational Interviewing
PNF	Personalised Normative Feedback
RCT	Randomized Controlled Trial
SPSS	Statistical Package for Social Sciences
TSF	Twelve Step Facilitation
USA	United States of America

OPERATIONAL DEFINITION OF TERMS

Brief Motivational Interviewing Intervention	A single group psycho-educational session based on motivational interviewing principles aimed at treating gambling disorder. The intervention is developed by the researcher.
Efficacy	The ability of the BMII to elicit statistically significant changes in gambling disorder among participants
Gambling disorder	A psychological condition characterised by compulsive gambling indicated by gambling disorder symptoms described in the DSM-V diagnostic criteria, high gambling frequency and typical amount placed per bet.
Gambling disorder symptoms	The reported maladaptive psychological and behavioural experiences of individuals involved in gambling based on the DSM-V criteria for gambling disorder.
Gambling frequency	The number of times an individual gambles in a week.
Typical amount placed per bet	The amount of money that an individual usually wagers when gambling.

ABSTRACT

With the high uptake of gambling in Kenya, especially among University students, it is inevitable that some of them may end up suffering from gambling disorder. Apart from compromised psychological health, disordered gamblers experience difficulties in their financial and social wellbeing. Currently, there is lack of evidence based interventions for gambling disorder that have been developed and empirically tested in Kenya. This research sought to establish the efficacy of Brief Motivational Interviewing Intervention (BMII) for treating gambling disorder among university students in Kenya. The intervention was guided by Motivational Interviewing principles and was delivered in psycho - educational group format. The study had four specific objectives; to find out the prevalence of gambling disorder among gamblers; to determine the efficacy of BMII in decreasing gambling disorder symptoms; to determine the efficacy of BMII in decreasing frequency of gambling and; to determine the efficacy of BMII in decreasing typical amount of money placed per bet. The research design used was a parallel group, two arm, superiority randomized control trial. The treatment group received the intervention; BMII. The control group did not. The study targeted university students who gamble. Multistage sampling approach was used. Simple random sampling was used to select the university. Purposive sampling was used to select the study participants. Randomization was then used to assign the participants to the treatment and control groups. A total of 228 students participated in the study. The findings of the study revealed that a majority (69.3%) of participants were disordered gamblers while 68.9% gambled more than twice a week and 56.6% of the participants typically placed between 51 - 100 Kenya shillings per bet. One way ANOVA was calculated to determine the differences between control and treatment groups at pre - test and post - test. Paired samples t - tests were calculated to test the hypotheses. The results revealed that there were significant differences in symptoms of gambling disorder between treatment and control group at post - test at $p<.05$, {$F (1,193) = 24.637$, $p=.000$} and that BMII was efficacious in decreasing gambling disorder symptoms at $p<.05$ ($MD =-1.733$, $t (100) = -7.087$, $p<.000$). On frequency of gambling, the results revealed that there were significant differences between control group and treatment group at post-test at $p<.05$ {$F (1,192) = 48.005$, $p=.000$} and that BMII was efficacious in decreasing frequency of gambling at $p<.05$, ($MD= -.683$, $t (100) = -6.072$, $p=.000$). There were also significant differences in terms of typical amount of money placed per bet between control group and treatment group at post - test at $p<0.05$, {$F (1,192) = 8.274$, $p=.004$}. BMII was found to be efficacious in decreasing typical amount placed per bet at $p<.05$ ($MD=-.455$; $t (100) = -3.294$, $p=.001$). BMII was established to be efficacious in treatment of gambling disorder among university students. It is recommended as an evidence - based intervention that can be utilised in gambling disorder treatment among university students in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Gambling can be defined as "Staking money or something of material value on an event having an uncertain outcome in the hope of winning additional money and/or material goods" (Williams et al., 2017). Examples of gambling games include sports betting, casino, poker and lotteries. Gambling is said to be as old as the organized society. The first legalized gambling happened in Venice in 1638 (Schwartz, 2019). Over the centuries, gambling has evolved from a social vice to being legalised. It has also evolved from being land based casinos to online gambling. The increase in legalised gambling opportunities more so online gambling across the globe has stimulated a high rate of gambling participation in many countries. In Australia, legalization of internet gambling led to an increase in gambling prevalence from less than 1% to 8.1% between 1999 and 2011. In Britain, at least 15% of the population had participated in online gambling regularly (Gainsbury, 2015; Gambling Commission, 2014). In Spain, the legalization of online gambling led to 44.64% increase in pathological gamblers within two years (Chóliz, 2016). In the United States of America (USA), it is estimated that between 0.42% and 4% of the population are addicted to gambling (Black & Shaw, 2019). In India, 27.9% of high school students have gambled while 7.1% are problem gamblers (Jaisoorya et al., 2017). In Africa, the prevalence of gambling is high with 54% of youth having engaged in gambling (Geopoll, 2017). Aguocha & colleagues (2019) found that 57.2% of secondary school students in Nigeria had gambled while 42% of youth in

Ghana had gambled. Research in East Africa showed that 40% of youth in Uganda had gambled while 17.7% were problem gamblers (Anyanwu, Bajunirwe & Tamwesigire, 2020). Another study by Geopoll (2017) found that 57% of youth in Uganda had participated in gambling. In Kenya, gambling has not been a major public health concern until the last five years when online sports betting made its debut. Between 57 - 76% of Kenyans have participated in gambling (Geopoll, 2017; 2019a) while 29% of the gamblers are students (Wangari, 2018). Youth with post - secondary education form the bulk of Kenyans involved in gambling. According to Mwadime (2017), most of those who gamble in Kenya are aged below 40 years. Koross (2016) reports that over 78% of university students in Kenya gamble at least once a week. Macharia (2018) also found that more than 75% of Kenyan university students were engaged in sports betting. In Kenya, 87% of gambling is done through online sports betting (Infotrack, 2019). According to Hing et al., (2016) young males who are educated or fulltime students are more likely to bet more frequently and spend more money in sports betting.

Although gambling may provide an innocuous chance for excitement for the occasional gambler, it can have serious adverse consequences on the compulsive gambler. A compulsive gambler is an individual who is unable to control his gambling and often gambles excessively. The occasional gambler is able to control his gambling and does not wager frequently. Compulsive gambling affects the individual psychologically and financially. It also leads to other social problems such as crime and death (Mestre - Bach et al., 2018; Tovino, 2016). This makes it a public health concern. The proliferation of undesirable effects of compulsive gambling on the psychological wellbeing of the individual has led to an interest among mental

health professionals in diagnosis and treatment of the condition. The American Psychiatric Association (2013) classifies compulsive gambling as disorder under substance–related and Addictive Disorders in the Diagnostic and Statistical Manual for Mental disorders fifth Edition (DSM-V). It was previously referred to as Pathological gambling in the DSM IV-TR (American Psychiatric Association, 1994). It is commonly referred to as problem gambling in literature. Gambling disorder is described in the DSM-V as persistent. Recurrent problematic gambling behaviour led to clinically significant impairment or distress in the last 12 months. Some of the symptoms associated with gambling disorder are preoccupation with gambling, chasing loses, unsuccessful attempts to control gambling and financial difficulties due to gambling (American Psychiatric Association, 2013). Individuals suffering from gambling disorder lose time from school or work, get into severe debt and legal problems, experience relationship problems, psychological distress and physical health problems (Latvala, Lintonen & Konu, 2019; Keen, et al., 2015; Koross, 2016). The seriousness of the negative effects of gambling disorder has led to various attempts to find treatments for the problem.

Problems as a result of disordered gambling have always existed. Formal treatment of disordered gambling is still at infancy with a scarcity of literature on evidence based treatments. Ssewanyana & Bitanihirwe (2018) argue that although Sub - Saharan Africa is facing an unprecedented rise in gambling problems among the youth, there are no specific prevention and treatment facilities aimed at providing support to the disordered gamblers. Brief interventions, motivational interviewing, cognitive behavioural therapies and twelve steps programs are some of the treatment approaches that have shown promising results in treatment of gambling disorder

(Rash & Petry, 2014; Yau & Potenza, 2015). Although the efficaciousness of the treatment approaches for gambling disorder is not unequivocal, there is a general consensus that the treatment is preferable to none at all. Brief interventions (BI) have particularly elicited an interest among scholars in treatment of addictions. They are aimed at identifying those engaging or at risk of harmful behaviour and motivating them to change such behaviour (Angus et al., 2014; Henry-Edwards, Ali & Poznyak, 2003). The interventions are usually shorter than regular therapy sessions . A therapist can have a single session or up to five sessions with the client.

According to Angus et al. (2014), there is strong evidence on effectiveness of brief interventions in treatment of addictions. BIs have largely been used in the prevention and treatment of alcohol and substance abuse. A systematic review and meta -analysis of the effectiveness of brief interventions for alcohol abuse among adolescents by Tanner - Smith & Lipsey (2015) found that; overall, those in the treatment group had lowered alcohol consumption and negative consequences after a follow - up of 12 months compared to the control group that did not receive any intervention. Another systematic review of randomized control trials in middle income countries such as Thailand and South Africa by Joseph & Basu (2016) found evidence of BI reducing harmful alcohol use. The use of BIs has been recommended as one of the beneficial harm reduction strategies for gambling disorder (Gainsbury et al., 2014). The World Health Organization, Mental Health Gap Action Programme (mhGAP) also recommends the use of brief interventions for mental health problems (World Health Organization, 2016).

Research on efficacy of BI in treatment of gambling disorder has largely yielded positive outcomes.

A study by Swan & Hodgins (2015) in Canada found that brief advice and motivational enhancement therapy were effective in reducing gambling symptoms. Neighbors & colleagues (2015) found that among college students, personalized normative feedback was effective in reducing amount lost and problems associated with gambling. Petry, Rash & Alessi (2016) conducted a systematic review of brief interventions for gambling disorder . They found out that most of the interventions led to a decrease in gambling symptoms and problems. Many studies on treatment of gambling disorder have been conducted in the west where the dynamics of gambling behaviour may be different from those in Kenya. The therapeutic approach used in a BI largely determines its efficacy in treatment of gambling disorder. One of the popular evidence based therapies used in brief interventions is Motivational Interviewing (MI).

MI is a goal oriented "collaborative conversation style for strengthening a person's own motivation and commitment to change" (Miller & Rollnick, 2013). The premise of MI is that behaviour change can occur if individuals are given objective feedback about their addictive behaviour and motivated to change. Compared to other non - motivational interventions, MI has been found to yield robust results in treatment of disordered gambling and other unhealthy behaviours (Lundahl et al., 2010). A number of randomized controlled trials (RCTs) have been conducted to establish the efficacy of MI in treatment of gambling disorder. They have yielded promising results. Yakovenko et al., (2015) conducted a systematic review of RCTs on gambling disorder. They found out that MI was efficacious in reducing gambling frequency for up to a year and reducing the amount of money spent on gambling after three months of intervention.

One of the key features of MI is its flexibility in the manner in which it can be delivered making it easily adaptable to different contexts and goals of treatment (Arkowitz, Miller & Rollnick, 2015). Various researchers use MI principles in single or multiple sessions over telephone, online therapies, group therapies or a combination of therapies in different interventions. Toneatto (2016) found that single session motivational intervention was as effective in treatment of gambling disorder as other longer term interventions . Hodgins et al., (2009) conducted a telephone motivational interview. They mailed a self-help workbook to participants in USA. They found that it was useful in reducing gambling frequency and money lost. Another study by Carlbring et al. (2010) in Sweden found out that four individual sessions of MI were effective in reducing the gambling symptoms among a population that was also diagnosed with depression and anxiety. A wide range of brief interventions based on motivational interviewing principles can be developed by researchers depending on the population, desired outcome, resources available and nature of problems being addressed.

Available literature on the efficacy of brief interventions based on MI principles is equivocal because of the varied methodologies, populations and outcome measures used. Studies have been conducted among patients in substance abuse treatment centres and individuals with other mental disorders such as anxiety (Petry et al., 2009; Hodgins et al., 2009; Lundahl et al., 2010). Different diagnostic criteria for gambling disorder are used such as South Oaks gambling disorder screen, DSM - IV criteria and problem gambling disorder screen (Carlbring, et al., 2010; Diskn & Hodgins, 2009; Grant et al., 2011). These treatments are more or less applicable only to the context in which they were tested and the diagnostic criteria used. The efficacy of the

interventions may not be generalised to other contexts such as Kenya or using a different criteria for diagnosing disordered gambling.

The studies vary in terms of number of sessions. In as much as some researchers advocate for more sessions, there are indications that a single session is equally efficacious in treatment of gambling disorder and other addictive behaviours. Many studies that use a single session have yielded positive treatment outcomes leading to a conclusion that more (sessions) is not necessarily better. Diskin & Hodgins (2009) used a single session motivational interviewing in Canada. They found out that it was efficacious in reducing gambling frequency and the amount gambled. Petry & Gonzalez-Ibanez (2015) found that a 50 minute motivational interview was effective in reducing gambling symptoms.

Literature on treatment of gambling disorder in Africa and Kenya is scarce. The increase in gambling activity over the last five years in Kenya has led to an interest on measures to minimize the harm caused by disordered gambling. The Kenyan government acknowledges that widespread gambling in the country has led to negative social and psychological effects among the youth and vulnerable members of the society (Obebo, 2019; Igadwah, 2019).

Various attempts have been made by the government to curb the problem through legislation with limited success. Increasing taxes for gambling companies, taxing winnings and blacklisting of some gambling companies are some of the interventions that have been implemented by the government (Omondi, 2019; Muraya, 2019). The government's efforts, although laudable, may not be sufficient in mitigating the adverse effects of gambling disorder among the gamblers. According to IPSOS &

Geopoll (2019), many young people sought alternative channels of betting after the government banned some betting companies from operating in Kenya. Measures to minimise harm and provide support to the disordered gamblers are necessary. It is against this backdrop that this study was designed to test the efficacy of BMII to treat gambling disorder among university students in Kenya.

1.2 Statement of the Problem

There is an increase in gambling among young people in Kenya especially university students (Koross, 2016; Geopoll, 2019a; Hing, et al, 2016). This puts many of them at risk of disordered gambling. The effects of gambling disorder can be dire especially in the lives of university students. Gambling leads to psychological distress, poor relationships, financial difficulties and even suicide (Ainea, 2019; Igadwah, 2019; Nowak & Aloe, 2014). Although attempts have been made to deal with the gambling problem through legislation such as heavy taxation and blacklisting of some gambling companies, it is still legal in the country. It is highly prevalent among university students. Those who end up gambling compulsively and bear the brunt of disordered gambling thus need support to alleviate the burden of their addiction. Currently, there is seemingly no specific structured intervention that has been empirically established to work in treatment of gambling disorder in the country.

There is need for an evidence based intervention for treating gambling disorder among university students in Kenya. This study sought to fill this gap by testing the efficacy of BMII for gambling disorder among university students in Kenya.

1.3 Purpose of the Study

The purpose of the study was to test the efficacy of BMII in treatment of gambling disorder among university students in Kenya.

1.4 Objectives of the Study

1. To find out the prevalence of gambling disorder among university student gamblers in Kenya.
2. To determine the efficacy of Brief Motivational Interviewing Intervention in decreasing gambling disorder symptoms among University students in Kenya.
3. To determine the efficacy of Brief Motivational Interviewing Intervention in decreasing frequency of gambling among university students in Kenya.
4. To determine the efficacy of Brief Motivational Interviewing Intervention in decreasing typical amount of money placed per bet among university students in Kenya.

1.5 Hypothesis

The study tested three null hypotheses:

H_{01}: Brief Motivational Interviewing Intervention does not decrease symptoms of gambling disorder.

H_{02}: Brief Motivational Interviewing Intervention does not decrease gambling frequency.

H_{03}: Brief Motivational Interviewing Intervention does not decrease typical amount placed per bet.

1.6 Justification and Significance of the Study

There has been an increase in gambling behaviour in the country in the past few years especially among university students. This puts many of them at risk of gambling disorder. The negative effects of gambling disorder among the students include suicide, debt, dropping out of university and poor academic performance (Kahura, 2018; Wanjiru, 2018; Koross, 2016). Considering the mental and public health problems associated with disordered gambling, there was need for evidence based interventions to mitigate the problem. There was scarcity of empirical studies on treatment of gambling disorder locally hence the need for the current study.

The findings of this study provide empirical evidence for treatment which can be used to provide support to students with gambling disorder across the country. University students who suffer from gambling disorder will benefit from the findings of this study. An option is available for them to access treatment in form of BMII. University management and other stakeholders will benefit from the findings of this study. It will provide them with an affordable yet evidence based intervention that can be scaled up to deal with the problem of gambling disorder among university students. The intervention is delivered in groups. A large pool of students can be treated effectively in a timely manner. Counselling psychologists will benefit from the findings of this study. It will provide them with a framework for treatment of clients with gambling disorder. The methods and skills used in BMII provide counselling psychologists with an evidenced approach to treatment of gambling disorder and as a starting point for motivating change when using longer term counselling approaches. The findings will also be used to inform policy making on interventions for gambling in the country.

This study will be useful in conceptualization of psychological theories and further research on the benefits of brief psycho - educational group therapies.

1.7 Assumptions of the Study

The study made the following assumptions:

1. Gambling disorder affects a significant proportion of university students who gamble.
2. The control group and experimental group were homogeneous at the time of the study.
3. Online sports betting was the main gambling activity that the university students participated in.

1.8 Scope and Limitations of the study

The study focused on university students in Kenya. This being a randomized trial, students from one university participated in the study hence a limitation in terms of generalizability of the results to other populations. In this study, sports betting on football matches was the main gambling activity among the participants. The results may not be indicative of other gambling activities such as lotteries and casinos. Another limitation of this study is that it was based on gambling symptomology. This may not capture other harms associated with gambling such as adverse effects on the family and community. The post intervention assessment was conducted after eight weeks hence the long term efficacy of BMII was not established.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is divided into four sections. The first section covers the theoretical framework that explains the principles of motivational interviewing and brief interventions. The second section contains a review of literature related to gambling disorder and treatment including prevalence, gambling disorders symptoms, frequency of gambling and amount of money spent on gambling. It also contains a review of literature on the impact of gambling, the media and gambling, gambling regulation and the effect of gambling regulations. A summary of the reviewed literature is also provided. The third section contains the rationale for developing BMII and a description of the intervention. The last section provides the conceptual framework which illustrates the effect of BMII in treatment of gambling disorder.

2.2 Theoretical Framework

The proposed intervention: BMII is based on two theoretical models that have been found to be effective in treatment of gambling disorder and other addictions. The models are Motivational Interviewing and Brief Interventions models of behaviour change. A discussion of each ensues.

2.2.1 Motivational Interviewing Approach to Behaviour Change

The intervention proposed in this study was based on MI approach to behaviour change developed by Miller & Rollnick (2013). MI "is a collaborative conversation style for strengthening a person's own motivation and commitment to change" (Miller

& Rollnick, 2013). It is an approach that seeks to bring out intrinsic motivation within the client for behaviour change.

The counselling approach is goal oriented with the aim of resolving the clients' ambivalence to change. According to the model, various clients are at different stages of making changes in their problem behaviours. The role of the counsellor is to influence clients to make changes in their behaviour through engaging them, focusing them on problematic behaviour patterns, evoking client motivation for change and planning practical steps to implement changes (Miller & Rollnick, 2013). The application of motivational interviewing in treatment of gambling disorder is further elaborated by Tumbaga, Ryan, & Macaw (2015) in their clincians guide for gambling disorder treatment.

One of the key principles of MI is what is known as 'the spirit of MI'. The underlying perspective of an MI practitioner is faith in client's capacity to change and curiosity about their perspective on the issue (Tumbaga et al. 2015). This means that an intervention aimed at helping clients with gambling problems should be mindful to avoid directing the client on what he should do (righting reflex). BMII does not seek to tell the client what to do but seeks to find out from the client their experiences and perspectives about their gambling behaviour.

There are four elements that embody the spirit of MI: Collaboration, Acceptance, Compassion and Evocation. Collaboration means that the client is the expert in their own life. The role of the counsellor is to create an atmosphere where both can explore the possibilities of change together. Clients with gambling problems may not necessarily want to quit gambling. BMII resists the urge to coerce the client into changing. The client can choose to reduce their gambling frequency or quit gambling

altogether. Acceptance, according to Miller & Rollnick (2013), means that the counsellor recognizes the ‘absolute worth’ of the client. BMII seeks to be empathetic and promote autonomy of the client. For positive outcomes for gambling disorder treatment, it is imperative that the intervention promotes the clients initiative to make changes in their lives. Miller & Rollnick (2013; 20) define compassion as ‘a deliberate commitment to pursue the welfare and best interests of the other’.

The welfare of clients is paramount in any intervention. Evocation means that the counsellor, instead of fixing, goes fishing for client’s strengths and resources (Tumbaga et al., 2015). BMII is aimed at evoking meaningful insights on how the client can make changes in their behaviour. Miller & Rollnick (2013) described four processes that are critical in MI. First is engaging whereby the counsellor develops rapport with the clients and sets the tone for a fruitful conversation with them. Part of BMII activities is engaging the participants in conversations about their gambling experiences and possible ways that they can control their gambling. The second process is focusing whereby the counsellor focuses on the issues the client wants to address. BMII anticipates that some clients may be concerned about their frequency of gambling. Others may be concerned with the amount of money they place per bet. The third process is evoking whereby the counsellor elicits the clients own motivations and reasons for change. Each individual affected by gambling disorder may have different reasons for wanting to quit. The counsellor should harness that. BMII evokes the participants to share their reasons for wanting to quit or control their gambling. The fourth process is planning, a vital process. It involves the client making commitments to change. A client may plan to unsubscribe from all gambling sites or decide to gamble only on weekends. This commitment is a sign that the MI process

has been helpful to the client. One of the key activities in BMII is challenging participants to make commitments for change. Most often when gambling disorder clients make such commitments, they may not need additional support afterwards (Tumbaga et al., 2015). The four MI processes of MI are not necessarily distinct steps but are used simultaneously during the intervention. The third key component of MI is the core skills: Open questions, Affirmations, Reflective listening and Summary (OARS). Open questions help the clients to express their own experiences, feelings and understanding of their situation. The counsellor can ask the clients, "tell me about your experiences in gambling", or "what changes would you like to make about your gambling". This is likely to evoke more information from the clients that will enable the counsellor pick the clients' motivations and strengths to facilitate the change process. Affirmations whereby the counsellor recognizes the client's strengths, abilities and efforts to change is also key in encouraging the client to develop self efficacy and continue with positive behaviour (Tumbaga et al., 2015). Miller & Rollnick (2013) emphasize the role of reflective listening. This involves listening carefully and then making reflective statements about what the client is saying. This makes the client to feel understood, engaged and encouraged to explore further on their gambling experiences. The last core skill in MI is summary. The counsellor draws together what has been discussed with the client and reflectively communicates to the client. This shows the client that the counsellor has been listening and also gives direction on the next step of action. It is usually important to give a summary especially at the end of the session when the client has made some commitments about the changes they intend to make about their gambling behaviour.

Another key tenet of MI that is relevant in gambling disorder treatment is provision of information and advising. Unlike the typical person centred approach, advising clients is acceptable in MI (Miller & Rollnick, 2013). The advice should be provided in a timely and collaborative manner whilst respecting the clients' autonomy. It should not be provided too soon lest it brings out defensiveness or too late lest it creates frustration (Tumbaga et al., 2013). This informs the BMII intervention where the researcher explores the various ways the participants can use to control their gambling towards the end of the session (see treatment protocol on appendix V). Psycho - educating clients on the harms associated with gambling and the various ways that they can control their gambling is an important part of the MI intervention process. Participants are also encouraged to think of various ways that they can make changes to their gambling behaviour.

Miller & Rollnick (2013) emphasize that MI is that it is not an elixir and not necessarily meant to be a comprehensive treatment approach. It is mainly meant to address behaviour change especially when a client may be ambivalent about doing so. It is flexible to use with other therapeutic approaches. One of the popular approaches to treatment that has been found to blend well with MI is the use of brief interventions approach.

2.2.2 Brief Intervention Model of Behaviour Change

The World Health Organization (WHO) defines brief interventions as 'practices that aim to identify a real or potential problem and motivate an individual to do something about it' (WHO, 2017). The history of brief interventions can be traced back several decades in a study by Davies (1962) that led to achievement of 'normal drinking' among individuals who were addicted to alcohol. This led to a paradigm shift in

addiction treatment from abstinence being the exclusive goal of treatment to controlled use being a legitimate goal of interventions. Brief interventions consist of a single session or up to five interventional sessions that are aimed at initiating behaviour change among clients.

In conducting brief interventions, MI is used to get people to think differently about their problem behaviour and consider making changes. It provides them with skills to reduce or abstain from the behaviour. Brief interventions based on MI rely on objective feedback given to the client based on information provided by the individual. The feedback and interaction with client is usually done in a non - confrontational and non - judgemental manner. BMII is based on the assumption that clients who are attending assessment are at different levels of readiness to change their disordered gambling patterns. Individuals with gambling disorder could be at various levels of readiness for change including: no perception of gambling problem; realisation of gambling problem with no corresponding action; current active addressing of gambling problem; and on - going maintenance of reduced gambling.

BMII seeks to address the issues and challenges that clients face at each stage. It also seeks to increase the awareness of the client on the consequences, problems and risks faced as a result of disordered gambling. According to Miller & Rollnick (1991) brief interventions usually comprise of five key elements that make the acronym FRAMES which stands for Feedback, Responsibility, Advice, Menu, Empathy and Self - efficacy.

Feedback involves informing the client about the results of his or her assessment. In using BMII, this involves the severity of gambling disorder, the problems associated

with the disorder, the risks involved and the prognosis of the disorder. The counsellor may say:

"You scored 9 on the DSM - V Gambling Disorder Screen which means that your gambling is getting out of control and you are at risk of harm."

Some people may be unaware of their disordered gambling and the impact it has on their lives. Objective feedback on their gambling can be a strong motivating factor for change.

Responsibility entails the emphasis that the decision to abstain, reduce or continue gambling belongs to the client. The client needs to be aware that he is in charge of the decisions he makes about his gambling behaviour. A counsellor may say:

"It's really up to you to decide whether you want to stop or continue gambling. Nobody can make the decision for you."

The acknowledgement of personal responsibility by the client can encourage the client to make first steps towards change of gambling behaviour.

Advice involves the counsellor giving an opinion regarding the clients gambling behaviour. Simple and clear advice from an expert is usually potent in brief interventions. A counsellor may say:

"As a professional I strongly advise you to limit your gambling or quit altogether in order to reduce the risks involved."

Menu entails providing a range of strategies that the client can use to change his disordered gambling behaviour. Sometimes individuals may not know how to go about changing their behaviour. The counsellor can provide the individual with some

strategies that can be helpful in quitting or controlling their gambling. Such strategies include avoiding visiting gambling websites, unsubscribing from betting sites, engaging in healthier alternative activities and not viewing gambling as a way of making money. The menu of strategies gives the clients an array of options that they can use to deal with their disordered gambling.

Empathy is the warm, reflective and genuine therapeutic alliance that the counsellor develops with the client. It helps the client to feel understood and not judged. A confrontational and coercive stance is likely to be ineffective. A collaborative approach is important in brief interventions.

Self-efficacy involves the promotion of the client's belief in his or her ability to succeed in overcoming the gambling problem. The counsellor should promote optimism and de-emphasize powerlessness and hopelessness in dealing with gambling disorder. The counsellor may say:

"Many people successfully quit or reduce their gambling. I am confident that you will do it too."

The researcher designed the intervention in a manner that it retained fidelity to the above principles while providing specific activities that are aimed at treating gambling disorder symptoms among Kenyan university students (see treatment protocol in appendix V).

Gambling behaviour among university students in Kenya may not be similar to gambling behaviour in the west where most of the research and interventions have been conducted. A review of literature on prevalence of gambling disorder follows.

2.3 Prevalence of Gambling Disorder

There has been an unprecedented growth of online gambling globally in the last few years. Although people have been gambling for millennia, public concern about the harms associated with gambling led it to be recognized in 1980 in the DSM III as pathological gambling. It is currently the only non substance use addiction listed as a disorder in the DSM-V (APA, 2013). Over the years, gambling has moved from brick and mortar casinos to online where one can gamble at the comfort of his home, office or phone. The increase in online gambling is driven mainly by the legalization of gambling and its intersection with internet, mobile phones and financial technologies (Abbort, 2017). Gambling has been normalized across many countries. It is commonly referred to as 'gaming' by the gambling companies. Problem gambling, pathological gambling and gambling addiction are some of the common terminologies used to refer to disordered gambling in literature.

Various studies among adolescents and youth across the globe have found gambling disorder to be common. A systematic review conducted by Calado, Alexandre & Griffiths (2017) on the prevalence of gambling disorder among adolescents found it to range from 0.2 to 12.3 % across the world. Fröberg (2015) conducted a study among youth aged 16 - 24 years in Sweden and found out that 2.26% of the 4358 respondents experienced problem gambling. Another study by González - Roz et al. (2017) among adolescents found that 4% of them were at risk of gambling while 1.2% were problem gamblers. In Asia, Wong & So (2014) found a slightly higher prevalence in their study among 1004 students in Hong Kong.

They found out that 5.7% and 22.9% of internet gamblers were at risk of gambling and disordered gamblers respectively. The variance in prevalence of gambling

disorder could be attributed to different cultural contexts and assessment tools used in determining disordered gambling. Wong & So's study used the diagnostic and statistical manual multiple response format for juveniles. González-Roz et al. used the south oaks gambling scale. Differences have been noted in gambling behavior among countries with different gambling regulatory frameworks (Kairouz et al., 2016 ; Kim, Ahlgren Byun & Malek, 2016; Calado, Alexandre & Griffiths, 2020). This necessitates the need to look at the tones of gambling behavior in Kenya.

In Africa, a systematic review by Abdi, Ruiter & Adal (2015) among 12 - 21 year olds in Ethiopia found that 6.9% of them had gambling disorder. A study by Skaal, Sinclair Stein & Myers (2016) in South Africa found a prevalence of 28.3 %. A systematic review by Ssewanyana & Bitanihiriwe (2018) in sub-Saharan Africa reveals that there is a significant burden placed on young people as a result of gambling. Kenya is the leading country with the highest (76%) number of youths engaged in gambling (Geopoll, 2017). Although many youths including university students gamble, the researcher did not find any study that highlights the prevalence of gambling disorder among a population that gambles.

A key issue noted from the many studies conducted on the prevalence of gambling disorder is that they have focused on the general population. The studies have failed to show what the scenario is among those who gamble. Studies on prevalence in the general population seem to mask the real problems experienced by those who gamble. Lee, Martins, Pas & Bradshaw (2014) conducted a study among 25, 456 high school students in USA. They found out that 33% had been involved in gambling. Further analysis of their data revealed that 31% of those who gambled were disordered

gamblers. This underscores the impact gambling has among the gamblers and the necessity of conducting a study among those who gamble.

Another key aspect that is often overlooked in gambling studies is that gambling entails a wide range of activities that vary according to country and age. It may include lotteries, Electronic gaming machines (EGMs), casinos and sports betting. Many young people especially university students in Kenya engage in sports betting. Sports betting is largely based on football matches. This is typically done through mobile phones or other internet devices. A critical distinction between sports betting and other forms of gambling is that although both are games of chance, sports betting gives the illusion of skill. Ii is more engaging. The person who gambles can analyze the "odds" and try to predict an outcome. There are many possible outcomes in which the gambler can bet such as who will win, number of goals scored, number of yellow cards or corners in the match. One can also place "live bets" while the game is being played.

Sports betting is a form of online gambling that has been found to be more addictive compared to offline gambling. Hing, Russell & Browne (2017) conducted a study to find out the most problematic form of gambling among 4,594 Australian gamblers. The study found out that online race betting and sports betting were the most problematic form of gambling associated with psychological distress. Gainsbury et al. (2013) found that internet gamblers gambled more often than non - internet gamblers. Gambling over the internet is designed in such a way that it is more addictive and harder to control. A qualitative study by Hing et al. (2015) among problematic internet gamblers found that the use of electronic cash, access to credit, ready accessibility and lack of scrutiny made internet gambling harder to control.

In Kenya, placing bets is typically done using electronic cash known as MPESA through mobile phones. Access to credit is readily available via several mobile banking applications (apps) such that one can borrow money to his MPESA account and use it to place bets at their convenience. The fact that individuals can gamble privately at any time on their mobile phones makes it easy for many university students who are technologically savvy to indulge in gambling more often. Another feature that makes sports betting addictive is the use of incentives to encourage gamblers to keep betting more. According to Hing et al. (2019) gamblers select riskier bets when better odds or bonuses are given. This may lead to disordered gambling among many gamblers. Online sports betting particularly on football matches is the most popular form of gambling in Kenya (Geopoll, 2019a; Ochieng, 2018). Although it has been established that many university students are involved in online sports betting, it is not clear how many of them are disordered gamblers. This study sought to find out the prevalence of gambling disorder among Kenyan university students who gamble.

2.4 Gambling Disorder Symptoms

The Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM - V) (American Psychiatric Association, 2013) describes the symptoms of gambling disorder as : Need to gamble with increasing amounts of money in order to achieve the desired excitement; Restless or irritable when attempting to cut down or stop gambling; Making repeated unsuccessful efforts to control, cut back or stop gambling; Often preoccupied with gambling (such as having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble); Often gambling when feeling distressed (e.g.

helpless, guilty, anxious, depressed); After losing money gambling, often returning another day to get even ("chasing" one's losses); Lying to conceal the extent of involvement with gambling; Jeopardizing or losing a significant relationship, job or educational or career opportunity because of gambling; Relying on others to provide money to relieve desperate financial situations caused by gambling. According to the American Psychiatric Association (2013) a person who experiences more than four of the symptoms meets the DSM-V diagnostic criteria for gambling disorder.

Various interventions have had different outcomes in the reduction of gambling symptoms using different interventions. Petry, Weinstock, Morasco & Ledgerwood (2009) conducted a randomized trial of brief interventions for problem gambling and pathological gamblers in USA. The study sampled 180 respondents from substance abuse treatments and medical clinics of the underprivileged. Petry & colleagues assessed the subjects at six weeks and nine month follow - up. Gambling problems were assessed using the South Oaks Gambling Scale (SOGS). The findings revealed that brief advice led to significant reductions in gambling severity at six weeks compared to the other interventions. The fact that participants who participated in the study were in substance abuse treatment centres and medical clinics and from underprivileged backgrounds could have confounded the outcome of the study since they were already getting treatment for another medical or psychiatric condition. Brief Motivational interviewing has been found to yield positive results in treatment of gambling disorder. Carlbring, Jonsson, Josephson & Forsberg (2010) conducted a study to determine the efficacy of motivational interviewing among individuals attending an outpatient clinic in Sweden. They found out that MI was effective in treating disordered gambling according to the DSM-IV criteria. The study used four

MI sessions with 150 participants. The sampled population was actively seeking treatment for gambling problems. It may have had higher levels of motivation for change.

Single session interventions have also been found to be efficacious. Diskin & Hodgins (2009) conducted a single face to face motivational interview session. They found out that gambling symptoms decreased. The study was conducted in Canada among 81 individuals from the general public whose mean age was 45 years. It would be interesting to find out if a single session would also be efficacious in treatment of university students whose mean age is considerably lower than 45 years. The argument for fewer counselling sessions based on motivational interviewing has also been supported by Hodgins et al. (2009).

They found significant effect of treatment at six weeks follow up. The individuals were treated to a telephone motivational interview .They were emailed a self - help book. Petry et al. (2016) also found out that a single session helped in decreasing gambling problems. Rash & Petry (2014) argue that brief motivational interventions are effective in treatment of gambling disorder symptoms among those at risk of gambling, problem gamblers and those not seeking treatment.

In a systematic review of literature on disordered gambling by Petry, Ginley & Rash (2017), the study found out that a single session based on motivational interviewing provided significant results in some aspects of gambling disorder. Additional sessions did not necessarily improve outcomes. Further studies are needed especially in the African context. This study sampled university students in Kenya who were not actively involved in treatment for any psychiatric condition and were not actively seeking treatment for gambling disorder. This study also used the DSM-V gambling

criteria. Gambling frequency which is one of the key indicators of disordered gambling is discussed next.

2.5 Gambling Frequency

Gambling behaviour is indicated by various activities that signify the extent of gambling disorder. These behaviours include spending more money in gambling, gambling frequently and spending more time on gambling sites (Tumbaga et al., 2015). How frequent an individual gambles is usually associated with the extent of gambling disorder. There is general consensus that the more frequent an individual gambles the more he or she is likely to experience problems associated with gambling disorder. A study conducted by Afifi et al. (2014) among a population of 15 year olds and above in Canada found that higher frequency of gambling predicted higher incidences of problem gambling.

Another study by LaBrie & Shaffer (2011) analysed actual betting behavior of disordered gamblers . It found out that they bet more frequently than non disordered gamblers. Online sports betting which is easily accessible and popular among university students in Kenya is likely to lead to more gambling problems especially among those who place bets frequently. Those who gamble frequently seem to have poor outcomes in the long term. A longitudinal study by Carbonneau et al. (2015) in Canada followed individuals who gambled from the age of 15 to 30 years. It found out that those who gambled frequently at 15 years were more likely to experience problems at age 30. One of the factors that mediated gambling frequency and disordered gambling was involvement in a variety of gambling activities. Individuals who participate in electronic gaming machines, casinos and lotteries are more likely to experience problems (Carbonneau, et al., 2015). Those involved in multiple forms

of gambling are likely to gamble more often as they seek to optimize their stakes and gain more from gambling.

Frequent gambling is with psychological and physiological problems. Early studies on effect of frequency of gambling on physiological response show that it leads to an increased heart rate among frequent gamblers (Meyer et al., 2000; Wulfert et al., 2005). This may lead to stress related pathologies such as increased blood pressure and cardiovascular problems. Lole, Gonsalvez, Barry & Blaszczynski (2014) conducted an analysis of skin conductance reactance among problem gamblers and non - problem gamblers. The study found out that frequent gamblers were hyposensitive to wins. This means that their cortical activity during rewards is adversely affected making them accustomed to wins and not perceive them as salient as they were when they started gambling (Lole et al., 2014). They gamble more frequently to seek a "high" that is never satisfied despite negative consequences in their lives. This underscores the need to address gambling frequency as a means of treating gambling disorder.

In Kenya, there are many companies offering online sports betting to the population. Currently, there are over 10 betting companies (Munde, 2019). Although the government has made efforts to cancel operating licences for some betting companies, there is no policy regulating how many of these sports betting companies that gamblers can subscribe to and how often one should gamble. Gamblers are likely to have multiple betting accounts. Having many betting accounts provides the university student with many opportunities to place bets hence the likelihood of gambling more often.

Because of the integral part that frequent gambling plays in causing disordered gambling, many interventions that are aimed at mitigating disordered gambling aim at decreasing gambling frequency. Most of the interventions have been effective in that measure. A study by Celio & Lisman (2014) sought to find out if a single session personalized normative feedback (PNF) was effective in reducing frequency of gambling among 136 undergraduate students. The results of the study revealed that PNF was effective in decreasing gambling frequency. The study was a randomized controlled trail with 68 participants in both the experimental and control group. It was delivered in five minutes using a computer based program. PNF involves providing gamblers with information that corrects misconceptions of social norms about gambling.

Another brief intervention that was conducted by Broussard & Wulfert (2017) among university students used an accelerated slot machine, an educational handout on probabilities and handout with content unrelated to gambling. The study found out that the accelerated slot machine was effective in reducing gambling frequency compared to the other measures. The accelerated slot machine was a simulated computerized program that was similar to a slot machine that showed participants the overall course of several bets they would end up losing a significant amount of (virtual) money. It appears that experiential simulation of long term negative outcomes of gambling leads to a reduction in gambling frequency among gamblers.

Generally face to face interventions seem to be more effective in reducing frequency of gambling. A meta-analysis of 27 randomized controlled trials by Goslar et al. (2017) found higher effect sizes for face to face treatments compared to self-guided interventions. A particular strength of face to face interventions is their engaging and

interactive nature. This makes participants ask questions and get clarity on some issues regarding gambling. Williams, Wood & Currie (2010) conducted an intervention that involved engaging participants in activities and group discussions. This led to a decrease in gambling frequency. Another intervention by Doiron & Nicki (2007) which involved two sessions of interaction and active participation was effective in decreasing gambling frequency among the participants. Depending on the nature of interaction and information provided, some face to face interventions may not be effective in reducing gambling frequency. Williams & Connolly (2006) taught gamblers statistics courses on probability theory and decreased their beliefs on common gambling fallacies. They were unable to decrease their gambling frequency. Monaghan & Blaszczynski (2009) found out that it was more effective to encourage gamblers to reflect and self regulate than to provide them with information about probailities and risks associated with gambling.

Other longer term therapies have also been found to be effective in decreasing gambling frequency. De Lisle, Dowling & Allen (2011) used mindful based CBT among female disordered gamblers . They found out that the intervention had a significant effect in decreasing gambling frequency with many of the participants abstaining from gambling. Another controlled study conducted by Marceaux & Melville (2011) sought to compare Twelve Step Facilitation (TSF) and mapping enhanced Cognitive Behavioural Group Therapy (CBGT) in treatment of pathological gambling. The study sampled 49 participants and assigned them to three treatment groups: waitlist, TSF and CBGT.

The results showed that TSF and CBGT lead to significant reduction in gambling episodes compared to the wait list group. The study was conducted with groups which

may have had challenges in forming and facilitating. The groups also used longer term therapies. One of the key challenges of longer term therapies is a high dropout rate during treatment leading many of the participants not to complete treatment. According to Dunn, Delfabbro & Harvey (2012) some individuals attending treatment for pathological gambling may drop out due to non compliance with homework, lack of readiness for change and high levels of guilt and shame. There is need to offer an alternative treatment that is shorter than and as efficacious as the longer term treatments. BMII was envisaged to engage with university students who gamble with a view of helping them reduce the number of times they gambled in a week. Another indicator of gambling disorder that was the subject of this study was typical amount of money placed per bet.

2.6 Amount of Money Spent on Gambling

How much one spends on gambling is likely to be reflected in their financial wellbeing. In many assessment tools for gambling disorder, financial problems are a key indicator of gambling problems. Research shows that disordered gamblers spend more money and contribute to most of the revenue of gambling service providers. A study by Tom, LaPlante & Shaffer (2014) on the Pareto principle (20% of customers contribute to 80% of the revenues of a business) on internet gambling found that 5.7% of gamblers contributed to 80% of revenue of a sports betting company. The study also found that in casino games 4.9% of the gamblers contributed to 80% of the losses. Other similar studies have found that 10% of gamblers contribute to 91% of revenue in poker (Fiedler, Kairouz, Costes & Weißmüller, 2019) and 1.3% of gamblers contribute 40% revenue in fantasy sport (Miller & Singer, 2015).

Disordered gamblers as opposed to non-disordered gamblers spend more money in gambling. This affects the individual adversely and the society at large through reduced productivity, treatment costs and quality of life. Feidler et al. (2019) conducted a systematic review of gambling expenditure across four countries in Europe. They found out that on average, 20% of the gamblers contributed 80% of the gambling spending. Further evidence revealed that the typical amount of money placed per bet significantly increases with the severity of disordered gambling. According to Armstrong & Carroll (2017), in Australia, disordered gamblers who comprised of 17% of the total population of gamblers accounted for 40% of gambling expenditure. In the Fiedler & colleagues (2019) study, disordered gamblers in France spent 31.2 times more than non disordered gamblers, in Quebec 48.6 times and 23.5 times in Germany. Another study by Shen, Kairouz, Nadeau & Robillard (2015) among university students found that disordered gamblers accumulated more debt compared to non disordered gamblers.

An important motivation for gambling is the desire to win money. However, in the end it is more costly and leads to financial problems among the gamblers (Eby et al., 2016). The level of financial difficulties experienced by gamblers is directly proportional to the amount spent on gambling or placed per bet. According to Wong & So (2014), gamblers who placed higher amount per bet were more likely to experience financial difficulties compared to those who place wagered lower amounts. Valdivia - Salas, Blanchard, Lombas & Wulfert (2014) found that most of the gamblers initiating treament usually do so because of financial problems. When individuals wager higher amounts they are likely to lose more money which will eat into their income meant for other important activities such as food, rent and school

fees. Higher amount placed per bet is associated with chasing loses. Chasing loses is one of the key factors that makes the gambler to wager large amounts with the aim of recovering lost money.

A study conducted by Nigro, Ciccarelli & Cosenza (2018) among habitual gamblers found out that gamblers who often chased loses were more disordered compared to those who did not. Betting higher amounts does not necessarily turn to big wins. A longitudinal study by Gainsbury et al., (2014) in Australia found out that more than three quarter (77.63%) of bets placed were loses. The study analyzed 2,522,299 bets that were placed over a period of one year in one of the gambling operators in Australia. Disordered gamblers spend more on gambling. They often underestimate how much they lose as a result of gambling (Auer & Griffiths, 2017).

Besides placing bets regularly, disordered gamblers typically stake higher amounts per session compared to non-disordered gamblers (Harris & Parke , 2015). Individuals who face economic challenges are more likely to place riskier or higher bets. Wohl, Branscombe & Lister (2014) conducted an experiment to test if salience of poor economic prospects led to riskier bets among university students in Canada. The results of the study found out that those who were reminded of their poor economic outcomes gambled more money compared to those who did not. Although the results of the study seem counterintuitive, that is, a threat of economic problems is expected to lead to placing of lower bets, it is observed among many gamblers that those who lose more are likely to place higher and riskier bets in anticipation of higher rewards. This creates a vicious cycle of gambling disorder whereby individuals who place higher bets lose money and continue to place higher bets to recover their losses. Placing of higher amounts of bets could be as a result of impaired judgment and

perception of risk. Many individuals who wager large amounts most often inaccurately evaluate the risk involved. They tend to overestimate the chance of winning large amounts of money. Spurrier & Blaszczynski (2014) conducted a systematic review of studies conducted on risk perception among gamblers. They found out that disordered gamblers were more likely to place riskier bets than non-disordered gamblers.

Another aspect that contributes to placing of riskier bets is lack of understanding of the eventual loses and wins among the gamblers. Because of the salience of wins and hypersensitivity to rewards, individuals who consistently place higher amount of bets may not even be aware of how much they are losing. According to Wohl, Davis & Hollingshead (2017), many gamblers subjectively recall how much they spend on gambling is usually lower than what they actually spend. This may lead them to place higher bets. Another key aspect that influences the likelihood of wagering higher amounts is the illusion of control. Disordered gamblers perceive themselves to be skilled gamblers. They are likely to wager higher amounts. According to Goodie & Fortune (2013), cognitive distortions are common among disordered gamblers than non - disordered gamblers. Gamblers fallacy and illusions of control leads many disordered gamblers to place higher amounts per bet compared to non -disordered gamblers (Cunningham, Hodgins & Toneatto, 2014).

In light of the significant correlations between staking higher amounts and disordered gambling, various interventions have attempted to reduce the amount wagered among gamblers with mixed success. Wood & Wohl (2015) conducted a randomized controlled trail. Gamblers were given feedback on their gambling behaviour with an aim of decreasing the amount wagered. The study was conducted in Sweden. It used a

responsible gambling system whereby feedback was given to the gamblers on their gambling behaviour. The results showed that the experimental group that received feedback significantly reduced the amount they deposited in their betting wallets and wagered. The study used a computerized system that analyses the betting behaviour of participants. A similar intervention was tested by Wohl et al. (2017). Gamblers were given actual personalized feedback of how much they spent on gambling and found out that it was effective in reducing the amount wagered. Other interventions have found similar reductions in typical amount gambled (Auer & Griffiths, 2015; Ginley, Whelan, Pfund, Peter & W., 2017).

In view of the fact that gambling expenditure is a key indicator of disordered gambling, the researcher conceptualized the typical amount placed per bet as a reasonable measure to estimate the gambling expenditure of respondents. This was informed by the fact that the respondents may not be able to account for their expenditure per week or month. They may also not be able estimate how much they have won or lost since they started gambling. Determining amount gambled or lost per month was a difficult task for the participants that required them to analyse their betting history over a long period of time. The typical amount placed per bet was a better measure of gambling behaviour as it reflected the consistent behaviour of gamblers. It could provide a better estimate of how much they spent in a week or month when viewed against their frequency of gambling in a week. The typical amount placed per bet was a fairly accurate estimate of the gambling spending of participants. They were more likely to recall the amount. BMII targeted to reduce the typical amount of placed per bet among the respondents.

2.7 Impact of Disordered Gambling

Disordered gambling has been documented to have adverse effects on the individual, the family and society at large. The disordered gambler experiences psychological distress occasioned by his or her compulsive gambling. One of the serious impacts of disordered gambling is propensity for suicide. A study by Karlsson & Håkansson (2018) in Sweden found out that individuals with gambling disorder had higher mortality and suicide rates compared to the general population. They analysed longitudinal data and found out that individuals with gambling disorder had a 15 fold higher chance of dying from suicide compared to the general population. Black et al. (2015) conducted a study among disordered gamblers. They examined suicidal ideations, suicidal attempts and completed suicides. They found out that the more severe the disordered gambling, the higher the suicidality.

This means that individuals with severe gambling disorder are likely to commit suicide compared to non disordered gamblers. There have been several media reports in Kenya of gamblers dying of suicide and homicide after incurring huge loses (Infotrack, 2019; Kimuyu, 2020; BBC news, 2016). The likelihood of dying from suicide among compulsive gamblers is mediated by other mental disorders that co - occur with the condition. Personality, mood and substance use disorders are common co - morbid conditions that are associated with the gambling disorder. A study by Bischof et al. (2015) found out that most of the pathological gamblers who had attempted suicide had cluster B personality disorders. Other studies have also revealed similar findings on the relationship between disordered gambling and suicide (Roberts, Smith, Bowden-Jones & Cheeta, 2017; Tovino, 2016).

One of the key issues associated with gambling disorder is financial stress. Although gambling typically offers the gambler a promise of financial gain, many of the disordered gamblers often end of experiencing the opposite. A study by Carr, Ellis & Ledgerwood (2018) sought to examine the role of financial stress on suicidality among helpline callers seeking help. The study found out that financial problems occasioned by gambling led to family and social conflict. This increased the risk of suicide among disordered gamblers. The financial problems include incurring debt and use of consumer credit (Swanton & Gainsbury, 2020). The financial stress triggered by compulsive gambling may also lead an individual to crime in order to solve their financial problems. A study by Mestre-Bach et al, 2018 sought to determine the criminal tendencies of women seeking treatment for gambling disorder. The study compared those with and without criminal history. The study found out that those with higher severity of gambling disorder were likely to have been involved in crime. This means that the impact of gambling disorder extends beyond the individual as the disordered gambler may cause harm to members of the community through crime.

A systematic review by Adolphe, Khatib, Van Golde, Gainsbury & Blaszczynski (2019) on crime and gambling disorders found out that although crimes committed by compulsive gamblers are typically non - violent and income generating offences, problem gamblers can commit violent crimes. The influence of disordered gambling on crime should not be under estimated. It should necessitate the need for interventions to prevent the disorder. Considering that university students do not have a lot of disposable income, there is likelihood that the compulsive gambler may be involved crime in order to recoup finances that may be lost as a result of gambling.

This means that such as student poses a security risk to fellow university, the university community and society as a whole. Measures at the university level to mitigate such occurrences are necessary and possible through interventions such as the one suggested in this research. Addressing disordered gambling in the university could go a long way in preventing crime and incarceration of university students as a result of compulsive gambling.

In light of the negative impact of gambling disorder on the individual there is stigma associated with the disorder. The stereotype of the disordered gambler is that he is greedy, irresponsible and impulsive. This may end up causing the individuals concerned to avoid seeking help and isolate themselves. Brown & Russell (2020) argue that disordered gamblers may delay or avoid seeking professional help as a result of feelings of shame and negative judgment associated with disordered gambling. Measures need to be put in place to educate the public on issues pertaining to gambling to reduce stigma associated with the disorder.

Like other addictive disorders, disordered gambling is a family disease. This means that when the individual is addicted to gambling, the family members are also affected adversely. Velleman, Cousins & Orford (2015) argue that spouses of compulsive gamblers experience unsatisfactory sexual relationships, stress and frustration. In some cases this leads to separation and divorce.

The family members of the disordered gambler experience financial problems as a result of shouldering financial problems of the affected individual (Velleman et al, 2015). Chan, Dowling, Jackson & Shek (2016) conducted a study on the impact of gambling problems on families in Hong Kong. They found out that most of them experienced psychological distress and poor health outcomes. The study sampled

family members of problem gamblers; most of whom were spouses. The study found out that most of them tried to cope with the challenges by tolerating and or not taking any action about the situation. The spouses of the disordered gamblers seem to be the most affected by the harm associated with compulsive gambling.

Dowling, Rodda, Lubman & Jackson (2014) conducted web based counselling for concerned significant others of disordered gamblers. They found out that mostly young intimate partners sought the services and experienced emotional distress, relationship and financial problems. The impact on the family includes intimate partners and other family members such parents, grandparents, siblings and other relatives (Dowling, 2014). The family environment of the disordered gambler is often characterized by conflict and anger. Considering that young university students are in a stage of life where they form intimate relationships, it is likely that the partners of the disordered university student may also experience similar challenges. Parents and siblings of the university student with gambling problems may experience distress in terms of strained relationships and financial problems. This means that offering treatment to the disordered student gambler not only benefits the individual but also their family members and significant others. Some interventions for the family members of problem gamblers have been implemented and found to be helpful. George & Bowden - Jones (2015) argue that although the available interventions for family members of problem gamblers have not been systematically evaluated, they are useful in moderating the gambling behaviour of the disordered gambler and improving relationships in the family. The interventions for family include counselling, information, advice and family therapies.

The negative effects of gambling have a far reaching effect beyond the individual to the society. This is why disordered gambling is considered a public health issue that requires intervention by the government and community. A study by Ahaibwe, Lakuma, Katunze & Mawejje (2016) on the socioeconomic effects of gambling in Uganda found that the poorest in the society spend a higher proportion of their personal income on gambling compared to those from well off backgrounds. This has an impact of diverting income meant for household necessities and savings to gambling (Lakuma et al., 2016). A similar effect was found by Mustapha & Enilolobo (2019) who sought to find out the impact of gambling on the welfare of Nigerian Youth. Their study revealed that the youth spent much time gambling. This may lead some of them losing their jobs or compromising their studies. This means that poor communities are likely to end up poorer as a result of its members being problem gamblers.

The regular advertising and promotion of gambling a means to quick riches leads to a strong inclination to gamble among the youth. A study by Eyzop et al. (2019) explored the relationship between financial motives, materialisms and gambling. The study found out that the belief that material possessions are essential to achieving happiness encouraged disordered gamblers to continue gambling. Estévez et al. (2020) found out that materialism mediated the relationship between gambling disorder and buying-shopping disorder. This means that the promotion of gambling has the effect of getting some individuals in the community becoming compulsive gamblers. It may also create a culture of materialism in the community which may lead to other disorders. The impact of disordered gambling cannot be confined to the individual. It should also be considered from a broader perspective in terms of the

impact on the family and community. It should be addressed as such. In considering the university student who is a compulsive gambler, it is prudent to view him as part of a wider community and hence seek to come up with measures that are aimed at promoting a culture of responsible gambling in the university community and society as a whole. Although measures may be aimed at treating the individual disordered gambler, if effective, such measures should be viewed as having a wider impact in the community and are therefore warranted.

2.8 Media and Gambling

The exponential increase in sports betting can be partly attributed to the relentless and aggressive marketing by gambling operators globally. With the proliferation of digital advertising many young people are exposed to messages enticing them to gamble across the internet. According to Gainsbury et al. (2016), individuals at risk of gambling disorder often engage with advertisements on social media that worsen their risk of disordered gambling. Through promotions and incentives on social media young people are encouraged to actively engage in gambling activities. The promotion of gambling is especially concerning. It is now predominantly embedded in sports. Most sports activities especially football is largely sponsored by gambling companies. This exposes many young people who like football to ubiquitously favourable messages about gambling. In the 2019/2020 football season, only three out of the 20 English premier league clubs did not have a partnership with a betting company. Half of the clubs had a shirt sponsorship with a gambling company (Bradley, 2019). In the champions' league, 17 out of 20 clubs had a shirt sponsorship with the betting companies (Bardley, 2019). This means that football fans who are ardent supporters of the European football clubs inevitably identify with the betting

companies that sponsor their favourite teams. Hing, Lamont, Vitartas & Fink (2015), found out that promotion of gambling through football shirts with large logos of gambling companies, commentary and signage that promotes gambling activities stimulate more gambling involvement especially amongst disordered gamblers who already hold favourable views about gambling.

Columb et al. (2020) conducted a study in Ireland to determine the prevalence of gambling advertising during live sports events. They found that gambling advertisements were shown in 75.4% of games. They were more common in football games. This explosion of advertisements that socialize sports fans to gambling as a normal behaviour leads to many of the fans likely to gamble. A content analysis of how sports betting are presented in media advertisements was conducted by Lopez - Gonzalez, Guerrero - Solé & Griffiths (2018). It found out that betting is presented as a normal activity whereby individuals can stake small amounts and win huge amounts of money in return. The advertisements use of celebrities and the celebratory nature of gambling adverts evoke emotions that increase the likelihood of gambling among sports fans. Another study by Djohari, Weston, Cassidy, Wemyss & Thomas (2019) found out that many people considered gambling as a normal part of sport. Many young people and adults are able to identify a gambling company with a particular football team (Djohari et al., 2019).

Although advertisements promoting gambling in the main stream media may have some message on responsible gambling, social media advertisements do not have such information. They largely normalize gambling as an activity with a positive outcome. A study conducted by Gainsbury, Delfabbro, King & Hing (2016) on gambling operators use of social media found that facebook and twitter were commonly used by

gambling companies to encourage users to gamble. The advertisements often did not feature responsible gambling messages. The advertisements encouraging gambling are detrimental to individuals who are struggling to cut down on their gambling. A study by Binde & Romild (2019) among a Swedish population found that individuals who were disordered gamblers were more likely to report a negative influence of media advertisements as the advertisements nudged them to gamble even as they were trying to cut back their gambling.

The media influences adults and children to gamble. In a study on the factors that influence children gambling attitudes; Pitt, Thomas, Bestman, Daube & Derevensky (2017) found out that childrens' perceptions of gambling were shaped by medias' positive depiction of gambling and the association of gambling and sports. The influence of the media in gambling is seen in advertisements and in form of simulations to gamble. This leads adolescents becoming pathological gamblers. In a study conducted in Australia by King, Delfabbro, Kaptsis & Zwaans (2014), adolescents aged 12 - 17 years who engaged in simulated gambling activities over the internet were at a greater risk of disordered gambling.

Across Africa, similar influences of media and advertising on gambling can be reported. A study conducted in Nigeria by Ifeduba, Enwefah & Atunrase (2020) sought to determine how viewership of football matches influenced gambling. The study found out that the increased viewership of English Premier League Football and the associated gambling advertisement led to increased gambling among many football fans. In Malawi; Bunn, Mtema, Songo & Udedi (2020), attribute the increased sports betting uptake in the country to extensive media coverage and advertising. In Tanzania, Maiseli (2019) conducted a study on factors associated with

the growth of betting industry and found out that gambling advertisement was one of the key influences.

In Kenya, the concern on the negative influence of gambling advertisements led to the betting control and licensing board banning gambling advertisements and celebrity endorsements. The government agency explained that such measures were meant to protect the youth from harm associated with gambling. The directive was nullified by Kenyan courts (Daily Nation, 2019). Gambling advertisements continue unabated in both digital and mainstream media. Outdoor advertising of gambling through branding of buildings and posters is also common in the country.

A study conducted by Ng'etich & Auka (2019) in Nakuru Town University campuses found that television advertisements had an influence on the students' decision to participate in gambling especially regarding convincing them of which betting companies to choose. The study also found out that both internet and billboard advertisements equally had a positive influence on the students gambling choices. Television, radio, internet, billboards and branding of buildings are the main ways that the gambling companies in Kenya market themselves to the Kenyan public. This multipronged approach has proved effective. Many people have taken up sports betting in the country since its onset in the last few years. Another study by Barasa (2018) among university students found that gambling promotions in the media had an influence on the intentions of the students to gamble. This shows that gambling advertisement plays a significant role in influencing university students to be involved in gambling.

Hing, Russell, Thomas & Jenkinson (2019) conducted a study in Australia and found out that regular gamblers were exposed to almost daily advertisements and

inducements to place bet through text messages and from gambling operators. That is also the case in Kenya where the gamblers are automatically opted in or subscribed to receive messages on their mobile phones once they register a betting account. The advertisements are also prevalent on the betting apps and websites which the gamblers visit. Some of the common inducements that the gambling operators use to encourage individuals to gamble include multi - bet offers, cash back offers, better odds and winnings, free first deposits offers, stake - back offers and rewards for encouraging others to join gambling (Hing et al., 2019). These inducements and incentives for gamblers increase the likelihood of many young people joining the gambling craze in the country especially when there are constant prompts and promises on possible winnings of huge amounts of money.

The involvement of the media in promotion of gambling in the country presents a conflict of interest for the media companies especially in paid advertisements for gambling. The visibility of age restriction and responsible gambling messages is often limited and often varies from one advertisement to another (Critchlow et al., 2020). Lack of standardization of the responsible gambling message in the advertisements leads to ambiguity. Many gambling operators end up avoiding putting up the messages altogether. A study by Lole et al. (2019) sought to track eye movement of gamblers. The study found out that there were fewer fixations on responsible gambling messages compared to wagering information. The messages aimed at gambling harm reduction were inconspicuous compared the messages promoting gambling (Lole et al., 2019). This indicates that there is need for an appropriate regulatory framework to help control the role of media in gambling, the nature of

advertisements, responsible gambling and harm reduction efforts in the country. A discussion of gambling regulation ensues.

2.9 Gambling Regulation

Gambling is legal in many countries across the world. Because of the public health concerns about its adverse effects, governments have made various attempts to regulate gambling activity. Each country has its own regulations and policies that provide a framework on how gambling is conducted. The nature and extent of regulations in each country are largely shaped by the state and public opinion of gambling in each country. A global review of gambling regulations by Nikkinen (2014) found that gambling expansion is not population driven but largely reflects the shared interests between gambling operators and public officials. The harms associated with gambling are a secondary consideration rather than a government priority. Generally, the public may express reservations about gambling but the influence of positive messages about gambling displayed in the media cannot be underestimated.

McAllister (2014) conducted a study in Australia to find out the public opinion of gambling in the country and found out that the public generally had a negative perception of gambling. The public was concerned about the adverse social consequences of excessive gambling and was open to further regulation and restriction of gambling. One of the key challenges faced in regulation of gambling is the balance between the economic benefits and public health concerns associated with the activity. Lopez-Gonzalez & Griffiths (2016) argue that the burred lines of a gambling advertisement being persuasive and promoting responsible gambling are a conundrum for the gambling operators and the government regulators.

In addition to that, the onset of online gambling and in - play betting poses a unique challenge because of the fast paced nature of online activities which may be difficult to regulate. This means that the government regulator may not be able to provide adequate regulation in good time. The gambler and potential gambler are left at the mercy of the gambling operator.

The level of regulation and gambling policies of a country contribute to the levels of disordered gambling in a country. Planter, Gray & Shaffer (2014) conducted a study to find out the associations between national gambling policies and disordered gambling rates. They found out that countries that had less restrictive policies on advertising had higher prevalence rates of gambling disorder. They also observed that policies and regulations regarding licensing systems, prohibitions and advertising were fairly static and did not change over time. Where there were changes on regulation of gambling activity in various jurisdictions, the changes were generally towards a more liberal approach. The challenge with government regulation and policies of gambling in various countries is the fact that the unique demographic, political and economic environment has an overriding influence on the effectiveness of such policies (Planter et al., 2014). Because many countries may not have scientifically established data on the gambling activities in the jurisdiction, it is possible to come up with policies that do not achieve much particularly with the proliferation of online gambling which is characterized by fast innovations and use of mobile money. Many governments are faced with a herculean task of coming up with effective policies. This calls for the need for governments to develop scientific bodies that are mandated with collecting empirical evidence of the prevalence rates of disordered gambling in a country and the effectiveness of policies implemented.

Considering the principles of free trade and circulation of services in many economic jurisdictions, one of the key justifications for allowing gambling companies to operate ubiquitously in a country is the issue of charitable causes funded by gambling proceeds (Marionneau, 2015). This is especially evident in Kenya where gambling operators sponsor the football league. They also support many football teams and charitable causes. The key role played by gambling companies in promoting sports and charitable causes in the country cannot be understated. The banning of some sports betting companies in Kenya in 2019 led to the withdrawal of sponsorship of many sports leagues in the country. This had a negative impact on sport in the country (Waweru, 2019). The government needs to reflect on whether sports activities should be left in the hands of private companies whose goal is to maximise profits.

The content of the policies and regulations of each country vary between jurisdictions. It is based on the moral philosophy guiding the policy makers. There are three main moral perspectives to gambling: Libertarian, prohibitionist and restrictivist. Libertarians view that individuals should have a free choice to gamble even if it harms them. The libertarian approach looks at gambling as an individual issue that the government should not interfere with. Prohibitionists take an opposing view that gambling is harmful and wicked and ought to be banned. The prohibitionists view gambling as a societal problem that the government should prohibit for the greater good. Restrictivists offer a balance between the two perspectives.

They argue that gambling should be legalized but restricted in various ways (Collins et al., 2015). The restrictions can be based on who is allowed to gamble, who provides gambling services, where one can gamble, how much one can gamble and the general regulatory framework of gambling in a specific jurisdiction. Restrictivists usually

occupy different points in the continuum of banning gambling (prohibition) and allowing unregulated gambling (libertarian). It appears that most governments have taken a restrictive approach to gambling with varied restriction measures.

Although there are some efforts made at the national level in regulating gambling, many institutions do not have specific policies on gambling. In Canada; Zhao, Marchica, Derevensky & Shaffer (2017) sought to find out the scope, focus and type of gambling policies in among colleges and universities. They found out that only 32% of the institutions had some form of gambling policies which were largely restricted to residences. This shows that gambling, unlike alcohol and substance use, has not been considered as a serious mental health issue that warrants attention in universities. This approach is contrary to the empirical data that shows that many university students are involved in gambling (Koross, 2016). There is need to pay attention to develop policies that address gambling behaviour among university students especially regarding preventative and curative measures for the students. Considering that gambling in Kenya is largely conducted over the phone, a multipronged approach to dealing with the problem is needed.

A look at the regulatory framework of gambling in Africa shows that it is insufficient to address the unique challenges brought about by the increase of online gambling in the last couple of years. In South Africa, Monnye (2016) argues that it is difficult to enforce gambling regulations especially for online gambling. This deprives the country an opportunity to benefit from taxation and licensing fees. It also exposes gamblers to unregulated and illegal gambling websites.

In Nigeria, Araromi (2018) opines that the government's response to the online gambling is not adequate as it does not address the nascent challenges posed by online gambling which relies on the internet and mobile money technologies.

In Kenya, the government has developed various policies and taken various measures to regulate gambling. Some of the policies include increasing taxes levied on gambling operators and regulation of advertisements for gambling. The Finance Act 2017 raised the taxes levied on gambling activities to 35%. This meant that the government would benefit significantly from the revenues collected from the companies (Finance Act, 2017). The government explained that the proceeds would be used to develop sports and art. Muchira (2018) conducted a study on business ethics and regulation of sports betting in the country and found out that the regulatory framework in the country did not address ethical issues such as involvement of minors and consumer protection. Muchira (2018) also noted that the regulatory bodies such as the betting control and licensing board did not adequately address the loopholes occasioned by the use of technology in online gambling which could be misused to harm the gambler and the country as a whole through illegal activities.

There are two key issues that arise from the policies and regulations on gambling that are being implemented by the government. The regulations are largely aimed at collecting more taxes from the gambling operators. This approach has brought about issues of litigation by the gaming operators and reversal of such laws by parliament. Taxation of gambling companies, though a government prerogative, does not address the public health problem occasioned by disordered gambling among gamblers. The regulations and policies that are implemented have not been empirically grounded or determined to be effective in minimizing harms associated with disordered gambling.

This means that efforts and resources may be used in interventions and measures that may not be effective.

There is no national framework that addresses responsible gambling messaging and treatment of individuals that struggle with disordered gambling. This calls for a paradigm shift in the government strategy to address the challenges arising from online gambling. Although the government laments that gambling has caused social and financial problems among Kenyan youth, majority of such youth do not get treatment or any kind of support to alleviate their problems. This research seeks to propose an intervention that can provide recourse for university students struggling with gambling addiction. A discussion of the effectiveness of gambling regulations and policies follows.

2.10 Effectiveness of Gambling Regulations

Many countries have effected various regulations and policies on gambling in their jurisdictions with mixed results. There is scarcity in empirical studies on the effect that such policies have had in influencing the gambling behaviour of citizens (Planzer & Wardle, 2011). A study by Gainsbury & Wood (2011) on the effectiveness of the existing policy frameworks of gambling in Australia and Canada found out that legalization of gambling led to increased gambling participation among populations compared to those that had prohibited gambling. Legalization also had the effect of reducing the chances of gamblers participating in illegal gambling activities or using illegal websites (Gainsbury & Wood, 2011). Exclusion policies have also been found to have a positive effect in reducing gambling activities especially among disordered gamblers. A study by Bellringer, Coombes, Pulford & Abbott (2010) on gambling venue exclusion process in New Zealand found that the exclusion programs had an

effect of helping the involved gamblers gamble. Some quit gambling and started attending treatment (Bellringer et al., 2010). The results of the study also found that the exclusion programs provided the gamblers with a sense of relief and the feeling of support especially from the gambling providers.

A similar study by Tolchard, Hing, Nuske & Russell (2014) found out that self exclusion was effective in reducing gambling related harms. This means that exclusion programs implemented by government, individual or gambling operators provide a positive outcome for at risk individuals. This is easy to implement in land based casinos than online gambling unless specific technological innovations are used to identify the at risk gambler. Providing the gambler with a choice to self exclude would be a plausible way out that can be included in policy especially in light of the fact that the rates of professional help seeking among gamblers is low.

Gainsbury, Blankers, Wilkinson, Schelleman-Offermans & Cousijn (2014) conducted a study on harm minimization policies. They recommended age restriction, licensing of gambling operators, consumer protection strategies and brief interventions as the evidence based policies that can be used in regulation of gambling. They argue that similar approaches have been found to be effective in harm reduction in other addictive disorders such as alcohol and substance abuse. Gainsbury and colleagues express reservations as to the effectiveness of increased taxation and limiting opening hours in minimizing harm among disordered gamblers.

Some specific harm reduction measures such as the use of responsible gambling tools have been found to be effective in reducing gambling expenditure. A study was conducted by Wood & Wohl (2015) whereby gamblers were provided with information about their gambling habit based on data collected from the money

deposited and wagered. The results of the study showed that gamblers who were given feedback on their problem gambling risk reduced the amount deposited and wagered over a period of 24 weeks compared to those who did not get feedback. This shows that feedback to gamblers on the nature of their gambling could be a useful policy consideration that would reduce the harms associated with gambling.

Considering that sports betting which is common in Kenya are largely done over the internet using mobile money, it is possible to track gambling expenditure and provide useful feedback to the gamblers. A similar study by Ginley, Whelan, Pfund, Peter & Meyers (2017) found out that pop up messages that warned gamblers of their risk were effective in reducing harm among at risk gamblers. The messages were found to be more effective when they popped up at the centre of the screen, interrupted play and required active removal by the gambler. This kind of approach could be embedded in policies and regulations in Kenya in order to reduce the risk of disordered gambling among punters. Since most gambling is conducted over the internet, the government or relevant stakeholders can sponsor pop up advertisements that regularly show up whenever one visits a gambling website.

One of the key issues in policy and regulation of gambling is the creation of public awareness about the dangers and harms associated with gambling. This can be done through campaigns and public messaging that provides the public with accurate information about gambling. Tong, Hung, Lei & Wu (2018) conducted a study in Macao China on the public awareness and practice on gambling. They found out that although many gamblers were aware about responsible gambling messages, they were not practicing responsible gambling. The study revealed a gap in utilization of responsible gambling practices such as self exclusion and limiting time and money

spent on gambling. This shows that in considering public awareness messages on responsible gambling, stakeholders should be elaborate in explaining to the public the ways in which they can practice responsible gambling.

A study by Marionneau & Järvinen-Tassopoulos (2017) in France on consumer protection practices in the country revealed that although there existed measures such as warning banners on the risks of gambling, information about self exclusion and player limiting tools, they were not effective in reducing the levels of disordered gambling in the country. They suggest that the tools available for responsible gambling should be improved and made mandatory and binding. They also suggest that active promotion of responsible gambling features, increasing the responsibility of gambling providers, removing misleading and inaccurate information on gambling as policies that can be implemented to minimize gambling harm. Utilization of the consumer protection tools provided by the government and gambling operators seems to be a challenge that needs to be addressed. Gainsbury, Angus, Procter & Blaszczynski, (2020) report that although many of the gamblers are aware of the availability of such tools as self exclusion, limits on deposits and gambling activity statements, many of them do not utilize them . They view them to be meant for those addicted to gambling. This means that most gamblers view them irrelevant and consequently do not benefit from such tools. There is need to carefully consider the terminology used and the approach used to promote the responsible gambling tools and practices. Fogarty (2017) makes the case for cultural competence in development of responsible gambling strategies as the use of language and framing of messages may influence if such strategies are effective or not. In Kenya, the advertisements for gambling cut across several ethnic languages especially on radio and television. It is

imperative that the responsible gambling messaging should reach every potential and active gambler in a language they understand.

Perhaps the main challenge in developing and implementing effective regulations policies for gambling is the conflicts that are apparent between the government, community and gambling operators. The government has a responsibility of ensuring the greater good by mitigating the adverse social, personal and economic effects of gambling. It also has an interest in promoting gambling in the country as it benefits from the taxes levied on gambling operators' revenue. The community or public may feel conflicted when they see people getting addicted to gambling while at the same time benefitting from the benevolence of the gambling companies through promotion of sports and other charitable activities.

The gambling operators have a key motivation; to make profits. They may not be eager to implement restrictions to the gamblers which may negatively affect their bottom - line. Blaszczynski (2019) argues that there is need for collaborative efforts among the key stakeholders in promoting responsible gambling and harm reduction. This requires transparency in funding research, collection of data from real time gamblers, corporate social responsibility and implementation of consumer protection practices.

Kenya does not have a comprehensive policy document that describes policies that are aimed at gambling harm minimization in the country. Other than the tax laws and government directives of advertising, there is no coherent approach and policies that address gambling issues. The betting control and licensing board is the body mandated to regulate gambling activities in the country. Although they have made plausible efforts to protect the Kenyan population from harm, more needs to be done

especially in the area of research and implementation of harm minimization measures. The involvement of the community and gambling operators and cascading down gambling policies to institutions could prove valuable in dealing with the adverse effects associated with gambling.

There is need for gambling operators to engage substantively in responsible gambling promotion rather than symbolically. This may include providing exclusion services to individuals whose gambling habits show at risk behaviour especially since they have access to data on each gambler's betting activity. Substantive investment in research and provision of advisory services may go a long way to show a commitment to public good. Kenyan universities can consider leveraging on the existing alcohol and drug abuse policies to develop contextualized policies on gambling that are aimed at minimizing harm to students.

2.11 Summary of Literature Review

The review of literature reveals that a combination of MI and brief interventions approach can be used to elicit intrinsic motivation for behaviour change among individuals with gambling disorder (Tumbaga et al., 2015; Miller & Rollnick, 2013). The two approaches provided the philosophy underpinning the BMII that was tested in this study. The reviewed literature also revealed that gambling is widespread among young people globally (Fröberg, 2015; Wong & So, 2014; Geopoll, 2019a; Ochieng, 2018). University students are especially vulnerable to disordered gambling because they are technoligically savvy and easily utilise online sports betting with its digital features of easy access, availability and privacy (Hin, et al., 2017; Abbort, 2017). Although many studies have been conducted on prevalence of gambling among the general population, little has been done to determine the prevalence of

gambling disorder among university students who gamble. The literature also shows that DSM-V gambling disorder symptoms, gambling frequency and amount placed per bet are sound indicators of disordered gambling (APA, 2013; Lole et al., 2014; Afifi et al., 2014).

A key issue noted in the reviewed literature is that various interventions have been tested with an aim of providing treatment for individuals with gambling disorder. Many of those interventions have been conducted in the west, used varied methodologies and populations (Petry, et al., 2016; Celio & Lisman, 2014; Wood and Wohl, 2015). The researcher did not find any evidence based intervention that has been tested in Africa in light of the unique gambling nuances in the continent and especially among university students in Kenya who form a critical population of gamblers in the country. This study set to test the efficacy of BMII with an aim of developing an evidence - based intervention that addresses the disordered gambling among university students in Kenya. Further literature review reveals that disordered gambling has adverse effects on the individual, the family and society at large.

The individual experiences psychological and financial disturbances. The family experiences disruption. The society loses social cohesion (Karlsson & Håkansson, 2018; Roberts et al., 2017; Adolphe et al, 2019). The media also plays a significant role in promotion of gambling among the public. Through advertisements and messages that normalise gambling people involve themselves in gambling as it is portrayed as quick means to riches (Gainsbury et al., 2016; Hing et al., 2015; Djohari, et al., 2019). The literature also reveals that various countries apply different regulations and policies on gambling according to their jurisdictions and interests. Political and economic interests determine the nature of regulations (Lopez -Gonzalez

& Griffiths, 2016; Nikkinen, 2014; Planter et al., 2014). The regulations have achieved mixed results in terms of effectiveness in lowering gambling participation and disordered gambling among the citizens. Legalization of gambling has led to increased gambling participation. Exclusion programs and other harm minimization interventions led to decrease in the number of disordered gamblers (Gainsbury & Wood, 2011; Bellringer et al., 2010; Gainsbury et al., 2014). This study proposes an intervention in the form of BMII which can be utilised in minimizing disordered gambling harm among university students in Kenya. The rationale for developing the intervention is discussed next.

2.12 Rationale for Brief Motivational Interviewing Intervention (BMII)

The intervention was designed to be delivered in a psycho - educational group format using MI principles. MI is an evidence - based treatment for addictive behaviours such as substance abuse and disordered gambling. Most of the MI treatment approaches are delivered in individualized one on one interventions and usually combined with another activity or approach. A systematic review by Yekovenko et al. (2016) on effectiveness of motivational interviewing reviewed eight studies which were all delivered in a one on one fashion.

Abbot et al. (2017) conducted a one on one MI combined with a self - instruction booklet. In contrast to the documented efficacy of MI in treatment of addictive disorders there is lack of research on the feasibility of interventions that use MI in group settings especially in gambling disorder treatment. In Carlbring et al. (2010) study, the MI approach in treatment that was compared to group CBT was conducted in one on one fashion. The researcher is not aware of any published work that has incorporated group MI among university students. The current study sought to fill this

gap by examining the feasibility of group psycho - education using MI principles among university students in Kenya.

The choice of psycho - educational group format was informed by careful consideration of its suitability for the nature of the problem, population, practicality and replicability. Psycho -education is a common approach in treatment among young people especially in substance use disorders. This is based on the practical benefits that accrue from groups such as cost effectiveness and peer support (Brown, 2018; Camacho, et al., 2017). Group interventions have been found to be less intimidating and similar to day to day experiences of participants compared to individual interventions (Marchica & D'Amico, 2016; D'Amico, Hunter, Miles, Ewing & Osilla, 2013).

University students are more likely to be free to share and feel safe among peers. Psycho -educational group interventions have been found to be efficacious in treatment of some psychological problems such as depression, substance use disorders and psychosis. Ochoa & colleaugues (2017) found that group psycho - education with CBT components was effective in reducing symptoms of psychosis among patients in Spain. Another study by Gilder et al. (2017) sought to compare motivational interviewing and psycho-education in treatement of alcohol abuse found out that psycho-eduction and motivational interviewing were effective in preventing and reducing underage drinking.

Solati (2016) compared group CBT, family psycho - education and drug therapy in prevention of recurrence of symptoms of major depression found out that psycho-education was effective in reducing depression symptoms. Most of the psycho-educational group interventions that have been found to be efficacious in symptom

reduction and behavioural change are based on some aspects of Cognitive behavioural therapy.

Although there is documented evidence of the efficacy of group interventions, some researchers raise concerns about its ineffectiveness and iatrogenic (unintended negative consequences) effects of groups. Zane, Welsh & Zimmerman (2015) found out that some crime prevention programs may cause more harm than good to the participants. Welsh & Rocque (2014) argue that if the theory that informs the intervention is faulty, then it will not be effective. One such intervention that raised concerns was the Scared Straight approach whereby young offenders were exposed to adult prisoners. This seemed to have romanticized prisoners' lives and ended up encouraging further offending among the youths (Finckenauer, 1982, p.257). A military approach to intervention such as boot camps and grouping delinquent youths together over a long period of time has been found to be ineffective in behaviour change (Zane et al., 2015). BMII avoids these pitfalls by using evidence based approaches. It also creates a non-judgemental atmosphere where the participants don't feel intimidated.

The debatable effects of group interventions are in the area of delinquency and crime prevention. Most of the literature is supportive of the efficiency of psycho - educational groups. A meta-analysis of interventions for adolescents conducted by Hennessy & Tanner-Smith (2015) found out that group based brief interventions were effective in reducing alcohol consumption. They noted that motivational approaches, though effective, are rarely used in groups. There is need for establishing if MI principles, which have been found to be effective in individualized interventions, are equally successful when delivered in groups.

MI is appropriate for psycho-educational groups. It encourages engagement and collaboration which is critical in successful outcomes in groups. According to Navidian, Kermansaravi, Tabas & Saeedinezhad (2016) and Brown (2018), involvement of clients in choices about their lives is vital in positive treatment outcomes. A therapeutic alliance is important in helping clients make changes in their lives (Brown, 2014). According to Wagner & Ingersoll (2012), three considerations that differentiate individual MI from group MI are group dynamics (such as managing different beliefs among members), role of change talk (which is less prominent in groups) and facilitating role (rather than interviewing) of the counsellor. Shorey, Martino, Lamb, LaRowe & Santa Ana (2015) used group motivational intervewing among substance abusers . They found out that it was effective in enhancing change talk.

There is some research on group MI that has been conducted in the area of substance use disorders and sexual addictions. In a randomized controlled trial study, Schmiege, Broaddus, Levin & Bryan (2009), conducted a single session group MI among youth who were at risk of involvement of risky sexual behaviour and alcohol use. The sessions took 2 - 4 hours. At three month follow up, the results revealed that the participants who received a single session group MI had significant reductions in risky sexual behaviour than those in the control group that did not receive an MI intervention. Another study by D'Amico et al. (2013) sought to develop a group MI intervention for drug abuse for at risk youth. The intervention involved six two hour sessions that were delivered using MI principles. The outcome of the study was positive with conclusions that group MI was an acceptable intervention for at risk youth (D'Amico et al., 2013). A similar study conducted by Winters, Lee, Botzet,

Fahnhorst & Nicholson (2014) found that a two session MI intervention was effective in reducing drug use behaviours among youth compared to control group that did not receive any intervention. A four session group MI was conducted among homeless youth by Mullins (2015).

The results revealed that group based MI was effective in decreasing illicit drug use and changes in attitude about alcohol abuse. The study also found that group MI was effective in reducing risky sexual behaviour among the participants. Many researchers who have conducted interventions based on group MI have used different approaches especially regarding the number of sessions and the content of the interventions. This makes MI a dynamic approach that is flexible for use in different populations and methodologies. Nevertheless, most of the group MI interventions have been aimed at decreasing risky sexual behaviour and harmful use of substances.

In this study, the researcher developed a single session intervention (BMII) delivered in a psycho - educational format with the aim of treating gambling disorder among university students. BMII is a planned intervention that is aimed at motivating a client for change. The intervention was designed in a manner that it would be able to "capture the moment" with the assumption that the single session is the only one that the counsellor has with the client. Empirical evidence suggests that single session therapies are sufficient and helpful for many clients. Hymmen, Stalker & Cait (2013) conducted a systematic review of 18 studies on single session therapies. They found out that it was effective in meeting treatment goals. Single session therapies lead to problem improvement and client satisfaction (Perkins, 2006; Stalker, Horton & Cait, 2012).

One of the key reasons for the increased interest in single session therapies is that it is not only clinically effective but also cost effective compared to longer therapies. In the face of constrained resources and longer waitlist periods which put clients at greater risk, single session therapy seems like an appropriate alternative (Lamsal, Stalker, Cait, Riemer & Horton, 2018; Pitt, Thomas, Lindsay, Hanton & Bawden, 2015).

Another critical benefit of single session therapies is that it compensates for the high dropout rates experienced in many outpatient treatment modalities. According to Dryden (2016), many outpatient clients typically attend one session and then drop out. Although this is a concern for many therapists, Harper - Jaques & Foucault (2014), report that even clients who do not attend subsequent session in longer term therapies still experience improvement and satisfaction with the single session. Miller (2014) and O'Neill (2017) found that many clients preferred single session therapies compared to longer term therapies.

There are some concerns about this approach to therapy such as to the kind of clients who are likely to benefit. Clients with severe psychological problems such as suicidal ideation, psychosis, child and domestic abuse issues are usually not suitable for brief therapies (Hymmen et al., 2013). Generally, gambling disorder symptoms do not include such severe psychological problems. Another challenge with many of the reviewed single session therapies is that few of them are randomized controlled trials (Pitt et al., 2015). This study tried to address this gap by conducting a randomized controlled trial on efficacy of BMII in treating gambling disorder among university students in Kenya. Despite some possible benefits of group MI for addictive behaviours such as gambling disorder, there is a dearth of information on the efficacy

of the approach in treating gambling disorder. The researcher did not come across any published work that addressed the process and format of group MI in handling gambling disorder. The researcher developed his own format and processes for BMII though anchored in MI principles.

There are four reasons why the researcher opted for BMII. First, there is empirical evidence supporting MI as an evidence-based approach in treatment of gambling problems. Second is the appropriateness of a psycho-educational group session to reach university students who would be inaccessible or reluctant to attend individual counselling sessions. Third is the effectiveness of this approach in outpatient treatment which is typically appropriate for clients with gambling disorder. Fourth is the cost effectiveness of delivering such intervention to many clients who are struggling with gambling disorder. The researcher also purposed to develop an intervention that is not unnecessarily technical and easily replicable to be used by psychologists and other professionals across different populations. There is currently no published intervention for gambling disorder that considers the unique gambling behaviour in Kenya. This study would spark further interest in contextualized interventions for the Kenyan population and by extension Africa. In this study, BMII is developed with an aim of testing its efficacy in treating gambling disorder among university students in Kenya. A detailed description of the intervention is provided next.

2.13 Description of Brief Motivational Interviewing Intervention (BMII)

The intervention is conducted embodying the spirit of MI and Collaboration, Evoking, Autonomy, Compassion) and the use OF OARS (Open ended questions, Affirmations, Reflective listening and Summary). The intervention takes about 90-120 minutes.

Before administering the intervention, an introduction is done by the researcher explaining the purpose of the session and assuring the participants of confidentiality. Group norms are agreed upon before proceeding to the session. This aids in developing rapport and clarifying to the participants any issues that they need answered. BMII has six key components: Assessment, Feedback, Exploration, Psycho-education, Options and Challenge (AFEPOC). A discussion of the components is as follows.

Assessment (5 -10 minutes)

Assessment entails eliciting information from the clients about their gambling behaviour. The clients are given the gambling experiences questionnaire which is aimed at measuring their experience of gambling disorder symptoms according to the DSM - V diagnostic criteria, gambling frequency and typical amount placed per bet (See appendix VI).

The questionnaire is self administered to allow the participants freedom and control of the pace in which they respond to the items. It also helps to avoid interview apprehension among the respondents. The participants are encouraged to answer the items as honestly as possible. The researcher also provides clarification on any concerns that the participants may have.

Feedback (10 -20 minutes)

After the participants have completed the questionnaire, the researcher tells the clients to tally the total number of "Yes" in the first section of the questionnaire. The respondents are then informed what their respective scores mean. Non - disordered (0 - 4), mild gambling disorder (5 - 6), moderate gambling disorder (7 - 8) and severe

gambling disorder (9). The researcher then explains the meaning of the scores emphasizing that higher scores mean that one's gambling is out of control and needs to be checked. The feedback is meant to help the participants become aware of their levels of addiction. It also helps the participants to individually reflect about their own gambling behaviour. The researcher also elicits reaction from the participants about what they think of their scores.

Exploration (15-20 minutes)

After providing feedback, the researcher invites participants to share with the group their experiences in gambling. An emphasis is made on the negative experiences and harms associated with gambling. The researcher also asks the participants to share what they do when they win or lose. Participants are allowed to share their experiences or those of people they know.

Psycho education (15-20 minutes)

After exploration, the researcher takes time to provide information on the nature of gambling addiction.

Psycho-education is aimed at providing participants with a deeper understanding of why gambling is so addictive. This is meant to empower the participants with insights for self reflection on why they are unable to control their gambling. Gamblers fallacy, hot hand fallacy, illusion of control, beginners luck, dopamine release and intermittent reinforcement are the key messages that the researcher explains to the participants. As the researcher explains the concepts, he engages participants and invites them to share their experiences and thoughts about the key messages. It is expected that psycho - education evokes participants' motivation for change.

Options (10-15 minutes)

After psycho - educating the participants, the researcher then asks two questions: Are you in control of your gambling? How do you know that you are in control of your gambling? The researcher invites the participants to share with the group their thoughts. After sharing, the researcher shares some options that they can consider in controlling their gambling. The researcher shares ABCs of controlling gambling. This is an acronym coined by the researcher to stand for Abstinence, Be faithful and Change of attitude. **Abstinence** means that the gambler completely quits gambling altogether. He can delete all gambling apps from phone, unsubscribe from all gambling sites and avoid any gambling related activities for a specific period of time. The gambler goes "cold turkey".

Be faithful means that the gambler may decide to stick to a gambling routine that is well thought out. They can subscribe to only one gambling site, stick to a specific amount to place per bet, not to chase losses, the specific times they gamble, withdraw all winnings, bet only on weekends, withdraw wins immediately or avoid having money on their betting account. This is aimed at developing some discipline in gambling in a manner that is not detrimental to them.

Change of attitude means that the gambler needs to change his or her perceptions and beliefs about betting. For example, viewing gambling as a recreational activity rather than an investment or treating gambling like any other form of entertainment that costs money. The gambler is encouraged to balance gambling with other leisure activities and adopt a lifestyle of living within their means. The participants are invited to share other ways in which they can control their gambling.

Challenge (10-15 minutes)

The researcher challenges the participants to make a plan to control their gambling and commitment about controlling their gambling. The participants are encouraged to make the plan based on the options discussed during the session. The researcher asks two questions namely: "What is your goal?" (Quit, cut down or make no change); "What is your plan?" (E.g. unsubscribe from betting sites or gamble only on weekends amongst many others). The researcher encourages participants to write down the specific plan to control their gambling and stick to it for the next for the next eight weeks. For example: "*I intend to only place 50 bob per bet, twice on weekends only. I intend to withdraw all winnings and not try to recover when I lose.* 'The participants are allowed time to reflect and write down their plan. Finally the researcher summarizes the clients' statements about change and thanks the participants for their time and open mindedness.

2.14 Conceptual Framework

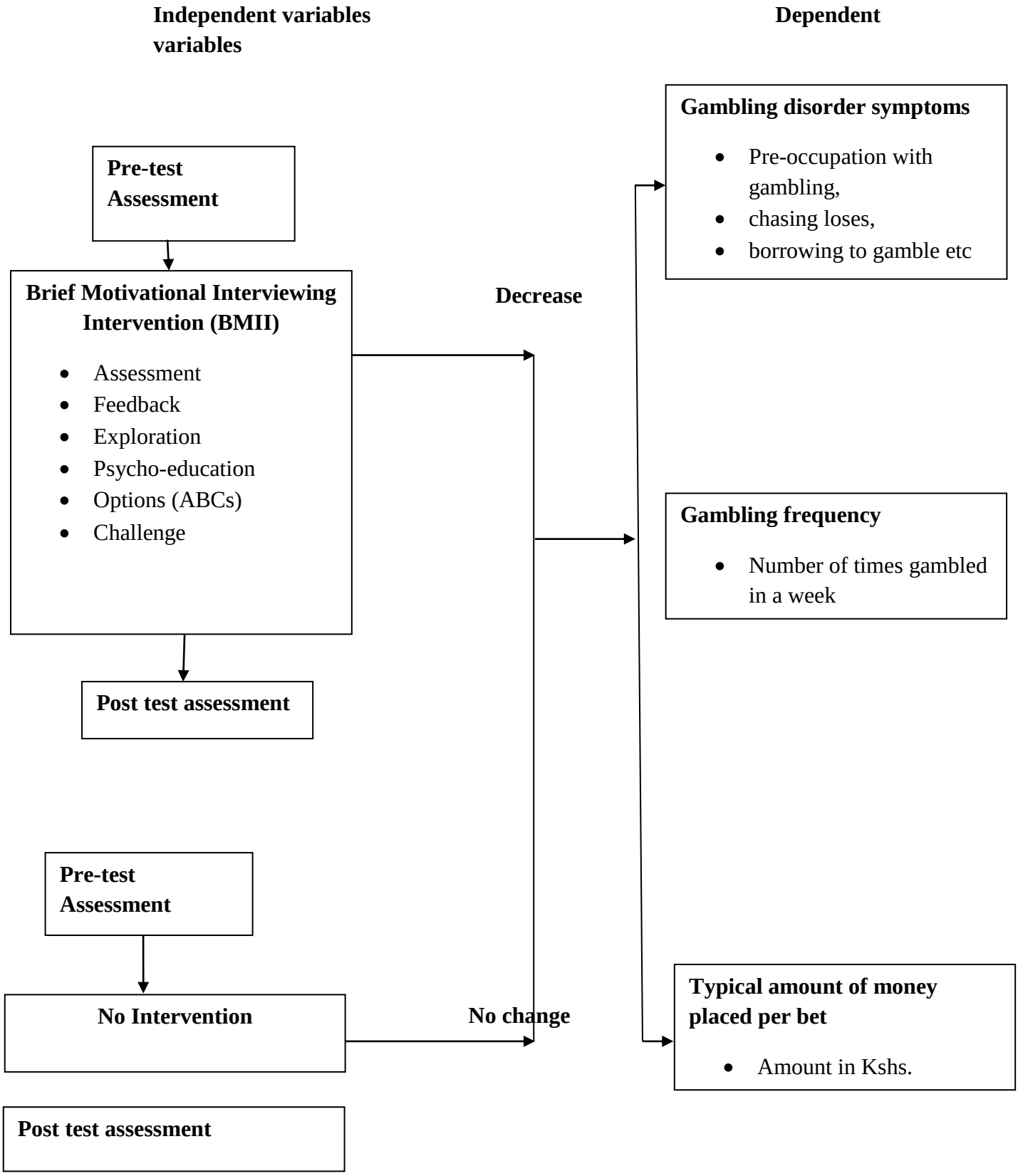

Figure 1: Efficacy of BMII on Gambling Disorder among University Students

From figure 1 above, the subjects were randomly assigned to either the treatment or the control group. The treatment group received an intervention which was BMII.

The control group did not receive the intervention (pre-test assessment only). BMII comprised of assessment of gambling behaviour, feedback to respondents on their gambling behaviour, exploration on the gambling experiences of respondents. It also involved psycho-education of the participants on the effects of gambling and information on the various options that they can use to control their gambling. The intervention ended with a challenge to the respondents to make a plan and commitment to change their gambling habits.

After eight weeks, the researcher conducted a follow up post test on the treatment and control group. The results revealed that there was a significant decrease in gambling disorder symptoms, frequency of gambling and typical amount placed per bet among the treatment group. There was no significant change in gambling behaviour among the participants in the control group.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methods used in determining the efficacy of BMII in treating gambling disorder symptoms among university students in Kenya. The study was a randomized controlled trial. It incorporates CONSORT (Consolidated Standards of Reporting Trials) 2010 format for research methods and reporting of randomized controlled trials (Moher et al., 2010). The CONSORT 2010 statement is the internationally recommended method of reporting Randomized Controlled Trials (RCTs). It encourages transparency and clarity in the procedures involved in conducting RCTs. It covers the research design, study variables, site of the study, target population, sampling techniques and sample size, pilot study, data collection procedures, data analysis and presentation , data management and ethical considerations.

3.2 Research Design

The study employed RCT design. The design was found appropriate as it enabled the researcher to determine the overall efficacy of BMII. According to Nezu & Nezu (2007), an RCT provides the strongest empirical evidence of efficacy of an intervention. The trial design was parallel two - arm superiority design with 1: 1 ratio. The study comprised two conditions with equal groups whereby one received the intervention while the other did not. This was aimed at statistically determining if the intervention (BMII) was “superior” to no intervention. The research participants were randomized into two groups: the treatment and control group.

The treatment group received BMII intervention. The control group did not. Any statistical differences between the groups at post test after eight weeks were attributed to BMII intervention.

3.3 Study Variables

The independent variable in this study was BMII as described in the treatment protocol in APPENDIX-V. The dependent variable was gambling disorder whose indicators were gambling disorder symptoms, gambling frequency and typical amount placed per bet. Randomization was used in allocating the participants in the two groups which were assumed to be homogeneous. In this study, gender and year of study were randomized.

3.4 Site of the Study

The study was conducted at Mt. Kenya University main campus in Thika town, Kiambu County. The university is the largest private university in Kenya with over 50, 000 students. It attracts students from all over the country with different demographics in terms of gender and socio - economic status. The university's set up, campus life and diverse pool of students is similar to many universities in the country. In addition to that, the gambling behaviour of university students does not significantly differ across universities (Koross, 2016; Mwadime, 2017; Macharia, 2018). Gambling in Kenya is done over the phone which most university students own. The gambling behaviour of university students is largely similar. The gambling behaviour of Mt. Kenya university students was reasonably expected to be representative of university students in Kenya. Since this study was experimental and involved randomization and testing of an intervention, it was logistically difficult to

get participants from several universities. Considering that the key aspect of RCT is randomization, it would be infeasible to randomize students from different universities and transport them to one site for the study.

3.5 Target Population

The target population was all undergraduate students in Kenya who gamble. There were over 300, 000 university students across the country in 2019 (Kenya National Bureau of Statistics , 2019). A significant proportion (70 - 80%) of university students in Kenya is estimated to be involved in gambling (Koross, 2016; Macharia, 2018; Geopoll, 2017).

3.6 Sampling and Sample Size

This study used a multistage approach to sampling in which participants were selected in two stages. The first stage involved simple random sampling of one university from among the 10 largest universities: University of Nairobi, Kenyatta University, Mount Kenya University, Moi University, Jomo Kenyatta University of Agriculture and Technology, Egerton University, Maseno University, Masinde Muliro University, Technical university of Kenya and Kisii University (KNBS, 2019). Selecting from a group of the largest universities was necessary because such universities have students from diverse backgrounds and from across the country. They have a more representative population of students compared to smaller universities. Because of the relatively large sample size of 224 that the researcher aimed at accessing, it would be unviable to include universities with a small population of students. Selecting one university was also necessary since in an experimental study such as this one.

It would be logistically difficult to have students from several universities come together to receive the intervention at one site. Fidelity to RCT procedures would be violated as lack of homogeneity and change of environment would confound the results of the study. Studies have shown that there are no significant differences in gambling behaviour among university students in Kenya (Koross, 2016; Macharia, 2018; Mwadime, 2017). It was expected that results from the selected university could be generalised to university students in the country. The second stage involved purposive sampling whereby students who gambled were invited to participate in the study.

Those who volunteered to participate and met the inclusion criteria were included in the final sample. Purposive sampling was appropriate because the study aimed at testing an intervention among gamblers. Only those who gambled met the inclusion criteria and were willing to participate in the study would be practically involved in the study.

To determine the sample size, Miot (2011) formula was used:

$$n=\left\{\frac{Z\alpha_{/2}.\ \delta}{E}\right\}$$

Where;

n= sample size

$Z\alpha_{/2}$= critical value for desired confidence degree: 1.96 (95%)

δ= population standard deviation of the variable: 2.517

E = standard error, 0.506

In line with the recommendations by Miot (2011), a pilot was conducted among 30 respondents from a different university to determine the standard deviation and

standard error of gambling disorder symptoms in the target population. The findings revealed a standard deviation of 2.517 and a standard error of 0.506.

Using Miot (2011) formula, the sample size calculation is as follows:

$n= (1.96x2.517/0.506)^2=95$ participants

Adjusting for non compliance and dropout rates of 20% (as recommended by Overall, Shobaki, Shivakumar & Steele, 1998), the study sampled 114 participants in each condition. The total sample was 228 participants.

3.7 Research Instruments

The study used two researcher developed instruments to collect data from the respondents: Gambling experiences questionnaire-I and Gambling experiences questionnaire-II.

The first instrument was used for the pre - test assessment. The second was used for the post - test assessment.

3.7.1 The Gambling Experiences Questionnaire-I

The gambling experiences questionnaire was a structured tool that was used for the pre-test assessment. It was developed by the researcher. The questionnaire had three sections. The first section collected demographic information which was sex and year of study. The second section contained items that measured gambling disorder symptoms with a binary (Yes, No) response option. This was meant to determine if respondents experienced particular symptoms of gambling disorder in the previous one year. The items were based on the DSM -V criteria for gambling disorder (APA, 2013). The section contained nine items measuring symptoms such a pre - occupation with gambling, chasing loses, unsuccessful attempts to control gambling, compromise

in relationships and borrowing money as a result of gambling (see appendix IV). Scoring of the items was done based on the responses of the participants to each item (NO = 0, YES = 1). The total numbers of "Yes" were tabulated for each participant. The maximum score was 9. The minimum score was 0. To determine the level of gambling disorder of the respondents, the cumulative score of a respondent was categorised into four: Non - disordered gambling (0 - 4), mild gambling disorder (5 - 6) moderate gambling disorder (7 - 8) and severe gambling disorder (9).

The third section of the questionnaire covered gambling frequency per week and typical amount placed per bet (See appendix VI).

The second instrument was the gambling experiences questionnaire-II.

3.7.2 Gambling experiences questionnaire-II

This questionnaire was used for the post test assessment (see APPENDIX VII). It was similar to the gambling experiences-I. It required the respondents to report about their gambling behaviour in the previous eight weeks. It also had an extra item of "not gambled" on the questions on gambling frequency and typical amount placed per bet. The first section with demographic information was not included because it was not expected that gender and year of study would change during the study period.

3.8 Validity and Reliability

In this study, the key assessment tool was the gambling experiences-I and gambling experiences-II which were used for the pre-test and post test assessment respectively. To ensure construct validity, the questionnaire items that measured gambling disorder

symptoms were borrowed from the DSM -5 criteria for gambling disorder. Since the development of the DSM-5 criteria various attempts have been made to determine its validity. Convergent validity (whether instrument gives related scores with other instrument that measure the same construct of gambling disorder) has been determined by examining the correlations between the total scores on the DSM-5 and other measures of gambling behaviour such as problem gambling severity index (PGSI) and SOGS. The correlation coefficient of the DSM-5 and other gambling disorder measures has been consistently high ($r>.30$) (Stinchfield et al., 2016)

Discriminant validity (whether instrument is able to discriminate constructs unrelated to gambling disorder) of the DSM-5 was also examined with other non problem gambling related measures such as gender, educational level and age. The results have shown the DSM-5 gambling disorder criteria to be valid in this respect ($r<.10$) (Goodie et al., 2015; Stinchfield et al., 2016). In terms of classification accuracy, the DSM-5 diagnostic criteria has an excellent sensitivity (ability to correctly identify those with gambling disorder) of 100% with a specificity (ability to correctly identify those without gambling disorder) of 98%. Empirical evidence indicates that the DSM-5 diagnostic criteria which informed the gambling experiences questionnaire was a valid instrument for collecting data on gambling disorder symptoms among the participants.

The reliability of the DSM-5 criteria for gambling disorder has been determined and found to have excellent internal consistency. Previous tests of reliability of the criterion have yielded Cronbach's alpha coefficients ranging from .74 to .95 among populations in Europe and America (Petry, Blanco, Stinchfield & Volberg, 2013; Stinchfield et al., 2016).

The internal consistency of the research instrument was calculated and found to be reliable (Chronbach's alpha, 0.813). The reliability of the gambling experiences questionnaire was also calculated from the sample population of 228 participants. Calculations of internal consistency using Chronbach's alpha on SPSS yielded a reliability coefficient of .722. This was considered acceptable (>.70) as recommended by Stinchfield et al. (2015). Test retest reliability of the questionnaire was conducted using pre - test and post test data from 94 participants in the control group (which did not receive the intervention). The results revealed a reliability coefficient of .754 which was also considered acceptable.

3.9 Pilot Study

A pilot study was conducted at Kenyatta University in line with the laid down procedures of the experiment and among 30 participants. It was used to check for the feasibility of the study design in terms of its ability to achieve the study objectives and detect any unforeseen adverse effects. The results of the pilot study provided insights that were used to improve the recruitment and intervention procedures. It was realised that most respondents were more comfortable in groups rather being given the intervention individually. The researcher reconceptualised the intervention to be offered in psycho - educational groups rather than individually. The researcher also learnt that it was important to administer the intervention immediately after the pre - test assessment due to risk of attrition. The pilot study helped to improve the data analysis plan. These adjustments were made accordingly in the main study.

3.10 Data Collection Procedures

After the necessary ethical clearance and approvals (see appendix III and IV), data collection followed four distinct steps: Recruitment, Pre-test assessment, Intervention and Post test assessment. The specific procedures are described as follows.

3.10.1 Recruitment

A research assistant who was a student at the site of the study was involved to aid in the mobilization and recruitment of participants. The assistant was familiar with the dynamics of the university and would be able to easily create rapport with the would be research participants. An invitation was sent out electronically via Short Messaging Service (SMS) and WhatsApp inviting students who gamble to volunteer as participants in the study. The assistant also used word of mouth to encourage students who gamble and were within campus to register for the study. The students who showed up at the venue of registration met the researcher who screened them for eligibility to participate in the study. Participant details recorded were name and mobile phone contact. These details were necessary for identification and follow up purposes.

3.10.2 Inclusion and Exclusion Criteria

University students who volunteered to participate in the study were screened for the inclusion and exclusion criteria. Only active gamblers were eligible to participate in the study. Those considered to be active gamblers were: Those who had gambled for over a year and had gambled in the previous seven days. The researcher considered this to be sufficient criteria so that any participant regardless of other psychosocial challenges had a chance to be involved in the research. A less restrictive inclusion

criterion was more pragmatic and necessary to enhance external validity of the results. Those who met the inclusion criterion were involved in the study. The exclusion criterion involved excluding participants who exhibited impairment in judgement and cognition at the time of the study. Participants who were intoxicated were excluded from the study. Those who had not gambled for over a year and those who had not gambled in the previous one week were also excluded from the study.

3.10.3 Randomization

The participants who met the inclusion criteria had their registration numbers coded. The participants were sequentially randomized in blocks of 54, 58, 59 and 57 into the treatment and control conditions. Randomization was conducted using the SPSS random sample function with 50% approximations (treatment group = 0, control group = 1). At the end of the exercise a total of 113 participants were allocated to the treatment condition while 115 were allocated to the control condition. In total there were four cohorts in each condition (treatment and control) which comprised 25-30 participants. To minimize contamination, the researcher met participants in the treatment group in the morning and control group in the afternoon to reduce chances of them meeting and sharing information about the experiment. The researcher discussed the details of the study with the participants and obtained informed consent before proceeding with the trial. The participants were blinded as to which condition (group) they were allocated. This was necessary to avoid biases because of participants' expectations as a result of knowing the intervention that they were receiving. The researcher personally administered the intervention to the treatment group. The intervention was a novel intervention developed by the researcher and

hence needed some level of expertise. Outcomes were measured objectively using structured questionnaires. The study was conducted between June and August 2019.

3.10.4 Pre-test Assessment

The pre-test assessment was aimed at establishing the baseline data on gambling experiences of the respondents before the intervention. This would be statistically compared to similar post intervention data to determine if there were significant changes as a result of the intervention. The pre-test assessment was conducted using the gambling experiences questionnaire-I. This was done soon after randomization. After the participants were randomized into treatment and control condition, they were contacted to meet the researcher (treatment and control group were met at different times).

Participants in the treatment condition, in four groups of 25-30, were given the pre-test assessment followed immediately by the intervention. After the intervention, they were informed that they would be contacted after eight weeks. Participants in the control condition were given the pre - test assessment in groups of 25-30. They were equally informed that they would be contacted after eight weeks.

3.10.5 Interventions

Participants in the treatment condition were given the intervention immediately after the pre -test assessment. The intervention administered was BMII. It was delivered as described in the treatment protocol (see appendix V). Participants in the control condition did not receive the intervention after pre-test assessment.

3.10.6 Post test Assessment

After eight weeks all the participants were invited via phone calls, SMS and WhatsApp for the post test at a venue within the university.

The post test assessment was conducted using the gambling experiences questionnaire -II (see appendix V). The post test was administered individually as different participants came in at different times. The data collected from the participants at pre-test and post test was matched according to the codes allocated to their respective names. This procedure was conducted in August 2019.

3.11 Outcome Measures

This study had three outcomes: Gambling disorder symptoms, gambling frequency (per week) and typical amount of money placed per bet. The study expected that there would be a decrease in the above outcomes at post test that would be attributed to the intervention (BMII).

3.12 Data Analysis and Presentation

Frequencies, percentages and measures of central tendencies were used to determine the demographics and prevalence of gambling disorder of the respondents. One-way ANOVA was calculated to determine if there were significant differences between the control and treatment groups on the three outcome measures: Gambling disorder symptoms, gambling frequency and typical amount placed per bet. Paired samples t-tests were calculated to test the three hypotheses and establish if BMII was effective in decreasing: Gambling disorder symptoms, gambling frequency and typical amount

placed per bet. The results of the analysis were presented in flow charts, pie charts, bar graphs, figures and tables. The statistical analysis was aided by SPSS version 22.

3.13 Data Management and Ethical Considerations

The researcher was granted authority to conduct the study by Kenyatta University Graduate School. Ethical clearance was also granted from Kenyatta University Ethics Review committee. Authority to conduct the research was granted by NACOSTI. Mt. Kenya University granted permission to collect data at the institution.

3.14 Care and Protection of Participants

Confidentiality and anonymity of the subjects was upheld. Although the participants provided their names and phone contacts, the list was kept safely. It was accessible to the researcher only. The participants and their data were identified by numbers that concealed their true identities. The collected data was secured in a computer with a password only known and accessed by the researcher. A written informed consent was sought from the participants. The consent form described the nature of the study including the procedures and any risks associated with the study (see APPENDIX-I). After agreeing to understanding the nature of the study, the participants were required to sign the informed consent form.

No adverse effects were reported by the participants. A debriefing session was held with all the participants to find out their experiences during the study. The researcher met the participants to explain the results of the study. He also administered the intervention to the group that did not receive the intervention. The study will be provided to the relevant universities, government agencies concerned with gambling

regulation and gambling service providers. The thesis report will also be made available to the public for utilization in the Kenyatta University repository.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

In this chapter, the findings and discussion of the study on the efficacy of BMII in treating gambling disorder among university students in Kenya are presented. The chapter starts with participants' flow, baseline data, prevalence rates, descriptive statistics, a presentation of baseline data, results of analysis of control group and treatment group and results of hypothesis testing. Reporting is in line with the COSORT 2010 format for reporting results in randomized controlled trials.

4.2 Flow of Participants

In this research, 230 students met the inclusion criteria. They were informed about the study. Two participants declined to participate. The final sample comprised 228 participants who were randomized to treatment and control conditions. The study was carried over a period of three months (June –August 2019). The recruitment of participants was conducted in June 2019. It was stopped after the targeted sufficient numbers (228) of participants was attained. In this study, 113 and 115 respondents were randomly allocated to the treatment and control group respectively. At post - test assessment (follow up after 8 weeks), 12 (10.6%) and 21(18.2%) of participants in treatment and control group did not provide follow - up data. This was a 14.5% attrition rate. The data collected was sufficient for final analysis as the researcher had catered for an attrition rate of 20% in the final sample. A chart showing the flow of participants is shown in Figure 2 below.

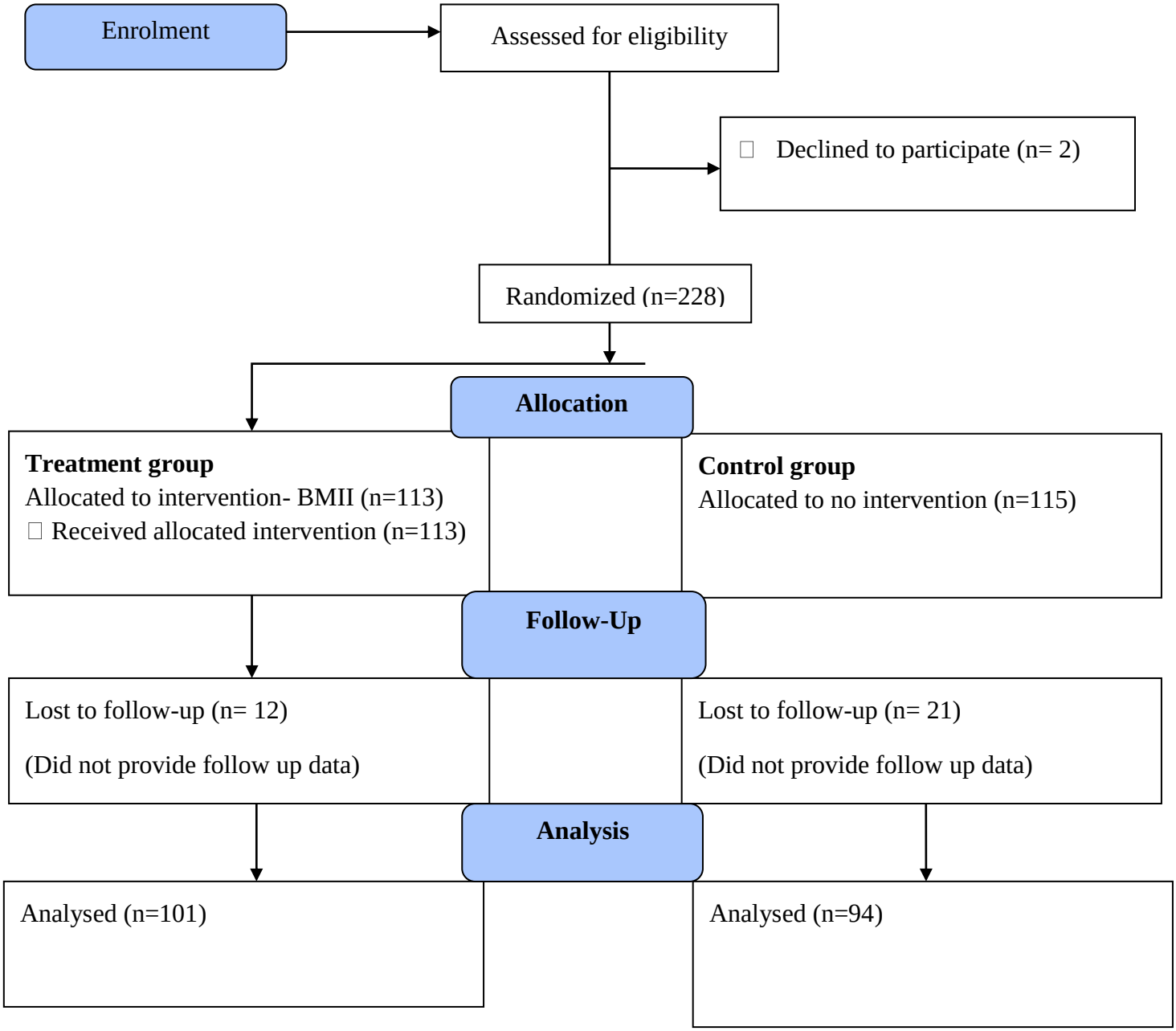

Figure 2: Participants' Flow Chart

4.3 Baseline Data

The demographic and clinical characteristics of the participants at baseline are presented in this section.

4.3.1 Demographic characteristics of respondents

The study sampled a total of 228 respondents. These were the respondents who met the inclusion criteria and were selected in the final sample of the study. Two demographic characteristics namely gender and year of study are discussed.

4.3.2 Gender of Respondents

A majority (89%) of the respondents were male. Only 11% were female as shown in Figure 3.

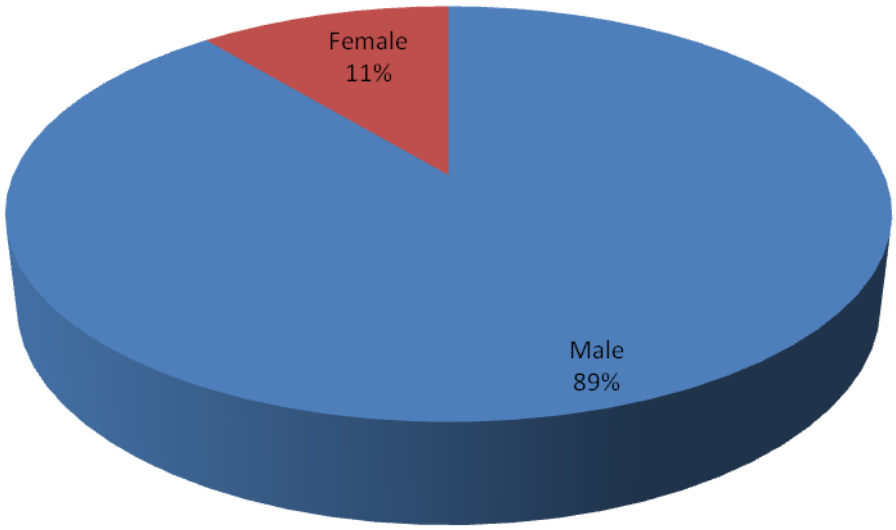

Figure 3: Gender of Respondents

The findings that most of the respondents were male are hardly surprising. Most studies have found young males to be at a higher risk of gambling disorder compared to their female counterparts (Apicella et al., 2017; Nower et al , 2018). A survey by Elliot (2019) found out that 69% of males in Kenya gamble compared to 44% of females. Another survey by Infotrack (2019) also found out that 74% of those that gamble in Kenya were men.

The fact that more male students are likely to gamble means that many of them were more likely to volunteer for the study. Another explanation of the higher percentage of male students who gamble is that in Kenya gambling is done through sports betting on football matches. Watching football especially the European Leagues is popular among young men. Advertisements and inducements to gamble are pervasive in football. This influences many football fans to be involved in gambling. This does not mean that intervention efforts should not focus on female students. It is also possible that the self stigma associated with gambling may have hindered some female students who gamble from coming out. According to Baxter, Salmon, Dufresne, Carasco - Lee & Matheson (2016), women are more likely to be in denial of their gambling addiction hence may not be willing to seek help. There is need for concerted efforts to reach out to not only the male university students but also female university students.

4.3.3 Year of Study of Respondents

Analysis of the respondents' year of study was conducted and the results are shown in Figure 4 below.

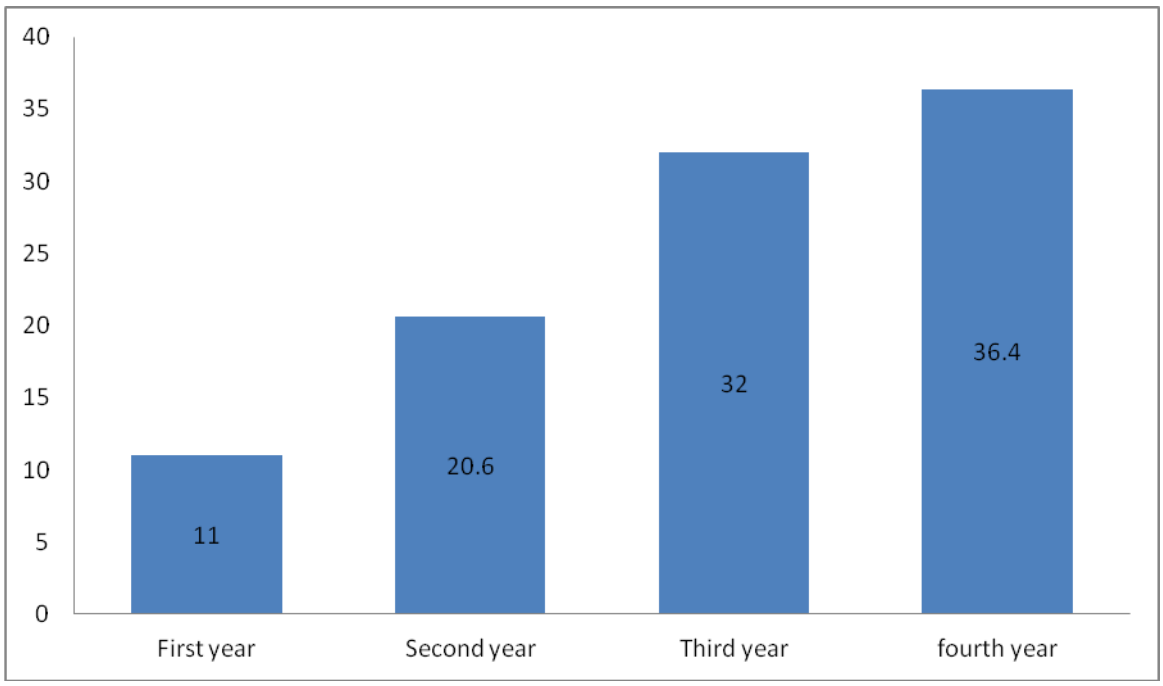

Figure 4: Year of Study

From figure 4, most of the respondents comprised fourth year (36.4%) and third year students (32%). First and second year students comprised 11% and 20.6% respectively. More third and fourth years volunteered in the study for two reasons. One is that they have been in university long enough and hence understand the dynamics of scientific research. They are much more willing to participate in a research. The second reason could be that third and fourth year would have higher gambling involvement because they are generally older than their counterparts hence have gambled for longer. Nowak (2018), who had conducted a meta-analysis of gambling studies among college students found that the year of study does not have a significant influence of disordered gambling among college students. Further research is needed to establish if there are differences in gambling behaviour among different years of study.

4.4 Descriptive Statistics of Gambling Disorder Scores

Cumulative scores of gambling disorder symptoms of the respondents were analysed and the measures of central tendency determined. The mean, median, standard deviation, standard error of the mean and skewness were calculated as shown in Table 1 below.

Table 1: Gambling Scores

Statistic	Mean	Median	S.D	S.E	Skewness
Score	5.50	6.00	2.331	.154	-.478

From table 1, the mean score on gambling disorder was 5.50. This meant that on average students who gamble, have mild gambling disorder. The standard deviation was 2.331, indicating that most of the respondents had scores around the mean. The mean and median were almost similar, 5.50 and 6 respectively indicating that the gambling behaviour of the students reflected a normal distribution. This means that on average, most student gamblers suffer from gambling disorder. Further analysis was conducted to determine the occurrence of specific symptoms of gambling disorder among the respondents as shown in Table 2.

Table 2: Gambling Disorder Symptoms among Participants

Gambling disorder symptoms	YES (%)	NO (%)
1. Have you found yourself thinking about, reliving past experiences, planning next time you will gamble, thinking of ways to get money to gamble?	91.7	8.3
2. Have you needed to gamble with more and more money to get the amount of excitement you are looking for?	65.8	34.2
3. Have you become restless or irritable when trying to cut down or stop gambling?	52.2	47.8
4. Have you gambled to escape from problems or when you are feeling depressed, anxious or bad about yourself?	46.1	53.9
5. After losing money gambling, have you returned another day in order to get even?	78.9	21.1
6. Have you lied to your family or others to hide the extent of your gambling?	48.7	51.3
7. Have you made repeated unsuccessful attempts to control, cut back or stop gambling?	60.5	39.5
8. Have you compromised a significant relationship, educational opportunity or job career because of gambling?	43.4	56.6
9. Have you borrowed to relieve a desperate financial situation caused by gambling?	61.0	39.0

From table 2 above, the results show that most (91.7%) of the respondents were pre occupied with gambling. This finding supports previous assertions by Koross (2016) and Macharia (2018) that many university students are pre occupied with gambling. Whereas gambling is meant to be a recreational activity, it is not viewed as such by many university students but rather as a way of increasing their income. This mindset is constantly reinforced by gambling providers through advertisements which show many young people becoming overnight millionaires. A morbid focus on gambling is likely to lead to disordered gambling as reflected by 65.8% of the respondents who needed to gamble with more money. According to Tabri, Wohl, Eddy & Thomas (2017) , gamblers whose self worth is largely derived from the amount of money they

posses are likely to gamble compulsively and experience more problems. Problems as a result of gambling are evidenced by the finding that 43.4% of the respondents had compromised relationships or lost an opportunity as a result of their gambling. University students may need fianancial literacy and other interventions that are aimed at enhancing a positive self worth.

The results of the study also revealed that 78.9% of the university students gambled to recover their lost money. This means that a significant proportion of those who gamble chased losses. The results are similar to Infotrack (2019) who found that 71% of Kenyans try to bet again whenever they lose. This shows that the gambling behaviour of university students in Kenya is almost similar to that of the general population. Lister, Nower & Wohl (2016), whose study focused on slot machine gambling also found that 55.4% of gamblers chase their losses. Chasing losses is one of the key symptoms of gambling disorder that perpetuates the addiction and leads to significant financial difficulties. Many university students are unemployed and do not have much disposable income for gambling. They are likely to get into financial difficulties. This is evidenced by the finding that 61% of the respondents had borrowed money to relieve desperate financial situations occasioned by their gambling. Similar findings have been reported by Oksanen, Sirola, Savolainen & Kaakinen (2019) who conducted a study among Finnish adults aged between 15 - 25 years. Moghaddam, Yoon, Campos & Fong (2015) also had similar results but their study was conduted in among a larger national sample. Macharia (2018) found that 63% of Kenyan university students often borrowed money to fund their gambling activities. The Government of Kenya is concerned with financial difficulties occasioned by gambling among youth as the Cabinet Secretary for Interior lamented

that over 500,000 youths were blacklisted by the Credit Reference Bureau (CRB) for defaulting on loans borrowed for gambling (Gamonde, 2019). University students in Kenya can easily access credit through their mobile phones. This may increase the likelihood of borrowing to gamble or cater for other financial needs that are affected because the money meant for such needs was used in gambling.

The findings that 60.5% had made repeated unsuccessful attempts to reduce their gambling was an indication that many of the gamblers were concerned about their gambling and attempted to cut down albeit unsuccessfully. The findings are similar to Infotrack (2019) who found that 59% of youth who gamble in Kenya have unsuccessfully tried to quit gambling. One of the reasons why many are unable to quit gambling is the persistent nudging by the gambling operators to encourage the gambler to make bets. Constant reminders, offers of "free" bets, attractive bonuses, misleading advertisements and multiple combinations to place bets are some of the tactics that the gambling operators use to encourage students to keep gambling. In Kenya, there are no self exclusion options for gamblers who want to stop gambling hence the students who may want to cut down on their gambling are left to their own devices.

4.5 Prevalence of Gambling Disorder among University Student Gamblers

The first objective of the study was to find out the prevalence of gambling disorder among the participants. Prevalence is this sense should be understood as the proportion of university student gamblers who met the criteria for gambling disorder rather than of the general population. It should also be understood that the study sampled students who gamble and not the general population of university students.

The prevalence was determined based on the cumulative scores of the gambling disorder symptoms based on the DSM -V criteria**.** To calculate the prevalence of gambling disorder, the scores were categorised into four: Non disordered gamblers (0 -4), mild gambling disorder (5-6), moderate gambling disorder (7-8) and severe gambling disorder (9). The results are summarized in Table 3 below.

Table 3: Prevalence of Gambling Disorder among Student Gamblers

Levels of gambling disorder	**Frequency**	**Percentage**
Non- disordered gambling	70	30.7
Mild gambling disorder	70	30.7
Moderate gambling disorder	71	31.1
Severe gambling disorder	17	7.5
Total	**228**	**100**

From table 3 above, the results show that only 30.7% were not disordered gamblers while 7.5% had severe levels of gambling disorder. Almost 70% of the respondents met the criteria for gambling disorder. This is an indication of a serious mental health issue among university students. This prevalence rate is slightly higher than Lee et al. (2014) findings of 31% disordered among adolescents gamblers in USA. Gainbury & Rusell (2014) found that more than 40% of gamblers in Australia were disordered. The differences in propensity for gambling disorder can be attributed to socio - cultural differences between the west and Kenya. The west whose population has more disposable income are less likely to get addicted to gambling compared to the

Kenyan population who have less disposable income. According to Johansson Grant Kim, Odlaugand & Götestam (2009), a low socio economic status increases the propensity to gamble and get addicted to gambling. This study used a non probability approach to sampling. It was among university students who were engaged in online sports betting which has been found to have higher risks of disorder because of accessibility, easy access to credit and perceived skill (Gainsbury et al., 2013; Lee et al., 2014). University students in Kenya have round the clock access to gambling opportunities on their phones. Considering that many of them have smart phones, desire to make money through gambling and free time, their propensity to gamble is high hence the likelihood of becoming disordered gamblers. The high prevalence of gambling disorder among the student gamblers is an indication that many university students who gamble experience mental health problems as a result of their gambling. Academic, relationship and financial problems are some of the issues that such students experience due to disordered gambling. The high incidence of disordered gambling among university student gamblers is not only a mental health problem but also public health issue.

4.5.1 Frequency of Gambling among the Participants

The study sought to find out how often the respondents gambled in a week. The variable was assessed on a Likert scale with four levels: Once: 2 - 3 times, 4 - 5 times and more than five times. The results were summarised in Table 4 below.

Table 4: Frequency of Gambling per Week

Times gambled per week	Frequency	Percentage
Once	71	31.1
2 -3 times	83	36.4
4-5 times	40	17.5
More than 5 times	34	14.9
Total	**228**	**100.0**

Table 4 above shows that most (68.9%) of participants gambled more than once in a week. A majority (36.4%) gambled 2-3 times while 14.9% gambled more than five times. This is an indication that many student gamblers do so frequently. The results support Gainsbury (2014) who reported high frequency of gambling among online gamblers. In Kenya, online gambling is largely unregulated (Alushula, 2019). Individuals can register with multiple gambling sites and the gamblers can place bets on all platforms at the same time.

There are over 10 firms offering betting services. There are no limits to the number of times an individual can place bets in a day (Munde, 2019). The limitless opportunities to gamble mean that disordered gamblers can spend a lot of time placing bets during the week. Valuable time is lost in placing and analyzing bets and odds. The nature of online gambling whereby a gambler can bet on live matches means that a lot of time is lost in the gambling process. According to Gainsbury et al. (2014), higher frequency of gambling is associated with higher levels of disordered gambling. University students who gamble more often are likely to experience more disordered gambling.

When university students gamble multiple times in a week, they end up spending a significant part of their day on gambling hence the time that could be spent in productive activities such as studying is wasted. Considering that gambling involves placing, analysing and waiting for the outcome of the bet, relationships and psychological well being is likely to be compromised among the frequent gamblers. The more frequent an individual bets the more they are likely to lose, hence the frequent gambler is likely to lose more money and experience more problems as a result of gambling. This calls for careful consideration of policy interventions that can regulate how often an individual can gamble in a day or week.

4.5.2 Typical Amount of Money Placed per Bet among the Participants

The study sought to find out how much in Kenya shillings the respondents typically placed per bet. The respondents were to select one of the following five amounts: Less than 50 shillings, 51 - 100 shillings, 101 - 150 shillings, 151 - 200 and more than 200 shillings. The results are shown on Table 5 below.

Table 5: Typical amount Placed Per Bet

Amount per bet (Kshs.)	Frequency	Percentage
Less than 50	9	3.9
51 - 100	129	56.6
101 - 150	28	12.3
151 - 200	28	12.3
More than 200	34	14.9
Total	**228**	**100.0**

From table 5 above, the results reveal that a majority (56.6%) placed 51-100 shillings per bet while 14.9% staked more than 200 shillings per bet. Although gamblers can place bets as high as 20, 000 shillings per bet, it appears that many university students are more likely to spend between 50 and 100 shillings. If an assumption that placing bets is a rational activity, then it means that university students have a disposable income of less than 100 shillings that they use in betting. Considering that most of the students bet more than once in a week, it means that they spend approximately 1000 shillings per month. This amount could be higher among those who gamble multiple times in a week. This finding supports the assertion that on average, gamblers spend between 1550 to 5000 shillings per month (Elliot, 2019; Mutua, 2019). This may have a negative implication on students' disposable income.

Another explanation of the typical amount placed per bet is the role of anchoring heuristic. When sports betting started in Kenya, the minimum bet that gamblers could place was 50 shillings. Although the amount has reduced over the years with increased competition among betting companies, one can place a bet as low as one shilling (Mutua, 2019). The heuristic of 50-100 shillings per bet seems to have stuck among university students.

It is also important to note that 14.9% of the students placed bets worth more than 200 shillings. This could mean that they are heavy gamblers with higher appetite for risk or they could be students who have a higher disposable income. A significant proportion of the students' income is spent on gambling. This may affect money meant for other necessities such as food and clothing. Infotrack (2019) found out that 84% of Kenyans use their earnings to place bets.

4.6 Efficacy of BMII for Treating Gambling Disorder

The study had three main objectives which sought to find out if BMII was effective in:

1) Decreasing symptoms of gambling disorder.

2) Decreasing gambling frequency.

3) Decreasing the typical amount of money placed per bet.

Three null hypotheses were tested to determine if BMII was efficacious in treatment of gambling disorder among university students**.**

The null hypotheses tested were:

H_{01}: Brief Motivational Interviewing Intervention is not effective in decreasing gambling disorder symptoms.

H_{02}: Brief Motivational Interviewing Intervention is not effective in decreasing frequency of gambling.

H_{03}: Brief Motivational Interviewing Intervention is not effective in decreasing typical amount of money placed per bet.

A presentation and discussion of the results on each of the hypotheses is provided next.

4.7 Efficacy of BMII in Decreasing Gambling Disorder Symptoms

The second objective of the study was to find out if Brief Motivational Interviewing Intervention was effective in decreasing symptoms of gambling disorder among university students in Kenya.

The respondents were asked to indicate their experience of the various symptoms of gambling disorder. Table 6 below shows the results of the analysis at pre-test and post test for the treatment and control group.

Table 6: Pre-test and Post test Gambling Disorder Symptoms

Gambling disorder symptoms	Control group		Treatment group	
	Pre-test	Post test	Pre-test	Post test
1. Have you found yourself thinking about, reliving past experiences, planning next time you will gamble, thinking of ways to get money to gamble?	88.7	87.1	94.7	67.3
2. Have you needed to gamble with more and more money to get the amount of excitement you are looking for?	66.1	64.5	65.5	33.6
3. Have you become restless or irritable when trying to cut down or stop gambling?	48.7	53.8	55.8	53.1
4. Have you gambled to escape from problems or when you are feeling depressed, anxious or bad about yourself?	47.8	49.5	44.2	30.1
5. After losing money gambling, have you returned another day in order to get even?	75.7	76.3	82.3	32.7
6. Have you lied to your family or others to hide the extent of your gambling?	47.0	52.7	50.4	29.2
7. Have you made repeated unsuccessful attempts to control, cut back or stop gambling?	55.7	61.3	65.5	42.5
8. Have you compromised a significant relationship, educational opportunity or job career because of gambling?	46.1	48.4	40.7	24.8
9. Have you borrowed to relieve a desperate financial situation caused by gambling?	56.5	62.4	65.5	34.5

From table 6 above, the results show that there was a decrease in symptoms of gambling disorder among the treatment group especially on the need to gamble more, borrowing and compromise of relationships as a result of gambling. Chasing losses decreased from 82.3% to 32.7%. A look at these raw data results indicates that the treatment group had better outcomes since they experienced reductions in all

symptoms. Among the control group there was a slight increase in most symptoms of gambling disorder.

The decrease in symptoms indicate that the intervention addressed some of the psychological symptoms associated with gambling disorder such as chasing loses, compromised relationships and financial difficulties as a result of gambling. The control group's increase in symptoms is an indication that they were worse off after eight weeks. This indicates that the psychological wellbeing of gamblers deteriorates with time. According to Granero et al. (2020) young, unmarried online sports betters from a low socio economic background are more vulnerable to gambling disorder. This is a characteristic typical of Kenyan university students.

A closer look at the changes in specific symptoms of gambling disorder at post test reveals that BMII was able to address some of the psychological problems associated with gambling disorder. Symptoms such as the need to gamble more, gambling when anxious, chasing loses, lying about gambling problems, compromising relationships and borrowing had a large decrease after treatment. It appears that the intervention addressed some of these aspects. This means that the treatment was effective at targeting such symptoms. The finding that there was a decrease in unsuccessful attempts to cut down among the respondents (from 65.5% at pre-test to 42.5% at post test) is an indicator that BMII was warranted as it enabled some of the participants to cut down successfully. The struggle to cut down is an important indicator that many of the disordered gamblers need support to achieve their goal. Restlessness and irritability when cutting down remained relatively high (53.1%). It had a slight decrease compared to other symptoms. This could be explained that as a result of the intervention, the participants made deliberate efforts to cut down on their gambling

which had an effect of making them experience discomfort during the change in behaviour. Another symptom of interest is the preoccupation with making money through gambling. Although there was reasonable percentage decrease (from 94.7% to 67.3%) in preoccupation with gambling, it was still high compared to other symptoms of gambling disorder. This means that many participants still held favourable views about gambling. This is not surprising considering that BMII was aimed at motivating behaviour change through exercising control of one's gambling behaviour and not necessarily abstinence.

Further analysis was conducted to determine if there were changes in means at pre - test and post test as shown in Table 7.

Table 7: Pre-test and Post test Means

	Control group		**Treatment group**	
Statistic	**Pre-test**	**Post test**	**Pre-test**	**Post test**
Mean	5.35	5.50	5.65	3.89
Median	6.00	6.00	6.00	4.00
SD	2.399	2.318	2.259	2.209
SE	.244	.239	.213	.220
Skewness	-.455	-.561	-.492	.180

From table 7, the results reveal that there was a decrease in the mean of the treatment group (M = 3.89 at post test and M = 5.65 at pre-test). There was a slight increase in the mean of the control group (M = 5.50 at post test and M = 5.35 at pre-test). The skewness in the treatment group shifted from negative (.-492) to positive (.180). For the control group, skewness shifted further to negative (-.455 to -.561). The median

score of the treatment group reduced from 6.00 to 4.00 indicating that there was an average decrease in the symptoms of gambling disorder. The median of the control group remained constant at post test. The average decrease in gambling disorder symptoms is a further indication that the treatment group had better outcomes compared to the control group. This supports the need for intervention and the general assertion that appropriate treatment is better than no treatment at all.

To determine the levels of gambling disorder among the groups at pre - test and post test, the cumulative scores on the gambling disorder symptoms were analysed on the following criteria: Non-disordered gambling (0-4), mild gambling disorder (5-6), moderate gambling disorder (7-8) and severe gambling disorder (9). The results are shown in Table 8 below.

Table 8: Pre-test and Post test levels of gambling

Levels of gambling disorder	**Control group**		**Treatment**	
	Pre-test	**Post test**	**Pre-test**	**Post test**
Non disordered gambling	33.9	31.9	27.4	55.8
Mild gambling disorder	29.6	27.7	31.9	23.9
Moderate gambling disorder	29.6	33.0	32.7	7.1
Severe gambling disorder	7.0	7.4	8.0	2.7

From table 8 above, there was a decrease across all levels of gambling disorder and increase in non disordered gambling at post test among the treatment group. The control group experienced a slight increase in moderate levels of gambling disorder and a slight decrease in non disordered gambling. From the results, many participants in the treatment moved from being disordered to non disordered as evidence by the increase in non disordered gambling from 27.4% to 55.8%. It seems that the intervention had a large effect on moderate disordered gamblers who decreased from 32.7 % to 7.1% after treatment.

There was a slight decrease in non disordered gambling in the control group indicating that some participants who did not receive intervention ended up gambling compulsively hence experiencing more problems as a result. This is also evidenced by the increase in moderate and severe gambling disorder among the control group. This supports the earlier assertion that individuals who do not get treatment end up experiencing deterioration in their psychological wellbeing.

To further determine if there were significant differences between the control group and treatment group, one way ANOVA was calculated to determine if there were significant differences between the control and treatment groups at pre-test and after intervention (post test). The results were summarized in Table 9 below.

Table 9: One-way ANOVA tests among groups

		Sum of Squares	df	Mean Square	F	Sig.
Groups at post test	Between Groups	126.031	1	126.031	24.637	.000
	Within Groups	987.302	193	5.116		
	Total	1113.333	194			
Groups at pre-test	Between Groups	5.373	1	5.373	.989	.321
	Within Groups	1227.627	226	5.432		
	Total	1233.000	227			

From table 9, the results indicated that at pre - test, there was no significant difference between the control and treatment group at $p< 0.05$, {F (1,226) =.989, p = .321}.

This means that the control and treatment group were homogeneous (similar) in terms of gambling disorder symptoms at pre-test. Significant differences between the groups at post test could be attributed to the intervention. At post test, the results show that there was a strong and significant mean difference between the control and treatment group at $p<0.05$, {F (1,193) = 24.637, p=000}. This shows that after eight weeks the group of students that received the intervention (BMII) experienced less symptoms of gambling disorder compared to that that did not receive the intervention.

Post hoc post test means were plotted in Figure 5.

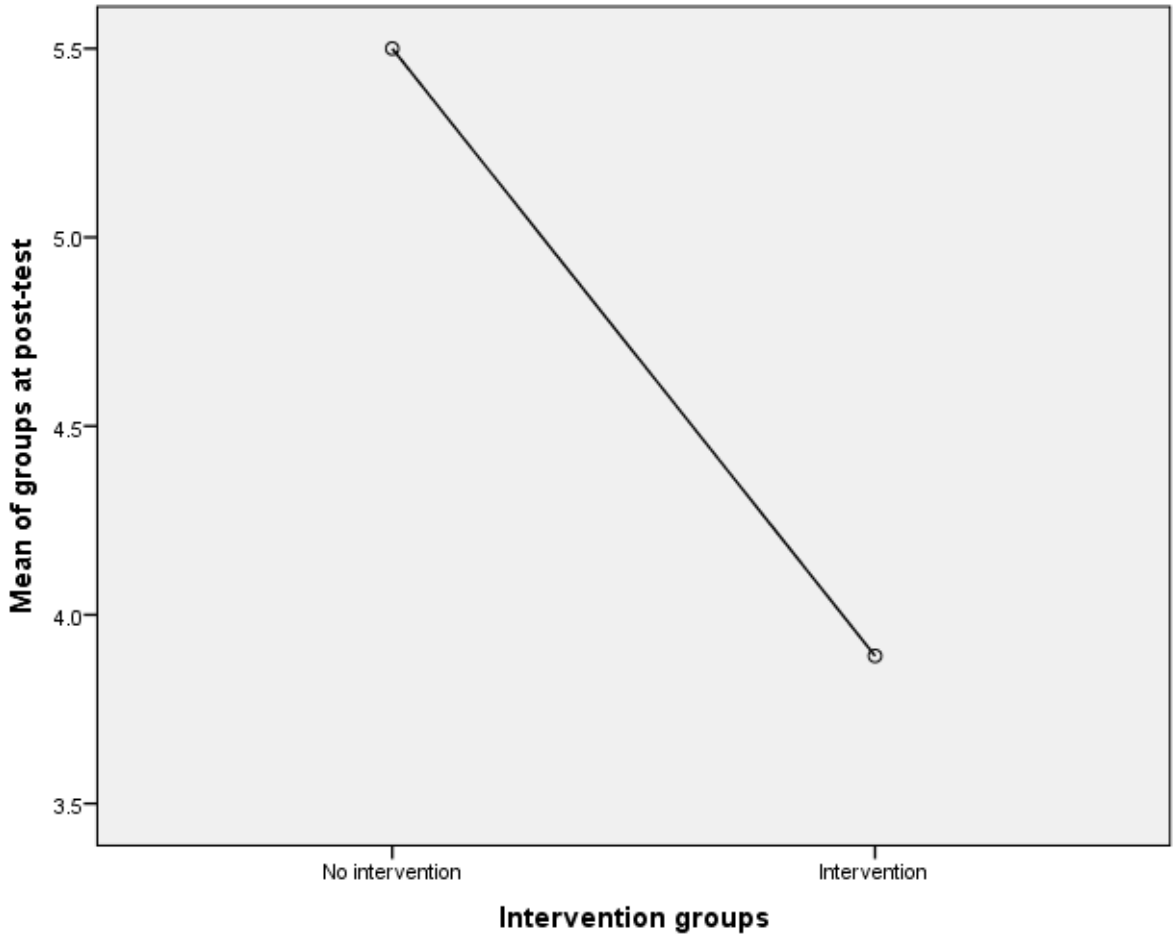

Figure 5: Mean plot of gambling disorder symptoms among groups

The results from figure 5 indicate that the average of gambling disorder symptoms was lower in the treatment group (that received intervention) compared to the control group (that did not receive intervention). This means that BMII had an effect of decreasing the symptoms of gambling disorder in the treatment group. Further analysis was conducted to determine if the decrease in gambling disorder occasioned by BMII was statistically significant.

The following null hypothesis was tested:

H_{01}: Brief motivational Interviewing Intervention is not effective in decreasing gambling disorder symptoms.

A paired samples t-test was calculated for both groups at pre-test and post test. The results are shown in Table 10 below.

Table 10: Paired Samples t-test on Gambling Disorder Symptoms

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	C2 – C1	.223	1.007	.104	.017	.430	2.151	93	.034
Pair 2	T2--T1	-1.733	2.457	.245	-2.218	-1.248	-7.087	100	.000

(C1: Control group pre-test, C2: Control group post test, T1: Treatment group pre-test, T2: Treatment group post test).

From table 10, the results reveal that among the control group there was a positive weak and significant mean difference between pre-test and post test (MD = .223, t (93) = 2.151, p=.034.). This is an indication that the control group which did not receive any intervention experienced a significant increase in the symptoms of gambling disorder during the period of study. This finding implies that gambling disorder is a progressive mental health condition that gets worse with time if intervention measures are not made to mitigate the problem.

In the treatment group, there was a strong negative significant difference between treatment group at post test (MD = -1.733, t (100) = -7.087, p = .000). The null hypothesis that BMII is not effective in decreasing gambling disorder symptoms was rejected (i.e., p<.05). BMII was determined to be efficacious in decreasing gambling disorder symptoms. The results support earlier findings by Calrbring et al. (2010) and

Hodgins et al. (2009) who found that brief interventions were as efficacious in decreasing symptom severity. Their studies were conducted among an adult population in the west. Considering the fact that those who did not receive any treatment (control group) experienced an increase in severity of symptoms, the assertion that treatment is better than no treatment is supported by these results. BMII is a suitable harm reduction intervention for university students who may need to reduce and control their gambling. The decrease was an indicator that BMII was effective in reducing the severity of gambling disorder among university students. The design and nature of BMII was aimed at empowering the student to reflect about his or her gambling behaviour and take specific steps to control his gambling. This can be attributed to the psycho-education component of the intervention and therapeutic effect of group dynamics that were at the core of the intervention.

The effect of BMII on gambling frequency which was one of the key indicators of gambling disorder is discussed next.

4.8 Efficacy of BMII in decreasing gambling frequency

The third objective of the study was to find out if BMII was effective in decreasing gambling frequency (how often the respondents gambled in a week). An assessment of how often the respondents gambled in a week at pre - test and post test was conducted. The results are shown in Table 11 below.

Table 11: Pre-test and Post test Gambling Frequency

Gambling frequency	**Control group**		**Treatment group**	
	Pre-test	**Post test**	**Pre-test**	**Post test**
Not gambled	-	2.2	-	11.5
Once	29.6	19.4	32.7	42.5
2-3 times	35.7	34.4	37.2	24.8
4-5 times	19.1	25.8	15.9	8.8
More than five times	15.7	18.3	14.2	1.8

Table 11 shows that in the treatment group, the frequency of gambling per week decreased among all the groups that gambled more than twice while 11.5% of the respondents did not gamble. It appears that most (42.5%) of the participants opted to gamble once in a week. In the control group, there was an increase in frequency of gambling among those who gambled 4-5 times and among those who gambled more than five times. This finding is consistent with the findings of an increase in moderate and severe gambling disorder (see Table 8). This may mean that those who gamble more frequently are more likely to increase their gambling over time. The decrease in gambling frequency among those who gambled once and 2-3 times can be explained as a shift to increased gambling frequency since the subsequent categories of 4 -5 and more than five experienced an increase. This means that over the eight weeks the group that did not receive any intervention increased their frequency of gambling. Participants who used to gamble once and 2-3 times seemed to have increased their frequency of gambling as there was an almost 10% decrease in that category.

The finding that 11.5% of the participants who received the intervention stopped gambling completely is an indicator that BMII, though not entirely aimed at encouraging abstinence from gambling, was efficacious in helping some participants quit gambling.

One way ANOVA was used to determine if there were significant differences between the control and treatment groups at before (pre-test) and after intervention (post test). The results are summarized in Table 12 below.

Table 12: One-way ANOVA test among groups

		Sum of Squares	Df	Mean Square	F	Sig.
Gambling frequency at post test	Between Groups	46.610	1	46.610	48.005	.000
	Within Groups	186.421	192	.971		
	Total	233.031	193			
Gambling frequency at pre-test	Between Groups	.500	1	.500	.470	.494
	Within Groups	240.496	226	1.064		
	Total	240.996	227			

From table 12, the results indicate that at pre - test, there was no significant difference between the control and treatment group at $p< 0.05$, {$F (1,226) =.470$, $p = .494$}. This means that the control and treatment group were homogeneous in terms of gambling frequency at the beginning of the study. At post test, the results show that there was a strong significant difference between the control and treatment group at $p<0.05$, {$F (1,192) = 48.005$, $p=000$}. Post hoc post test means are plotted in Figure 6 below.

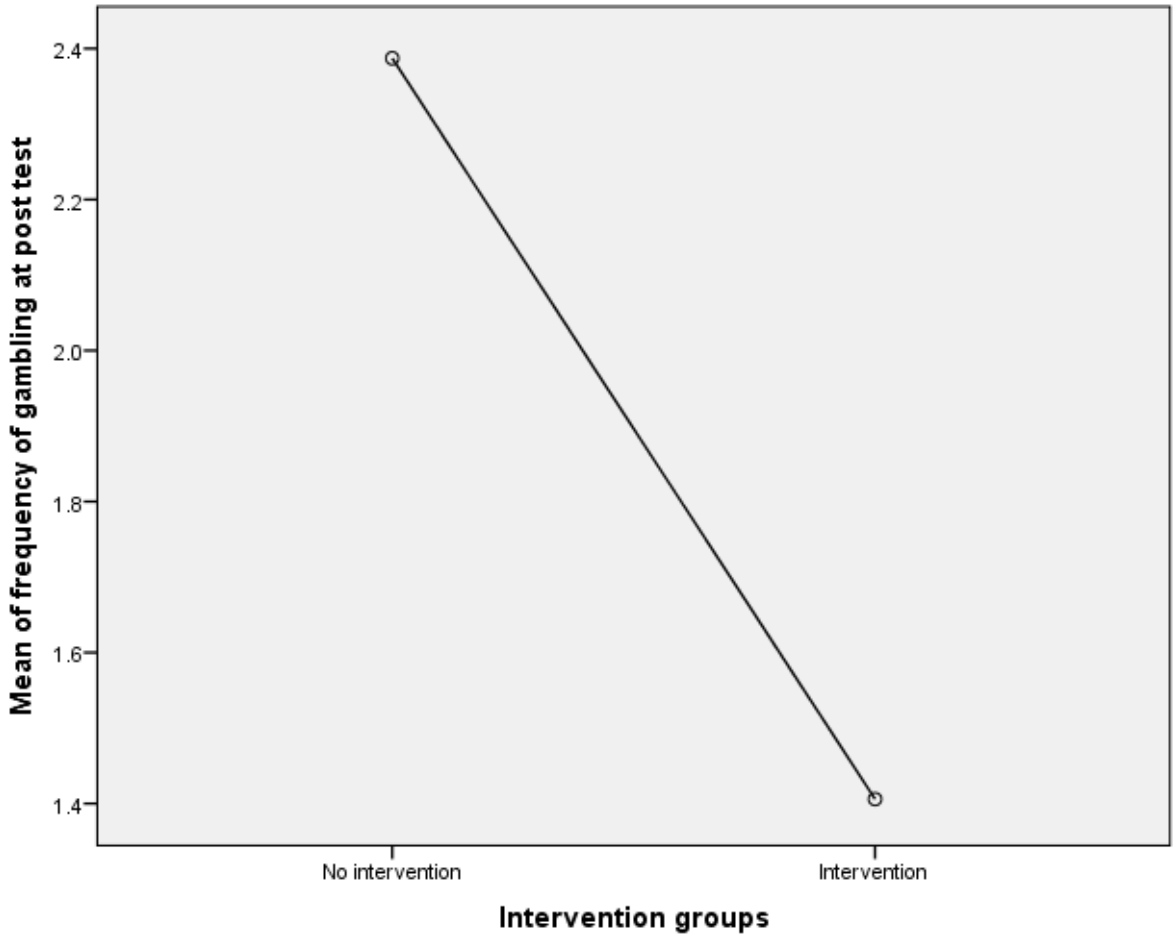

Figure 6: Mean Plot of Gambling Frequency among groups

The results from figure 6 indicate that the average in gambling frequency was lower in the treatment group compared to the control group. These differences can be attributed to BMII that was delivered to the treatment group. The frequency of gambling in the treatment group is lower than that of the control group.

To determine whether the decrease was statistically significant, the following null hypothesis was tested:

H_{02}: Brief motivational interviewing intervention is not effective in decreasing gambling frequency.

A paired samples t-test was calculated for both groups at pre and post test. The results are shown in Table 13 below.

Table 13: Paired samples t-test Frequency of Gambling among Groups

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	C2 – C1	.183	.691	.702	.041	.325	2.552	92	.012
Pair 2	T2--T1	-.683	1.131	.113	-.906	-.460	-6.072	100	.000

(C1: Control group pre-test, C2: Control group post-test, T1: Treatment group pre-test, T2: Treatment group post test).

From table 13, the results indicate that among the control group there was a weak positive and significant mean difference between pre and post test, (MD = .183, t (92) = 2.552, p=.012.). This means that most participants who did not receive the intervention had higher levels of gambling frequency at post test. This means that gamblers are likely to continue gambling more frequently if no measures are taken to help them reduce their gambling frequency.

In the treatment group, there was a strong negative significant difference between pre and post test (MD =-.683, t (100) = -6.072, p =.000). This means that the treatment group had lower levels of gambling frequency at post test compared to pre-test. The hypothesis that BMII was not effective in decreasing frequency of gambling was rejected (i.e. $p<.05$). The results show that BMII was effective in decreasing gambling frequency among the participants.

These results are similar to previous findings by Petry et al. (2017) and Hodgins et al. (2009) who found that brief interventions were effective in reducing the frequency of gambling among participants. Hodgins et al. (2009) used a telephone session and provided a workbook to the participants to help in self directed treatment. The interventions were conducted in the west. One of the key components of BMII was to psycho - educate the participants on the various ways they can use to control their gambling. The Options component of the treatment which provided participants with the ABCs of controlling gambling seems to have been beneficial in encouraging some participants in abstaining altogether from gambling. Some may have opted to be faithful to a gambling regime that included gambling a reduced number of times. The decrease in gambling frequency among the participants after the intervention would lead to a decrease in problems associated with excessive gambling such as loss of time and money. It also provided them with a sense of control on their gambling behaviour. According to Xuan & Shaffer (2009), individuals who experience problems as a result of their gambling gamble more frequently compared to those who do not experience such problems. A reduction in how often one gambles in a week is beneficial to the participants to the extent that they are likely to experience less problems as a result of their gambling. University students who gamble less often are likely have more time for their studies and other productive activities. Another key indicator of gambling disorder that was a subject of this study was the typical amount of money that the participants placed per bet. A discussion of the results ensues.

4.9 Efficacy of BMII in decreasing typical amount placed Per Bet

The fourth objective of the study was to determine the effectiveness of BMII in decreasing typical amount placed per bet among university students.

The amount placed per bet at pre and post test was analysed. The results are shown in Table 14 below.

Table 14: Typical Amount Placed per Bet among Control and Treatment groups

Amount placed per bet (Kshs)	Control group		Treatment group	
	Pre-test	Post test	Pre-test	Post test
Not gambled	-	2.2	-	11.5
Less than 50	1.7	1.1	6.2	6.2
51-100	57.4	53.8	55.8	40.7
101-150	12.2	14.0	12.4	13.3
151-200	13.9	11.8	10.6	10.6
More than 200	14.8	17.2	15.0	7.1

From table 14, the results show that in the treatment group, there was an increase in those who did not gamble (11.5%) and a decrease in those who gambled more than 200 shillings. The intervention seemed to have achieved modest results in terms of enabling the participants abstain from gambling. This is not surprising as BMII's main aim was not abstinence but control of gambling. The intervention is structured in such a manner that the gambler decides what they would like to do to control their gambling. The results of the study are also in line with the philosophy of brief interventions which argue that moderation is a reasonable outcome of treatment (Davies, 1962). In the control group, there was an increase in those who placed more than 200 and 101-150 shillings per bet. This is an indication that if gamblers are not supported to control their gambling they may continue even with larger amounts over money. This necessitates the need for early intervention so that the students may not

get to the point where they are staking large sums of money per bet. It seems that in the treatment group there was no change among those who gambled less than 50 shillings. This may be an indication that those who gambled less that 50 shillings may not have benefited from the intervention in this study.

There is need for further interrogation on gambling behaviour of those who stake low amounts and if they need any intervention at all. The results also show that those who gambled between 50-100 shillings decreased indicating that this category of gamblers may have benefited from the intervention.

One way ANOVA was used to determine if there were significant differences in typical amount placed per bet between the control and treatment groups before (pre-test) and after intervention (post test). The results are summarized in Table 15 below.

Table 15: One-way ANOVA tests among groups

		Sum of Squares	Df	Mean Square	F	Sig.
Amount placed per bet at post test	Between Groups	14.207	1	14.207	8.274	.004
	Within Groups	329.670	192	1.717		
	Total	343.876	193			
Amount placed per bet at pre-test	Between Groups	.575	1	.575	.410	.523
	Within Groups	317.017	226	1.403		
	Total	317.592	227			

From table 15, the results indicated that at pre - test, there was no significant difference between the control and treatment group at $p< 0.05$, {$F (1,226) =.410$, $p = .523$}. This means that at pre-test the control and treatment group were homogeneous

in terms of typical amount placed per bet. The study can justify a conclusion that differences at the end of the study can be attributed to the treatment effect.

At post test, the results show that there was a weak significant difference between the control and treatment group at $p<0.05$, {$F(1,192) = 8.274$, $p=004$}. The differences between the control and treatment groups can be attributed to BMII that was administered to the treatment group while the control group did not receive the intervention.

Post hoc post test means were plotted in Figure 7 below.

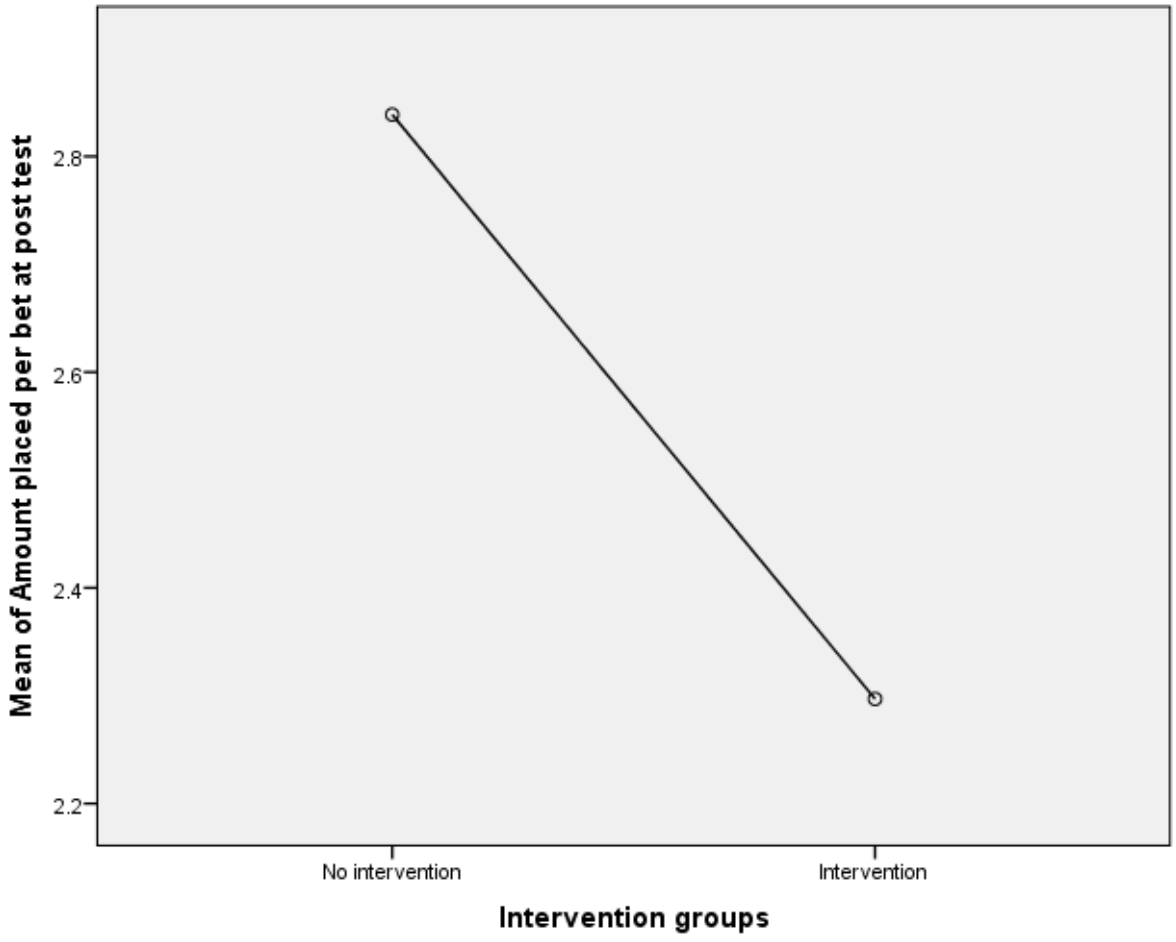

Figure 7: Mean plot of Control and Treatment groups

Figure 7 above shows that the average amount placed per bet was lower in the treatment group compared to the control group. This difference could be attributed to the intervention (BMII) that the treatment group received compared to the control group that did not receive any intervention. It is a further indication that BMII was effective in decreasing the amount the participants wagered. Further analysis was conducted to determine if the effect of BMII in decreasing gambling typical amount placed per bet was statistically significant. The following null hypothesis was tested:

H_{03}: Brief Motivational Interviewing Intervention is not effective in decreasing typical amount placed per bet.

Paired samples t-test was calculated. The results of the analysis are shown in Table 16.

Table 16: Paired Samples t - test for typical amount placed per bet

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
C2 – C1	-.011	.730	.076	-.161	.140	-.142	92	.887
T2--T1	-.455	1.389	.138	-.730	-.181	-3.294	100	.001

(C1: Control group pre-test, C2: Control group post test, T1: Treatment group pre-test, T2: Treatment group post test).

Table 16 shows that among the control group there was a no significant difference between post and pre - test (MD = -.011, t (92) =-.142, p =.887). This means that there are no changes in the control group in terms of typical amount placed per bet during the study.

In the treatment group, there was a negative weak significant mean difference between post and pre-test (MD =-.455; t (100) = -3.294, p =.001). The hypothesis that BMII was not effective in decreasing typical amount placed per bet was rejected (i.e., $p<.05$). This means that the intervention was effective in decreasing typical amount placed per bet among the participants. The results are similar to Yekovenko et al. (2015) and Petry et al. (2017) who conducted systematic reviews of gambling treatments and found out that they were effective in reducing gambling expenditures. A closer look at the specific expenditures (from Table 14) reveals that those who gambled more than 200 shillings experienced a higher decrease and that 11.5% of the participants stopped gambling altogether. This is an indication that BMII was largely effective in motivating the students to who staked higher amounts to reduce and also some to stop gambling.

The current study did not focus on total expenditures on gambling but the typical amount placed per bet. Although various researchers use different approaches to measure gambling expenditure, Wood & Williams (2007) opine that typical amount placed per bet provides a more robust measure of gambling behaviour compared to other ways of determining on gambling expenditure. For example, total gambling expenditure can be influenced by how often an individual gambles. Considering that BMII was found to be efficacious in decreasing gambling frequency and typical amount placed per bet, one could argue that the cumulative gambling expenditure was consequently reduced as a result of the intervention. It is important to note that the intervention was short term and did not eliminate gambling behaviour among participants. This means that there is a possibility of relapse in the long-term.

The next chapter provides a summary, conclusion and recommendations of the study.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter starts with a summary of the findings of the study on efficacy of BMII on gambling disorder among university students in Kenya. It is then followed by conclusions from the findings and finally provides recommendations from the study.

5.2 Summary of the Results

The study comprised 228 university students who met the inclusion criteria for the study. A majority (89%) of the respondents were male while only 11% were female. The respondents were drawn from all years of study a majority of whom were fourth year (36.4%) and third year (32%) students. An analysis of the cumulative scores on the gambling disorder questionnaire revealed that on average the respondents were disordered gamblers (M =5.50, SD =2.331).

The first objective of the study was to determine the prevalence of gambling disorder among university students. The results revealed that a majority (69.3%) of the respondents were disordered gamblers while only 30.7% were non disordered gamblers. Analysis of frequency of gambling per week found a majority (36.4%) gambled 2-3 times per week while 31.1% gambled once per week. Only 14.9% gambled more than five times per week. The results also revealed that a majority (56.6%) of the respondents typically placed 51–100 shillings per bet while 14.9% typically staked more than 200 shillings per bet. Only 3.9% placed less than 50 shillings per bet. Those who placed 101-150 shillings and 151–200 shillings comprised 12.3% of the respondents.

The second objective of the study was to determine if BMII was effective in decreasing gambling disorder symptoms. One - way ANOVA tests revealed that there were significant differences between control and treatment groups at post test at $p<0.05$, {$F (1,193) = 24.637$, $p=000$}. The null hypothesis that BMII was not effective in decreasing gambling disorder symptoms was tested using paired samples t-test. The results revealed that BMII was effective in decreasing gambling disorder symptoms at $p<.05$ ($MD=-1.733$, $t (100) = -7.087$, $p<.05$).

The third objective of the study was to find out if BMII was effective in decreasing gambling frequency among the respondents. One - way ANOVA tests that there were significant differences between control and treatment groups in terms if frequency of gambling at $p<0.05$, {$F (1,192) = 48.005$, $p=000$}. Paired samples t-tests results led to the rejection of the null hypothesis that BMII was not effective in decreasing gambling frequency ($p<.05$, ($MD= -.683$, $t (100) = -6.072$, $p=.000$). BMII was found to be efficacious in decreasing the frequency of gambling.

The fourth objective of the study was to determine the effectiveness of BMII in decreasing the amount placed per bet among the respondents. One - way ANOVA tests results revealed significant differences between the control and treatment groups in terms of typical amount placed per bet at post test, $p<0.05$, {$F (1,192) = 8.274$, $p = 004$}. The hypothesis that BMII was not effective in decreasing typical amount placed per bet was tested using paired samples t-test. The results revealed that BMII was effective in decreasing amount of money placed per bet, $p<.05$ ($MD=-.455$; $t (100) = -3.294$, $p=.001$).

5.3 Conclusions of the Study

The following conclusions were drawn from the discussion of the findings.

Many university student gamblers hold favourable views about gambling. Male university students are at higher risk of gambling disorder and concerted efforts need to be put in place with an aim of helping them overcome the problem.

Gambling disorder is a serious mental health issue among university students with many of those who gamble experiencing adverse effects on their psychological wellbeing. Many of these students gamble frequently and use a significant proportion of their upkeep money on gambling. This places them at high risk of getting into unnecessary debt through and financial difficulties. BMII provides an intervention that can be utilized to reduce not only the frequency of gambling but also the amount of money they use to place bets. This reduces the amount of time and money lost through gambling and consequently alleviates the experience of symptoms associated with gambling disorder.

BMII is effective in treating psychological distress associated with gambling disorder. This provides an evidence based intervention for gamblers who would otherwise suffer from gambling disorder without any recourse for treatment. An evidence based intervention for gambling disorder has been lacking in the country. BMII is the first such manualized intervention that could be replicated and used across the country in treating gambling disorder. The scientific yet simple design of BMII provides a practical intervention that is contextualised to the Kenyan context. The efficacy of BMII supports a harm reduction approach in mitigating the negative effects of compulsive gambling among university students. This approach is more practical and feasible especially among gamblers who are unlikely to proactively seek treatment.

The design of BMII, whereby it can be delivered in a psycho - educational format to groups in a single session, means that the intervention can be utilised to reach many students in the university who would otherwise not be reached by other interventions such as individual and longer term therapies. BMII is effective in motivating gamblers to take control of their gambling hence both abstinence and moderation goals can be achieved. Although a goal of total abstinence from gambling is noble, not many individuals are willing to pursue that goal. Some may be willing to control or moderate their gambling. This makes BMII a suitable intervention for gambling disorder among university students. BMII has a limitation. Although it led to a decrease gambling disorder symptoms, it did not lead to complete abstinence from gambling.

5.4 Recommendations of the Study

The following recommendations are made from this study.

Psychological counsellors are encouraged to adopt BMII as an evidence based intervention for treatment of gambling disorder.

Universities are encouraged to adopt BMII as one of the interventions aimed at supporting students who struggle with gambling disorder

Government and agencies concerned with policy and regulation of gambling in the country are challenged to develop structural and policy interventions aimed at not only collecting tax form gambling companies but also alleviating the psychological and social burden on gamblers.

BMII is recommended as an evidence based intervention that can be utilised by policy makers to mitigate the problems associated with gambling disorder in the country.

Capacity building with relevant skills on the use of BMII is encouraged to train professionals who may need to help students with gambling disorder problems.

University students who experience problems as a result of their gambling are encouraged to seek treatment from professionals trained in evidence based interventions such as BMII.

5.5 Recommendations for Further Studies

More research can be conducted with interventions aimed at abstinence as a treatment goal.

Further research can be conducted to determine the long - term efficacy of BMII in treatment of gambling disorder.

Replication studies can be conducted to determine the efficacy of BMII for treating gambling disorder among different populations across the globe.

Longitudinal studies should be conducted to determine the lifetime outcomes of treatment for gambling disorder.

Research that takes into consideration the alleviation of gambling disorder symptoms and how treatment affects the overall quality of life should be conducted.

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APPENDIX I: INFORMED CONSENT FORM

My name is Maroma Fabio Ogachi. I am a PhD (Counseling Psychology) candidate at Kenyatta University. I am conducting a study on "Efficacy of Brief Motivational Interviewing Intervention for Gambling Disorder among university students in Kenya".

You are invited to participate in this study if you have been involved in gambling for the last one year and have gambled in the past week.

Before agreeing to participate in this study, it is important that you read and understand the following information outlining what this study involves. Once you understand what this study involves you may or may not decide to give informed consent to participate.

Purpose of the study

There has been an increase in gambling activity among university students in the past few years. It has been found that some students may end up gambling excessively and hence develop gambling disorder. Students with gambling disorder experience psychological, financial, social and academic problems and may need an intervention that will help them overcome such problems. It is against this backdrop that this study is being conducted to determine the efficacy of Brief Motivational Interviewing Intervention (BMII) for gambling disorder among university students. It is hoped that the intervention will provide an evidence based treatment for university students with gambling disorder.

Procedures to be followed

- Potential participants in the study must be willing to attend a face to face assessment at a designated place where they would be evaluated to determine if they meet the inclusion criteria for the study.
- Those who meet the inclusion criteria for the study will be randomly assigned to one of two groups.
- All participants will complete a face to face assessment at the beginning and follow-up after eight weeks.
- Participants can withdraw from the study any time.

Interventions

- Participants in one condition will take part in pre-test assessment and BMII psycho-education session (between 90-120 minutes). The session will be conducted in groups of 25-30.
- Participants in the other condition will take part in the pre-test assessment only that will take about 10 minutes.
- Participants will be randomly placed to either conditions.
- All participants will be contacted after eight weeks for follow - up and post test assessment.
- The pre and post test assessment will involve filling a questionnaire with questions about your gambling experience.

Discomforts and Risks

There is no reason to believe that any adverse events will result for participants taking part in this study.

Benefits

It is hoped that one of the interventions will lead to a reduction in gambling disorder symptoms among the participants.

Rewards

There will be no rewards for participation in this study.

Confidentiality

Privacy and confidentiality will be ensured. If you agree to participate in this study, the researcher will be the only individual that will have direct access to the information you provide and will be required to uphold confidentiality.

Contact information

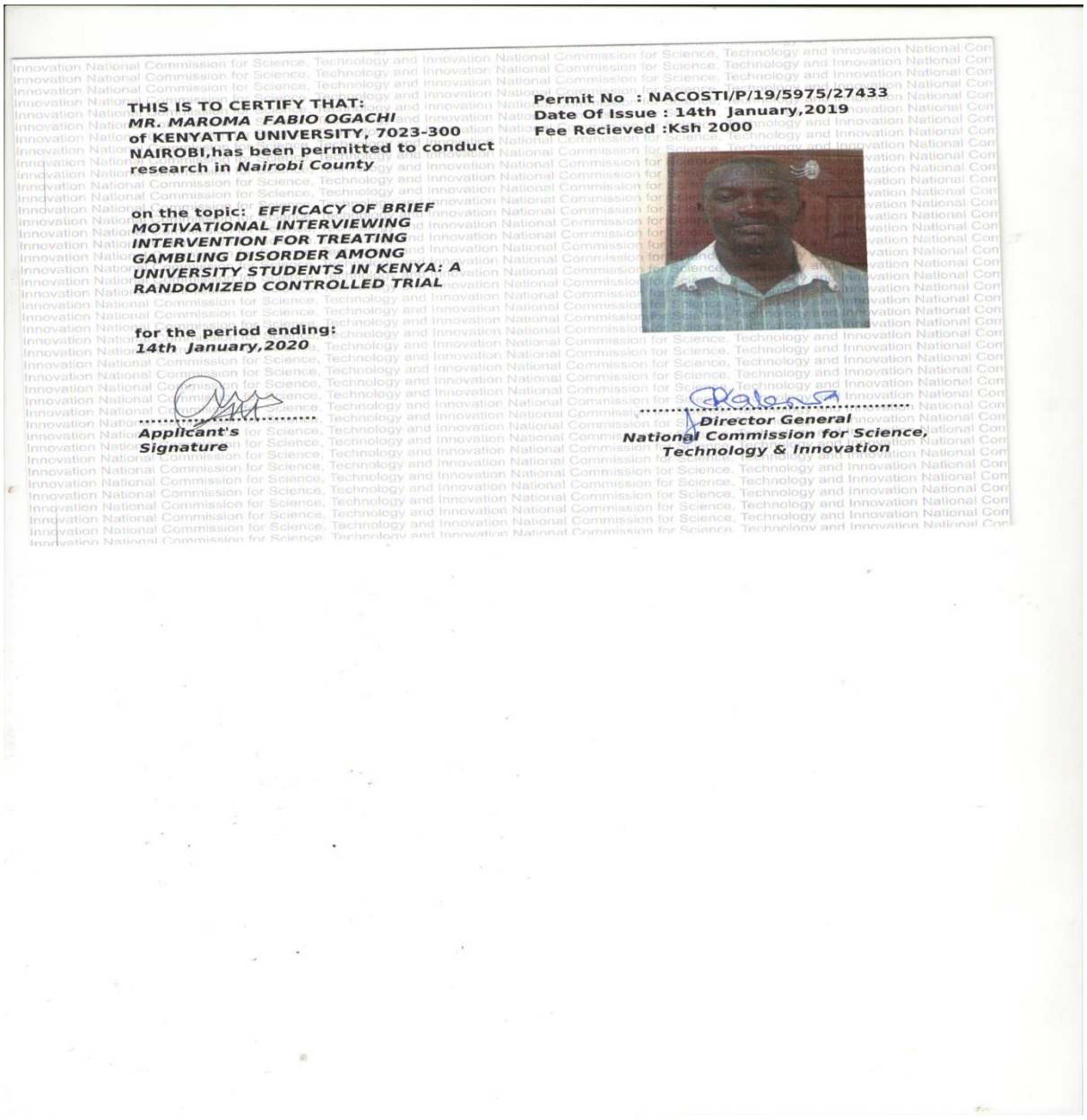
If you have any questions you may contact Dr. Muchiri Karega on 0720008745 or Dr.Eunice Njeri Mvungu on 0727469436 who are my supervisors and members of Department of Psychology, Kenyatta University. You can also contact the Kenyatta University Ethics Review Committee Secretariat on chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke or ercku2008@gmail.com.

I have read and understood the above information and willingly participate in the study.

Signature _____

Date _____

APPENDIX II: RESEARCH PERMIT



THIS IS TO CERTIFY THAT:
MR. MAROMA FABIO OGACHI
of KENYATTA UNIVERSITY, 7023-300
NAIROBI,has been permitted to conduct
research in *Nairobi County*

on the topic: *EFFICACY OF BRIEF MOTIVATIONAL INTERVIEWING INTERVENTION FOR TREATING GAMBLING DISORDER AMONG UNIVERSITY STUDENTS IN KENYA: A RANDOMIZED CONTROLLED TRIAL*

for the period ending:
14th January,2020

.....
Applicant's Signature

Permit No : NACOSTI/P/19/5975/27433
Date Of Issue : 14th January,2019
Fee Recieved :Ksh 2000

.....
Director General
National Commission for Science, Technology & Innovation

APPENDIX III: ETHICAL CLEARANCE

KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE

Fax: 8711242/8711575
Email: chairman.kuerc@ku.ac.ke
kuerc.secretary@ku.ac.ke
Website: www.ku.ac.ke

P. O. Box 43844,
Nairobi, 00100
Tel: 8710901/12

Our Ref: **KU/ERC/ APPROVAL/VOL.1** (271) Date: 3rd May, 2019

Maroma Fabio Ogachi
P.0 Box 43844-00100
Nairobi

Dear Mr. Maroma,

APPLICATION NUMBER: APPLICATION NUMBER: PKU/986/I1037 EFFICACY OF BRIEF MOTIVATIONAL INTERVIEWING INTERVENTION FOR TREATING GAMBLING DISORDER AMONG UNIVERSITY STUDENTS IN KENYA; A RANDOMIZED CONTROLLED TRIAL.

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1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic **"Efficacy Of Brief Motivational Interviewing Intervention For Treating Gambling Disorder Among University Students In Kenya; A Randomized Controlled Trial."** received on 26th February, 2019 and discussed on 12th March, 2019

2. **APPLICANT**

Maroma Fabio Ogachi

3. **SITE**

University Students In Kenya

4. **DECISION**

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines and **APPROVED that the research may proceed for a period of ONE year from 12th March, 2019**

5. **ADVICE/CONDITIONS**

i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this committee immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.
If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

KENYATTA UNIVERSITY
P.O. BOX 43844 - 00100 NAIROBI
APPROVED
14 MAY 2019
OFFICE OF THE CHAIRMAN
ETHICS REVIEW COMMITTEE

PROF. JUDITH KIMIYWE
CHAIRMAN ETHICS REVIEW COMMITTEE

I………………………………accept the advice given and will fulfill the conditions therein.

Signature……………………………… Dated this day of………………………………. 2019.

cc.
DVC-Research Innovation and Outreach

APPENDIX IV: PERMISSION TO COLLECT DATA

Mount Kenya University

OFFICE OF THE VICE-CHANCELLOR

OUR REF: MKU/GEN/11-19/098

11th June, 2019

Mr. Fabio Maroma Ogachi
P O Box 7023-00300
NAIROBI

Dear Mr. Maroma,

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH ON GAMBLING AMONG MOUNT KENYA UNIVERSITY STUDENTS

I acknowledge with thanks receipt of your letter dated 30th May, 2019 on the above subject.

Following consultation, I am pleased to grant you permission to collect data for your doctoral research entitled *"Efficacy of Brief Motivational Interviewing on Treatment of Gambling Disorder among University Students in Kenya"*.

By a copy of this letter, the Director, Research and Innovation is kindly requested to accord you the necessary assistance.

Thank you.

Yours faithfully

Mount Kenya University VICE CHANCELLOR P.O Box 342 - 01000, Thika (K)

Prof. Stanley W. Waudo, Ph.D
VICE-CHANCELLOR

Copy: Deputy Vice-Chancellor, Academic and Research Affairs
Director, Research and Innovation

... SWW/anm

APPENDIX V: TREATMENT PROTOCOL FOR BRIEF MOTIVATIONAL INTERVIEWING INTERVENTION (BMII)

Instructions

- This session is supposed to take 90-120 minutes.
- The ideal number of participants is no more than 30 participants.

Introduction (2-5 minutes)

- Inform the participants that the session is aimed at exploring and discussing gambling issues and how to cope with the challenges.
- Invite the participants to share freely their experiences, thoughts and perspectives about the issue.
- Assure participants of confidentiality.

ASSESSMENT (5-10 minutes)

- Inform participants that you would like to give out questionnaires that ask some questions about their gambling experiences and behaviour.
- Distribute the questionnaires and allow the participants to fill them on their own.
- Encourage the participants to answer the questions as honestly as possible.

FEEDBACK (10-20 minutes)

- After the participants have completed the questionnaire, ask them to tally the total number of "YES" in the first section of the questionnaire.
- Let them write down the tally on a piece of paper

- Collect the filled questionnaires from each of the participants
- Inform the participants what their respective scores mean
- Non-disordered (0-4), mild gambling disorder (5-6), moderate gambling disorder (7-8) and (9) severe gambling disorder.
- Explain to the participants that scores higher than 4 mean that they are at risk of experiencing problems as a result of their gambling and that their gambling may get out of hand and needs to be controlled.
- *Elicit reaction from the participants e.g.* What do you make of that?
- Allow participants time to share their thoughts about their scores and the feedback given

EXPLORATION (15-20 minutes)

- Ask the participants to share their experiences in gambling.
- Further explore more about the negative experiences and gambling harms they experience
- Ask participants what they do with the winnings and what they do when they lose bets.
- Use (OARS) Open ended questions, Affirmations, Reflective listening and Summarize appropriately

PSYCHOEDUCATION (15-20 minutes)

- Provide these key messages on why gamblers keep gambling despite negative consequences:
    - Gamblers fallacy
    - Hot hand fallacy

    - Illusion of control
    - Beginners luck
    - Dopamine and intermittent reinforcement
- Engage the participants by asking them to share their experiences and thoughts about the key messages

OPTIONS (20-30 minutes)

1. Ask the participants:

    - Are you in control of your gambling?
    - How do you know you are in control of your gambling?

2. Allow for responses and sharing

3. Explain the ABCs of controlling gambling

- **A-Abstain from gambling**
- An individual can decide to quit gambling altogether.
- For example, delete all gambling apps from phone, unsubscribe from all gambling sites and avoid any gambling related activities for a specific period of time
- **B-Be faithful**
- An individual can decide to strictly stick to a certain routine of gambling activity.
- For example they can subscribe to only one gambling site, stick to a specific amount to place per bet, not to chase losses, the specific times they gamble

and withdraw all winnings, bet only on weekends, to withdraw wins immediately, avoid having money on your betting account etc.

- **C-Change of attitude**
- In order to control ones gambling, an individual needs to change his or her attitude, perceptions and beliefs about gambling.
- E.g. recognize gambling as a recreational activity rather than an investment
- Treat gambling like any other form of entertainment that costs money
- Balance gambling with other leisure activities.
- Live within their means and engage in productive social activities.

4. Encourage participants to also share some ways in which they can control their gambling

CHALLLENGE (10-15 minutes)

- Challenge the participants to make a plan to control their gambling using some of the options discussed.
- Ask key questions about what they want to change, what is their goal (*e.g. Where does this leave you? Do you want to quit? Cut down? Make no change?*)
- Ask about the plan. (*How will you do that? If you wanted to…how would you? Who will help you? What might get in the way?*)
- Challenge participants to write down a specific plan to control their gambling and stick to it in the next 8 weeks. (*E.g. Intend to only place 50 bob per bet, gamble only twice in a week on weekends only. I intend to withdraw all winnings and not try to recover when I lose.*

- Summarize clients' statements about change and thank the participants for their time and open mindedness.

APPENDIX VI: GAMBLING EXPERIENCES QUESTIONNAIRE-I

Section A

Please tick inside the box that most applies to you

1. Gender ☐ Male
   ☐ Female
2. Year of study ☐ First year
   ☐ Second year
   ☐ Third year
   ☐ Fourth year

Section B

The following questions relate to your gambling behaviour. There is no right or wrong answer. Kindly answer them as honestly as possible.

In the past one year,

QUESTION	YES	NO
1. Have you often found yourself thinking about, Reliving past gambling experiences planning the next time you will gamble Thinking of ways to get money to gamble		
2. Have you needed to gamble with more and more money to get the amount of excitement you are looking for?		
3. Have you become restless or irritable when trying to cut down or stop gambling?		
4. Have you gambled to escape from problems or when you are feeling depressed, anxious or bad about yourself?		
5. After losing money gambling, have you returned another day in order to get even?		

6. Have you lied to your family or others to hide the extent of your gambling?		
7. Have you made repeated unsuccessful attempts to control, cut back or stop gambling?		
8. Have you risked or lost? : a significant relationship because of gambling, educational opportunity because of gambling a job or career opportunity because of gambling,		
9. Have you sought help from others to provide money to relieve a desperate financial situation caused by gambling?		

Section C

10. How often do you bet in a week?

- ☐ Once
- ☐ 2-3 times
- ☐ 4-5 times
- ☐ More than 5 times

11. How much do you typically place per bet?

- ☐ Less than 50
- ☐ 51-100
- ☐ 101-150
- ☐ 151-200
- ☐ More than 200

APPENDIX VII: GAMBLING EXPERIENCES QUESTIONNAIRE-II

Section A

The following questions relate to your gambling behaviour in the past 8 weeks. There is no right or wrong answer. Kindly answer them as honestly as possible.

In the past 8 weeks,

QUESTION	YES	NO
1. Have you often found yourself thinking about Reliving past gambling experiences, planning the next time you will gamble, thinking of ways to get money to gamble		
2. Have you needed to gamble with more and more money to get the amount of excitement you are looking for?		
3. Have you become restless or irritable when trying to cut down or stop gambling?		
4. Have you gambled to escape from problems or when you are feeling depressed, anxious or bad about yourself?		
5. After losing money gambling, have you returned another day in order to get even?		
6. Have you lied to your family or others to hide the extent of your gambling?		
7. Have you made repeated unsuccessful attempts to control, cut back or stop gambling?		
8. Have you risked or lost? : a significant relationship because of gambling, educational opportunity because of gambling a job or career opportunity because of gambling,		
9. Have you sought help from others to provide money to relieve a desperate financial situation caused by gambling?		

Section B

10. How often do you bet in a week?

- ☐ Not gambled
- ☐ Once
- ☐ 2-3 times
- ☐ 4-5 times
- ☐ More than 5 times

11. How much do you typically place per bet?

- ☐ Not gambled
- ☐ Less than 50
- ☐ 51-100
- ☐ 101-150
- ☐ 151-200
- ☐ More than 200