RELATIONSHIP BETWEEN CLASSICALLY CONDITIONED CUES AND HARMFUL ALCOHOL USE AMONG KENYATTA UNIVERSITY STUDENTS IN NAIROBI CITY COUNTY, KENYA

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF LAW, ART AND SOCIAL SCIENCE IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN COUNSELLING PSYCHOLOGY OF KENYATTA UNIVERSITY

OCTOBER, 2024

DECLARATION

DECLARATION BY THE STUDL...

This project is my original work and that it has not been presented for a degree in any other university.

Signature_____Date _____

Julian Makena Micheni

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DECLARATION FROM THE SUPERVISOR

This project has been submitted for examination with my approval as the university supervisor.

Signature _____ Date _____

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DEDICATION

I dedicate this work to my family. A special feeling of gratitude to my loving husband John Mwangi and my beloved children Felister, Annrita, James and Charity whose words of encouragement and push for tenacity ring in my ears.

ACKNOWLEDGEMENT

I am deeply thankful to Almighty God for providing me with strength, health, and grace in completing this research project. I extend my heartfelt gratitude to my supervisor, Dr. Agnes Nthangi, whose extensive knowledge and rich experience have been invaluable and educational throughout this process. I also wish to acknowledge my friend, Miss Lilian Tunai Mulati, for her unwavering support along the way. Her encouraging words kept me motivated and focused.

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LIST OF ABBREVIATIONS

CR	Conditioned Responses
CS	Conditioned Stimulus
DCC	Drug Control Commission
DSA	Drug and Substance Abuse
NACADA	National Authority for the Campaign against Alcohol and Drug Abuse
UN	United Nations
UNDCP	United Nations Drug Control Programme
US	Unconditioned Stimulus
USA	United States of America
WHO	World Health Organization

OPERATIONAL DEFINITION OF KEY TERMS

Alcohol Consumption: This is drinking of alcoholic beverage.

Conditioned response: Response that is same to unconditioned responses but triggered by stimulus conditions.

Conditioned stimulus: This is a condition considered to have happened when a stimulus that was previously neutral begins to elicit a response after being paired with an unconditioned stimulus that is identical to the reaction produced by the unconditioned stimulus.

Cues: Something thing said, done, seen, smelt, or felt that serves as a signal or a trigger.

Neutral stimulus: This is a stimulus that, prior to training, elicits no response

Harmful alcohol use: This is a pattern characterised by excessive use of alcohol that results in physical health problems or psychological harm to the individual.

Presence of drinking peers: Situation in which an individual is surrounded by friends, colleagues, or acquaintances who are involved in alcohol use.

Prevalence of alcohol use:	Proportion of university students that has consumed alcohol within a specified time period, usually within the past year or month
Situational cues:	External stimuli in a particular context that can trigger certain behaviours or emotional responses in individuals.
Subjective emotional mood:	Internal, subjective experience of a person's emotional state or affective state, including feelings such as happiness, sadness, anger, and anxiety.
Temporal Conditioning:	This is considered to have happened when each unconditioned stimulus tends to be followed by the conditioned response.
Unconditioned response:	This is an instinctive reaction to an unconditioned stimulus.
Unconditioned stimulus:	This is a stimulus that brings about a response naturally.

ABSTRACT

Overindulgence in alcohol among university students has been associated with negative outcomes worldwide. Numerous detrimental health and behavioral outcomes among youths, such as poor mental health and wellbeing, increased injury, being victims of crime, and subpar academic performance, have been connected to these observed alcohol levels. The purpose of this study was to investigate the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi City, Kenya. The classical conditioning, operant conditioning, and social learning theories were used to guide the study. The study used the correlational research method, and the sample size was determined using the table created by Krejcie and Morgan (1970), yielding a sample size of 381 respondents. The researcher screened the general population of students using the World Health Organization Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) Volume 3.0. Questionnaires with Likert scale questions were also used to collect data. Those who met the criteria of moderately high or high risk were included in the study. Simple random sample design was used to select the study participants. The Statistical Package for Social Sciences (SPSS) version 26 aided in the analysis of data from questionnaires. This data was subjected to both descriptive analyses using percentages and mean scores and inferential statistical analysis. Pearson correlation coefficient test to test the null hypotheses to establish if there are significant relationships between independent and dependent variables. The study established that a significant proportion of the respondents engage in regular alcohol consumption, with the majority (50.8%) consuming alcohol 1-4 times weekly. This indicates a potentially moderate level of alcohol use within the surveyed population. Also, a significant association was found between subjective mood, classical conditioning cues, and harmful alcohol use among students. There is a significant association between subjective mood classical conditioning cues and harmful alcohol use among students. The P-value in inferential statistics is 0.437, which is therefore an indication of a significant relationship between the two variables. There is a significant impact of situational classical conditioning cues on students' harmful alcohol use. P-value = 0.089 and <0.05, therefore an indication of a strong relationship between situational classical conditioning cues and harmful use of alcohol among students. The presence of drinking peers plays a significant role in shaping harmful alcohol use among students. r=0.364, which is <0.05. The results demonstrated a high percentage of students who agreed or strongly agreed with various statements regarding peer influence and alcohol consumption. Temporal conditioning cues significantly contribute to alcohol cravings among students, hence influencing harmful alcohol use. Among the recommendations, there is need for the university to develop and implement policies and practices in educational institutions, bars, and social venues within the institutions to minimize the visibility and availability of alcohol cues, especially for students living in the university's halls of residence. This may involve strategic placement of non-alcoholic alternatives in shops and other outlets within the institution, minimizing alcohol-related visuals, and implementing responsible alcohol serving practices, especially close to learning institutions such as universities.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

According to the World Health Organization (WHO, 2016), destructive consumption of alcohol is a main problem globally. A study by Obiechina and Isiguzo (2016) observed that harmful use of alcohol is among the most tenacious worldwide issues that practically every nation faces and continues to grapple with. WHO (2018) observed that 2.4 billion people globally are current drinkers of alcohol, 47.1% of whom are young people aged 18-35 years. According to WHO (2018), the numbers of people consuming alcohol worldwide continue to increase despite people's awareness of its associated negative outcomes, which include morbidity, mortality, disability, economic burden, and broken relationships, among others.

These observations by the World Health Organization on harmful alcohol use are supported by various research studies in different parts of the world. For example, Hingson et al. (2016) conducted a study over a period of 10 years between 1996 and 2005. The study applied a longitudinal research design and established that there were more than 32,696 Australian citizens aged 15 who had died as a result of illnesses and injuries brought on by binge drinking. The findings also showed that 813,072 more Australians who were 15 years of age or older were admitted to hospitals between 1996 and 2005 because of alcohol-caused injuries and diseases. In 2017, UNDCP issued a report indicating that there is harmful consumption of alcohol among youths in the age bracket of 15-20 years, and in Pakistan, the number had doubled to 20 percent. Another report by the WHO (2016) indicated that usage of alcohol in China was on an uptrend while the age of new users was on the decline. In the same report, the Czech Republic recorded that 37% of new alcohol consumers were teenagers in the age bracket of between 15 and 19 years.

When it comes to restrictions on access to alcohol, Germany has the lowest age. From the age of 16, Germans are permitted to use fermented alcohol like beer, wine, and even sparkling wine. Surveys on the use of alcohol in the recent past show that 90 percent of adolescents aged between 14 and 16 have used alcohol at least once in their lives, while another 62 percent of the same group uses alcohol at least once a month (Fabian, 2022). In Spain, Goldberg-Looney et al. (2016) note that fresh and most recent research surveys in Spain have shown that drinking among adolescents is particularly becoming a large health concern. In Spain, alcohol is mostly consumed by teenagers at family meals, but the trend has since changed and been replaced by social drinking with friends on weekends.

The surveys also show that up to 41.6% of adolescents within the age bracket of between 14 and 18 years take alcohol in public parks and squares during weekends. This leads to noise and disturbance and also litters the streets. In Romania, the ESPAD 2007 survey Hibell et al. (2009), as cited in Van and Moll (2012), found that 74% of Romanian students indicated having drunk alcohol in the past 12 months (average 82% in Europe). This is a worrying trend, which raises the question of what could be the motivation behind this behavior. Studies also reveal a similar trend in Africa. A study conducted on South African youths, for example, in 2011, found that the prevalence of alcohol abuse stood at 39.1% (Skynews, 2014). The 2016 global burden of disease study shows that Nigeria was among the countries with the highest prevalence of alcohol use among teenagers aged 15 and older in Sub-Saharan Africa (SSA). This accounted for 40 to 59.9% of the population level, covering both genders (GBD, 2016). According to Hormenu (2018), in Ghana, a study conducted to assess the prevalence of alcohol use among youths in Accra revealed 56.9% girls and 43.1% boys, with a mean age of 17.4 years. In Namibia, a report on patterns of consumption of alcohol shows

that the total consumption per capita from 15 years and above in 2010 was 27.7% (liters of pure alcohol) among both males and females (Sheehama et al., 2020). The findings also show that 28.4% of youths consume alcohol at least once a week, while 6.8% consume alcohol daily. NACADA conducted a study, and the findings show that alcohol is the most commonly abused substance, with 36.3% of students reporting having used it in their lifetime (NACADA, 2016). This stresses the need for this inquiry, which is trying to unearth possible motivations behind high alcohol consumption.

Studies conducted in universities worldwide also report a high prevalence of harmful alcohol use among university students. A study conducted by Dantzer et al. (2016), for example, found that approximately 60% of university students in the USA and 48.9% of those in Asia abused alcohol. Various research studies have been conducted in universities in Nigeria, Uganda, South Africa, and Ethiopia, and the findings have shown that consumption of alcohol ranged from 27.5% to 62% (Nwanna et al. 2018). In Nigeria, one of the universities recorded a prevalence of 27.5% among undergraduate students. In Kenya, a high prevalence of alcohol use ranging from 20% to 68% has been established in different universities, including Kenyatta University and the University of Eldoret (Ndegwa et al., 2017; Tumuti et al., 2014). These statistics justify the choice of university students as the target population for this study.

Among the many factors that have been associated with this high consumption of alcohol globally, classical conditioning is one of them. Classical conditioning refers to a form of conditioning in which a neutral or previously meaningless stimulus is directly linked with logically expressive inducements that tend to become substitutes for the stimuli themselves, hence eliciting similar responses (Cherry, 2022). The response is reflexive, where the organisms exercise no control over the situation and the organisms' actions produce no change in their environment. Alcohol has powerful effects that have

the capacity to act as unconditioned stimuli (US) (Ahmed, 2012).

During repetitive episodes of alcohol consumption, various relatively neutral stimuli are paired with alcohol ingestion, which is a strong unconditioned stimulus. As a result, neutral stimuli are likely to acquire conditioned stimulus properties. This conditioned stimulus stimulates the same responses in the absence of alcohol. It is commonly assumed that the context of alcohol administration acquires influence over alcohol's effect by means of conditioning (Attwood et al., 2013). Due to similarities between the sequence of events in conditioning experiments and those in alcohol-taking situations, there is a need to investigate the relationship between classically conditioned cues and harmful alcohol use. Four cues have been identified for investigation in this study: subjective mood, situational, the presence of drinking peers, and temporal conditioning. Subjective emotional mood refers to the internal, subjective experience of a person's emotional state or affective state, including feelings such as happiness, sadness, anger, and anxiety (Davidson et al., 2019). It is a complex construct that involves both affective and cognitive components and can vary in intensity, duration, and value. According to Kuppens et al. (2021), recent research has focused on the role of subjective mood in various aspects of human behavior and well-being, including social relationships, decision-making, and mental health outcomes. Subjective mood may make youths have unfavorable self-evaluation, not to love and accept their talents, to involve in antisocial activities, and to rely on their feelings (Alavi, 2011). Some studies with young people have reported negative associations with higher levels of drinking associated with subjective moods, while others have reported a lack of association between harmful alcohol use and subjective mood.

At the global level, Hasking et al. (2012) examined the relationship between positive emotional states and alcohol use among university students in Australia. The study

found that positive emotional states such as excitement and happiness were associated with increased alcohol use among university students. In Africa, a study by El Ansari et al. (2013) investigated the relationship between social and psychological factors and alcohol use among university students in North Africa. The study found that social factors such as peer pressure and the availability of alcohol were significant predictors of alcohol use among university students. The study also found that psychological factors such as stress and anxiety were significant predictors of harmful alcohol use among university students. Another study by Muturi and Kimathi (2014) in Kenya investigated the relationship between classical conditioning cues and alcohol use among university students in Kenya. The study found that students who reported higher levels of exposure to emotional mood and classical conditioning cues were more likely to engage in harmful alcohol use.

One study that has reported a lack of association between harmful alcohol use and subjective moods among university students is the research conducted by Jones et al. (2017). Contrary to the hypothesis that higher levels of alcohol use would be associated with more negative subjective moods, the findings of the study did not support this relationship. The researchers found no significant association between harmful alcohol use and negative affect. Based on these differences in terms of the influence of subjective mood on harmful alcohol use, the researcher hypothesizes that alcohol use among university students is not related to a single pattern; hence, it would be interesting to find out the direction of the relationship, if any, through this study.

Situational cues refer to external stimuli in a particular context that can trigger certain behaviors or emotional responses in individuals (Scherbaum et al., 2021). They can include environmental factors such as sights, sounds, smells, and social settings. These cues can influence the way people perceive and respond to their surroundings and can

have a significant impact on behavior and decision-making (Jansen et al., 2020). There are fears that when students, especially youths, are exposed to advertisements for alcohol use on various online platforms, they are likely to be influenced by alcohol consumption. According to D'Amico et al. (2018), youth have a high potential when it comes to exposure to online materials marketing alcohol since they spend most of their time on the internet.

Nhean et al. (2014) carried out a study and found that by 2012, there were more than 1,000 alcohol-related sites on Facebook alone. Also, in a study conducted by Barrett et al. (2017) in the United States, situational cues were found to be a significant predictor of alcohol consumption. The study found that exposure to alcohol-related cues, such as advertisements, movies, and social situations, increased the likelihood of drinking and heavy drinking. Odeyemi et al.'s (2014) study in Nigeria relating to the influence of media on alcohol consumption among university students indicated that their major sources of information on alcohol consumption were television, radio, and books. A study by Makanjuola et al. (2016) in Nigeria found that situational cues related to the presence of alcohol in ceremonies can increase the likelihood of harmful alcohol use among individuals who participate in these events. This aspect was further confirmed by Hassan's (2013) study on University of Nairobi students, who established an association between environment and alcohol consumption that was significant at $p = 0.002$. Therefore, this correlational study aims to offer some insight into the resulting relationship between some identified environmental cues and university students' consumption of alcohol at the university. Similarly, a study by Karanja et al. (2018) in Kenya found that situational cues, such as peer pressure and the availability of alcohol, were important predictors of alcohol use among adolescents.

Overall, these findings emphasize the role of situational cues in influencing harmful

alcohol use behavior among different populations. The presence of alcohol-related cues in various contexts, including media, social settings, and traditional ceremonies, can contribute to increased alcohol consumption and harmful alcohol use. Therefore, understanding the impact of these cues is crucial for developing effective alcohol-related policies and interventions to mitigate the risks associated with harmful alcohol use among young people and university students.

The presence of drinking peers was another classical conditioning cue of interest in this study. According to Merriam-Webster (2022), this is a feeling that one must do the same things as other people of one's age and social group in order to be liked or respected by them. University students are surrounded by other people experimenting with recreational and performance-encouraging alcohol use in order to fit in their peer groups. In China, Leng et al. (2009), as cited by Ding (2018), did a study on the behavior, expectation, and recognition of drinking alcohol and their related factors among university students in Yantai. The study concluded that almost half of the university students in their study (43.4%) initiated their alcohol drinking due to persuasion from friends. This means that harmful alcohol use may occur in contexts where social influence through others may operate and is embedded within many social rituals (Office for National Statistics, 2019). In Morocco, Muhia (2021) cites Morrison (2004), whose study found that 13% of teens are introduced to the use of alcohol by their peers. Similarly, in West Ethiopia, a study by Wubet (2021) on the relationship between negative peer pressure and drinking alcohol among adolescents, including university students, noted that negative peer pressure was significantly correlated with drinking alcohol.

In Kenya, the Wakoli (2020) study concluded that alcohol use among university students is rampant and that there is a significant association between the presence of

drinking peers and harmful alcohol use among university students. A countrywide needs assessment study undertaken by NACADA (2017) revealed that harmful alcohol use has permeated all strata of Kenyan society, with youth and young adults, especially in universities and middle-level colleges, being the most affected groups due to peer pressure. This therefore means that it is necessary to investigate how the presence of drinking peers influences harmful alcohol use among this group. Temporal conditioning was another cue of interest. This is a condition wherein the unconditioned stimulus is given on a regular basis without a conditioned stimulus to go along with it (American Psychological Association, 2022). For example, the tendency of an alcoholic to crave alcohol during a social event or at a specific time of the day. The fact that alcohol is readily available at social events and easily becomes the main thirst quencher and a substitute for food when other options are not available increases the rate of alcohol consumption. Dealers usually have a consistent flow of customers because the culture requires hospitality, and therefore the usage of alcohol is inseparably linked to social rituals and events.

Finlay et al. (2012) addressed the relationship between leisure activities and social weekends and the use of alcohol among students in their first year of college in the United States. The study established that alcohol usage is higher among students who spend most of their time in athletics and socializing. Another research study conducted by Nyandu and Ross (2019) in South Africa addressed alcohol consumption among undergraduate students taking social work, and the findings show that 88% of the students consume alcohol for social purposes while attending social events. Therefore, concerns over young drinkers have become acute, especially with reference to university students. It would be interesting to find out whether temporal classical conditioning cues such as partying have a role to play in this negative outcome.

Grocotts (2011) notes that classical conditioning can be a useful means of understanding the reasons why alcohol abusers keep the habit even though they are aware of these devastating consequences. Few correlational studies are available to inform stakeholders of possible associations and the strength of such associations if present. This study, which intends to investigate the relationship between classical conditioning cues and alcohol consumption among Kenyatta University students in Nairobi City County, Kenya, is an effort by the researcher to address this need.

1.2 Statement of the Problem

Alcohol abuse is a global problem that has been associated with many negative outcomes including risky social behaviour, financial losses and sickness and death. Current statistics indicate that the problem accounts for 3.3 million deaths every year worldwide (Sudhinaraset. 2016). Despite widespread sensitization on these harmful effects, many people globally, especially the youth including university students continue to actively engage in harmful use of alcohol. This outcome has been associated with several adverse outcomes for example cessation of studies, poor academic performance health problems and risky sexual behaviours .among others. The high prevalence of harmful use of alcohol appears to be influenced by various environmental and psychological factors. One such factor has been found to be classically conditioned cues—specific stimuli that have been consistently paired with alcohol consumption, leading to an automatic desire to drink when these cues are present. Despite this theoretical understanding, there is limited empirical evidence on how these cues contribute to excessive alcohol use among university students in Kenya. The scarcity of localized studies on this topic leaves a gap in understanding how conditioned responses to alcohol-related stimuli may influence students' drinking behaviours. This study, whose aim is to investigate the relationship between classically conditioning cues

and harmful use of alcohol among Kenyatta university students in Nairobi County Kenya, is an attempt by the researcher to bridge this gap.

1.3 Purpose of the Study

The purpose of the study was to establish the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi, city county Kenya.

1.4 Research Objectives

The following goals guided the study:

i. To establish the prevalence of alcohol use among Kenyatta University students in Nairobi City County, Kenya.
ii. To establish the relationship between subjective emotional mood classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.
iii. To find out the relationship between situational classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.
iv. To determine the relationship between presence of drinking peers classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.
v. To find out the relationship between temporal classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

1.5 Research Questions

i. What is the prevalence of alcohol use among Kenyatta University students in Nairobi City County, Kenya?

1.6 Research Hypothesis

$H_0$1 There is no significant relationship between subjective emotional mood classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

$H_0$2 There is no significant relationship between situational classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

$H_0$3 There is no significant relationship between presence of drinking peers classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

$H_0$4 There is no significant relationship between temporal classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

1.7 Justification and Significance of the Study

The use of alcohol in universities and colleges across Kenya poses a serious threat to the delivery of Vision 2030 and the general wellbeing of students. This study, through its findings and recommendations, will help the university administration come up with institutional policies to address harmful alcohol use among the students, thus mitigating negative impacts such as poisoning, blackouts, decline in academic performance and achievement, increased violence, damage to property, and increased cases of physical assault.

Harmful use of alcohol has been associated with risky sexual behavior among young adults and university students. The findings of this study will therefore help public

health officials and policymakers come up with appropriate policies and relevant measures for behavior change among university students and reduce the spread and transmission of sexually transmitted infections, including HID/AIDS and unwanted pregnancies, among others.

Few studies have been done in this area, and therefore, by analyzing the relationship between classical conditioning cues and harmful alcohol use among Kenyatta University students, the study will add to the existing literature and bridge the existing knowledge gap. This study will therefore benefit other scholars and researchers by laying the foundation for future research studies to be conducted in the same or related fields.

By establishing the relationship between classical conditioning cues and harmful alcohol use among university students, this study will shed light on the high prevalence of alcohol abuse among university students and provide relevant bodies such as NACADA with information that will aid in the fight against excessive use of alcohol among university and college students. The findings from the study will inform counselors, psychologists, and social workers working with university students in institutions of higher learning to better understand the dynamics of alcohol abuse among students and to develop the necessary treatment interventions.

1.8 Scope and Limitation of the Study

This research was done at Kenyatta University in Nairobi City County, Kenya. Two variables were investigated, namely harmful alcohol use and classical conditioning cues, which included subjective emotional mood cues, situational cues, the presence of drinking peers' cues, and temporal conditioning cues. The study involved Kenyatta University students undertaking undergraduate degree courses only.

In terms of limitations, some respondents may have failed to give accurate information based on the invasion of their privacy, as they may not want people to know if they are struggling with alcohol abuse. To overcome this, the researcher established rapport with the students and promised the secrecy of the provided data. Though the researcher adhered to research ethics and academic honesty, it was not easy to completely eliminate subjectivity from the respondents. Therefore, the researcher explained to the respondents that the study is purely for academic purposes and not motivated by any other interests whatsoever. The researcher assured the participants of the utmost confidentiality regarding the shared information.

1.9 Assumptions of the Study

The study was guided by the following assumptions;

a) The participants were honest in providing information.

b) Some Kenyatta university students were involved in harmful use of alcohol.

c) The participants were actively engaged with classical conditioning cues.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The investigation's goal was to establish the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi, City County, Kenya. This chapter discusses the theoretical framework, literature related to the study guided by the study objectives, an overview of the reviewed literature, and the conceptual framework.

2.2 Theoretical Framework

This study was anchored on classical conditioning theory.

2.2.1 Classical Conditioning Theory

The key proponent of classical conditioning was a Russian psychologist, Ivan Pavlov (1849–1936). Pavlov discovered classical conditioning while investigating the automatic reflexes of animals. Pavlov did an experiment involving the dogs and the ringing of the bell, where he started ringing the bell every time he wanted to give the dogs food. He paired the bell with the arrival of the food. Pavlov formed an association between unconditioned stimuli (food) and conditioned stimuli (the sound of the bell). Eventually, Pavlov realized that the dogs would salivate at the mere sound of the bell, even when the food was not presented. In the experiment, a neutral stimulus is a stimulus that does not generate any response before conditioning, e.g., the ringing bell. Unconditioned stimuli, such as food or meat, elicit a reaction spontaneously. A previously neutral stimulus becomes conditioned when it is combined with an unconditioned stimulus (such as a ringing bell) and begins to elicit a response akin to that of the unconditioned stimulus. Salivation is an example of an unconditioned response that occurs naturally in response to an unconditioned stimulus. In contrast,

conditioned responses are comparable to unconditioned responses but are produced in reaction to conditioned stimuli.

Just as in the case of dog salivation, when the presentation of food is paired with the bell, the same association may occur between places where alcohol is sold and the desire to take it. Some cues, such as smells, tastes, and sight, would act as a cue to a specific response, like a craving for alcohol. For example, if someone always drinks alcohol in the house while at home, the house and the alcohol form a paired association. The house in this case forms the conditioned stimulus (a cue). This means that the house can create strong cravings for alcohol even when the person has no intention of taking it. Cue reactivity shows that alcohol-dependent people react more strongly, both subjectively and physiologically, to cues associated with alcohol consumption. These responses are thought to be functionally connected to the desire to drink. A stimulus is considered to be within the range of a person's stimulus generalization in classical conditioning. Despite their knowledge that the stimulus is not a part of their own history, they nevertheless adhere to this generalization. This study investigated four cues related to alcohol use: situational, subjective mood, the presence of drinking peers, and temporal cues. This theory put into perspective how behavior is conditioned; hence, it adequately informed this study, which sought to find out the extent to which classical conditioning cues influence alcohol consumption behavior.

According to this study, there are four cues that influence alcohol consumption. The first one is situational influence. Here, the onset of the conditioned stimulus (CS) precedes the onset of the unconditioned stimulus (US) to signal that the US will follow, such as the sight of a bottle of beer or a bar increasing the craving for alcohol. Subjective mood occurs when a CS immediately follows a US. The third form of conditioning is

influenced by the presence of drinking peers. In this study, this is the tendency of those who use alcohol to continuously take alcohol as long as a friend who is taking it is present. Lastly, there is the temporal conditioning cue, which involves factors like the tendency of an alcoholic to crave alcohol at a specific time of the day. This theory was relevant to the study because it put into perspective how behavior is conditioned and adequately informed this study, which seeks to find out the extent to which classical conditioning cues influence alcohol consumption behavior.

At Kenyatta University, certain environmental or social factors may serve as conditioned stimuli that trigger harmful drinking behavior. Parties, night events, and social gatherings where alcohol is consumed can become conditioned stimuli. Students may start associating these events with alcohol consumption, leading to an automatic urge to drink when exposed to similar settings. Bars near campus, particular dormitories, or specific sections of the campus where students frequently consume alcohol can become associated with drinking. Being in or near these places may trigger cravings or increase the likelihood of alcohol use. Certain friend groups or social interactions may become conditioned cues for drinking. If students frequently drink with specific groups, the mere presence of these individuals could trigger alcohol consumption.

2.3 Critical Review of Literature

2.3.1 Prevalence of Harmful Alcohol Use among University Students

A high prevalence of harmful use of alcohol has been recorded in various parts of the world. A study by Harrell and Karim (2008), as cited in Al-Ameri (2016), conducted in the United States addressed the prevalence of alcohol use among university students. It took a sample of 266 female and 140 male students from both private and public universities. In the findings, there was significantly higher alcohol intake among male

students compared to their female peers. These findings are consistent with the findings of another research study from the United States that was conducted and published two years earlier. Despite the fact that the problem of alcohol consumption is evident in many countries around the globe, very few articles have been recorded in European countries and Australia. Additionally, there is very scanty information on drinking patterns among college students in many parts of the world, with the most conspicuous areas being the Middle East region, especially in the Arab countries (Al-Ameri, 2016). Both cultural and religious affiliations of the students form an important aspect of and impact on alcohol use in these countries. Islam as a religion forbids the use of alcohol. However, studies have shown the presence of alcohol consumption cases among students, especially male students, in Arab universities despite these restrictions. Ghandour et al., 2014). These studies also show that 11% of the students in Lebanon who participated in the study consumed alcohol, while in Iran, 6.9% were using alcohol (Abbasi-Ghahramanloo, 2015).

Sub-Saharan African countries are equally affected by the high prevalence of harmful alcohol use. For example, evidence from the 2016 Global Burden of Disease study estimated that Nigeria was one of the countries with the highest prevalence of current alcohol use among adults, both males and females, including university students (Lasebikan et al., 2018). In a mixed-methods study of 1119 participants who were purposively sampled in Ibadan, Nigeria, Lasebikan (2018) found out that out of the 1119 respondents, the prevalence of current drinkers was 995, which represented 88.9% of the sample. This figure represents a significantly high proportion of youth drinkers who technically require intervention. This study therefore will aim at exploring the connection between classical conditioning cues and such cases of high prevalence of alcohol consumption, especially among university students. In the researcher's

perspective, this may be attributed to the fact that there is no working policy in Nigeria to address alcohol, which therefore limits the efforts of alcohol manufacturing companies to formulate effective alcohol control policies.

Excessive use of alcohol among university students has been found to have adverse effects on health and academic achievement among learners. According to Hongthong & Areesantichai (2014), a recent research study shows alcohol consumption as a major health concern among youths. Excessive alcohol use is considered one of the leading patterns of substance abuse and a cause of public health concern in many countries today (Marshalt, 2012). According to the WHO (2016), harmful use of alcohol is the cause of 3.3 million deaths annually, especially in western countries such as Ireland (OECD, 2014), the United States of America, and the United Kingdom (Heather et al., 2013). Under these circumstances, the harmful use of alcohol leads to an increased risk of harmful consequences for the consumer or other people, showing negative effects on their motivation to study and therefore closely associated with poor academic performance (Ansari, 2013). Hazardous alcohol consumption has been singled out as a major substance abuse problem among university students during their student lives in many countries. A number of comprehensive review studies at many European universities have agreed with this position.

Various surveys conducted in institutions of higher learning in both Uganda and Ethiopia have shown that there is a high prevalence of alcohol consumption, ranging between 27.5% and 62% (Kassa et al., 2014; Nwanna et al., 2018). Tilahul and Worku (2020) conducted a study on the present rate of alcohol consumption, which is related to various factors among school adolescents and youths in Ethiopia. The two utilized a cross-sectional study among adolescents and youths between 12 and 24 years old,

including those in universities. In assessing the quality of these studies, the Joanna Briggs Institute critical appraisal tool was used. A total of 26 studies were included in the final analysis, in which there were 17,880 participants. The prevalence of alcohol use among the pooled population was 27.0% (95% CI = 22.0–32.0), while the prevalence of current alcohol consumption among university students was 29%.

Another study conducted among Haramaya University students in Ethiopia established a high prevalence of alcohol use at around two-thirds, i.e., 62.4% of the participants used at least one substance, with the most common substance being alcohol at 50.2% (Tesfaye et al., 2014). Gebreslassie et al. (2013) also conducted another research study at Axum University, and the findings show that there is a lifetime prevalence of alcohol usage of 34.5% and a current prevalence of 32.8%. Another research study was conducted by Tsegay (2014) to establish consumption of alcohol at Debre Markos University, and the findings showed that there was a high prevalence of 33.8%. In Hawassa, Kumesa et al. (2015) conducted a study and established that 40.8% of the students' consumer alcohol was consumed, while another research survey among RVUC students also noted a lifetime alcohol use prevalence of 40.2% and a current prevalence of 35.6%.

In Uganda, a study by Kamulegeya et al. (2020) carried out among university students in the country over a period of 5 months showed that there was heavy episodic drinking and alcohol misuse among students. The study used a standardized socio-demographic questionnaire that was screened for alcohol use. It concluded that there was a prevalence of maladaptive patterns of alcohol use, low-risk drinking, and heavy episodic drinking, which ranged from 31.3%, 17.3%, 4.5%, and 8.9%, respectively. However, the current study has used a correlational research design to bring out the

prevalence of alcohol consumption among university students in Kenya and how it is related to classical conditioning cues.

There is a greater prevalence of alcohol usage in Kenyan universities, ranging from 20% to 68% (Atwoli et al., 2011; Ndegwa et al., 2017). This information differs from the results of a study conducted by Kanga (2022), which utilized a descriptive design in assessing the prevalence of alcohol use among university students at Chuka University. The study used a sample size of 384 respondents and indicated that there was a low prevalence of alcohol use among students at the university, therefore concluding that a low fraction was addicted. This was supported by the fact that, according to the study, only 8% of the students consumed alcohol daily, while 17% of them took alcohol over the weekends. This current research study will use a correlational research design to establish the prevalence of alcohol consumption among university students while connecting the norm to classical condition cues. According to a baseline research survey conducted in June 2010, 33% of students abuse alcohol (JKUAT, 2011), as cited by Boitt (2016). The National Authority for the Campaign against Alcohol and Drug Abuse (NACADA) revealed a significant rate of drug and alcohol use among young people, especially university students, in a baseline survey on alcohol consumption done in 17 counties in 2012 (Masese, 2020). Therefore, based on the material reviewed, the following concerns need to be addressed: Is there a problem with harmful alcohol consumption among Kenyan university students? Are young boys and girls aware of the negative effects drinking alcohol can have on their health and general well-being? Is the rise in dangerous alcohol use directly related to cues from classical conditioning? These are the inquiries that spurred the investigation.

2.3.2 Relationship between Subjective Emotional Mood Classical Conditioning Cues and Harmful Alcohol Use

Subjective emotional moods refer to an individual's self-reported experience of affective states, such as happiness, sadness, anger, fear, and other emotions (Forgas, 2018). These subjective experiences are influenced by both internal and external factors, such as personal beliefs, values, physiological states, social situations, and environmental cues. A significant proportion of individuals consume alcohol to cope with negative emotions, such as stress, anxiety, and depression, which can lead to harmful alcohol use. Several studies have shown that emotional mood states and classical conditioning cues can significantly influence alcohol use among university students. Several research studies have been conducted to examine the extent to which subjective emotional moods influence the harmful use of alcohol among university students.

Leyvers et al. (2019) conducted a research study on personality and alcohol-related risks, which included neuroticism, extraversion, and alexithymia, and targeted 285 male and female students who consume alcohol in two universities in southeast Queensland, Australia, and the general public through Facebook. It made observations that when neuroticism scores were entered at step 2, they explained a significant 7% of additional variance in AUDIT, ΔF (1, 280) = 20.83, $p < .0001$, which resulted in a significant model, F (4, 280) = 6.97, $p < .0001$. Consequently, the study concluded that neuroticism is associated with being prone to negative moods; a reliance on consumption to cope with such states may account for the links between both traits and risky or problematic drinking in line with Cloninger's Type I alcoholism. This research study focused on personality as one aspect of classical conditioning cues and did not address other significant areas.

Another study conducted by Lammers et al. (2020) aimed to do a meta-analysis that compiled findings from various experimental studies conducted in different countries. The authors examined the link between negative effects and alcohol use in 75 countries worldwide. As this study is a meta-analysis of experimental studies, it included a synthesis of multiple individual studies rather than a single sample size. The authors found a significant positive correlation between negative affect and alcohol use across all countries, indicating that individuals experiencing negative affect are more likely to engage in harmful alcohol use. A similar study was done by Grant et al. (2017) on the prevalence of 12-month alcohol use, high-risk drinking, and DSM-IV alcohol use disorder in the United States. The study was targeted at the general population of the United States and involved a sample size of 36,309 participants aged 18 years and older. The study found that individuals with a history of major depression were more likely to develop an AUD than those without such a history.

A study by Assanangkornchai et al. (2010) investigated the prevalence and predictors of alcohol use among university students in Southeast Asia and Thailand. The study utilized data from the National Household Survey of 2007. The study found that the prevalence of alcohol use among university students in Southeast Asia was high, and emotional mood states such as stress and anxiety were significant predictors of alcohol use. The study also found that students who reported high levels of stress and anxiety were more likely to engage in harmful alcohol use.

In Africa, Makanjuola et al. (2018) examined the role of classical conditioning cues in the development and maintenance of AUDs among university students in Nigeria. A total of 1329 youths were selected and invited to participate in this study. Out of these, 1213 completed the questionnaires. The authors found that individuals with a history

of AUDs were more likely to experience cravings when exposed to cues that had previously been paired with alcohol use, highlighting the importance of classical conditioning cues in the development and maintenance of AUDs in these populations. The authors found that individuals with a history of AUDs were more likely to experience cravings when exposed to cues that had previously been paired with alcohol use, highlighting the importance of classical conditioning cues in the development and maintenance of AUDs in these populations.

In Kenya, a study by Mbwayo et al. (2013) on factors associated with alcohol use among university students in Kenya. Mbwato et al. (2013) conducted a study in Kenya on the variables that relate to alcohol consumption among university students. The study's sample consisted of 816 participants, and it was found that emotional mood states such as stress and depression were significant predictors of harmful alcohol use. Additionally, the study discovered that learners who expressed significant levels of stress.

The study also found that students who reported high levels of stress and depression were more likely to engage in harmful alcohol use. Another study by Oteyo and Karuiki (2009) examined the degree to which certain variables influence alcohol consumption using an ex post facto research design where the independent variables were studied retrospectively. Purposive sampling, multistage clustering, and probability proportionate to size were the strategies employed to choose the participating schools and participants. A self-administered questionnaire was utilized to choose 327 students from a total population of 2279 students from nine sampling schools. More than half of the kids who use alcohol exhibit low or medium dignity difficulties as they approach the emerging maturity transition. This may suggest that the most important concerns

experienced by emerging people are expectations from society, parents, friends, and others, which produce stress and anxiety about parts of life and thus may have an impact on alcohol usage among university students.

Notably, these discrepant results in the literature may stem from methodological differences, especially in the definition or measurement. Methodological variations, particularly in the definition or measurement, may be the cause of these inconsistent findings in the literature of subjective emotional mood classical cues, but they may also indicate that university students display many psychological tendencies. Therefore, the current study's primary objective was to separate the association between subjective emotional mood, classical conditioning cues, and university students' harmful alcohol use. To this end, the researcher hypothesized that harmful alcohol use among university students can be connected to multiple patterns but is not limited to just one subjective emotional mood.

2.3.3 Relationship between Situational Classical Conditioning Cues and Harmful Alcohol Use

Situational classical conditioning cues have been discovered to play an important role in the creation and upkeep of harmful alcohol use. Situational classical conditioning cues are environmental cues or stimuli that have become associated with the experience of consuming alcohol or other substances, resulting in the elicitation of drug-seeking or craving behaviors after being exposed to those cues. These cues can be external, such as the sight of a bottle of beer or a particular location, or internal, such as a particular emotion or state of mind.

In a study by Barrett et al. (2017) in the United States on the characteristics of drinkers who report higher cravings after alcohol cue exposure, The study used a sample of 50

college students who reported abusing MPH and 50 control participants. Situational cues were found to be a significant predictor of alcohol consumption. The study found that exposure to alcohol-related indicators, like advertisements, movies, and social situations, increased the likelihood of drinking and heavy drinking. Similarly, a study by van den Wildenberg et al. (2016) was done in the Netherlands on how the μ-opioid receptor gene (OPRM1) functional polymorphism affects cue-induced alcohol demand in male heavy drinkers. The study targeted male heavy drinkers and involved 80 male heavy drinkers as participants. The study focused on the effect of situational cues on the relapse of alcohol use disorders. The findings revealed that individuals with a specific genetic variant of the OPRM1 gene showed a stronger craving response to alcohol-related cues compared to those without the variant. This suggests that genetic factors, in combination with situational cues, can play a significant role in cue-induced craving and potential relapse in alcohol use disorders.

Further, Zetteler et al. (2019) conducted a scoping review in the United States on understanding alcohol use and harm among the United States population. The study typically aimed at mapping the existing literature on the topic rather than conducting original research. The study revealed that situational cues were consistently identified as a risk factor for harmful alcohol use across various countries and cultures. The authors noted that cues such as social settings, advertising, and the availability of alcohol were particularly influential in promoting alcohol consumption. In a study conducted in Australia, Houben et al. (2011) aimed to explore the potential impact of working memory training on reducing alcohol abuse. The study involved forty-eight problem drinkers who performed working memory training tasks or control tasks for a minimum of 25 days spread throughout 25 sessions. It was observed that the presence of alcohol-related cues, such as bars or alcohol advertisements, could increase the

likelihood of alcohol consumption.

In Africa, a study by Makanjuola et al. (2016) on the relationship between anxiety, alcohol consumption, and academic achievement. The study focused on students at a Nigerian university, with a sample of 682 students. The study noted that situational cues related to traditional ceremonies or rituals can increase the likelihood of harmful alcohol use among individuals who participate in these events. Also, a study was carried out by Odeyemi (2014) relating to the influence of media on alcohol use among university students. Among 240 students at the College of Medicine, University of Lagos, Nigeria, their major sources of information on alcohol use were television, radio, and books, with the media having a major influence on alcohol use among the young people. The current study aimed at finding out if such media factors intertwine with harmful alcohol consumption among Kenyan university students.

Hassan (2013) looked at the situational signals connected to alcohol misuse among University of Nairobi students in Kenya through a survey. Data were gathered utilizing a descriptive cross-sectional survey that made use of the self-administrated modified AUDIT questionnaire. 446 pupils in all took part in the study. According to the study's findings, there is a substantial ($p = 0.002$) correlation between situational cues and alcohol intake, with students who were raised in urban environments being more inclined to drink. 3.2% of respondents to the AUDIT score on alcohol abuse were in zone 4, indicating a potential alcohol dependency. Apart from looking at the situational classically conditioned cues, the current study will dive even deeper and try to establish the relationship between the presence of drinking peers, subjective mood, and temporal conditioning cues with harmful alcohol use, which have not been dealt with in this study.

Generally, the literature discussed herein has majorly associated situational cues with harmful alcohol use, which has been inclined more towards advertising and social media as major factors influencing university students' use of alcohol. However, the present study appears to involve other cues such as alcohol availability, social attitude, and affluence in determining their role in enhancing harmful alcohol use among Kenyatta University students in Kenya.

2.3.4 Relationship between Presence of Drinking Peers Classical Conditioning Cues and Harmful Alcohol Use

Morin (2022) asserts that the impact of peers who have a drinking habit is exerted by individuals in the same social group. Alternatively, this might be used to characterize the impact of this influence on an individual's need to fit in in order to be accepted by the group. Peers are often thought of as friends, but they can also be any individual with a comparable status, such as those who are the same age, possess the same skills, or belong to the same social group. As a result, students spend more time with their classmates once they start college. According to Ding (2018), forming social networks and blending in with the group become essential developmental tasks. Students who identify as belonging to a group have stronger senses of self-worth, self-identity, and social acceptance (Regan & Morrison, 2013). Under these circumstances, college students are more likely than not to follow social norms and emulate conventional behaviors, such as binge drinking.

Peer pressure to drink is a factor in substance misuse, which includes alcohol intake, although the degree of this correlation varies depending on the family structure (University of Michigan, 2013). Leng et al. (2009), referenced by Ding (2018), conducted a study in China that looked at college students' expectations, behaviors, and recognition of alcohol consumption, as well as related factors. The study was conducted

in Yantai. In all, 951 first-, second-, and third-year undergraduate students from a Shandong university took part in the research. The survey came to the conclusion that friends had convinced nearly half of the university students (43.4%) to start drinking alcohol.

According to a recent experimental study (Gardner & Steinberg, 2005; Steinberg & Monahan, 2007), which was cited by Olusola (2014), exposure to peers during a risk-taking task doubled the amount of risky behavior among middle adolescents, increased it by 50% among college undergraduates, and had no effect at all among adults. 306 participants in three age groups—youths (18-22), adults (24 and older), and adolescents (13-16)—completed two questionnaires for this study. Each age group's participants were randomized to work alone or with two peers of the same age to complete the tests. Consequently, the impact of drinking buddies on alcohol use is a complicated and diverse phenomenon that persists into adulthood and needs further investigation, which is why this study is necessary.

Furthermore, Wubet (2021) carried out research in West Ethiopia on the connection between alcohol consumption among adolescents, including college students, and the detrimental influence of peers who also drink. 355 randomly chosen participants (177 females and 178 males) completed closed-ended questionnaires as part of this study's correlation research design. The findings demonstrated a strong negative correlation between alcohol consumption and the effect of drinking peers ($r = -.193$, $p = .010$). Furthermore, Amongi (2017) conducted a second, comparable study in Uganda to evaluate the risk factors for alcohol misuse among young people in Acana-taa village, Aloi sub-county, Alebtong District, who are between the ages of 15 and 25. In this descriptive cross-sectional study, information was gathered through the use of

questionnaires and an interview schedule. Peer pressure was one of the factors linked to juvenile alcohol usage, according to this study.

Mbuthia et al. (2020) conducted a qualitative study on drug and alcohol usage among undergraduate (university) students in Kenya's coastal area. 40 students, 20 of whom were female and 20 of whom were male, between the ages of 18 and 25, actively participated in the study, which was carried out at two universities. The methods for gathering data included focus groups, interviews with key informants, and a descriptive and exploratory design. The influence of drinking peers ranked second out of eight factors studied, predisposing undergraduate (university) students to alcohol usage. The research covered in this section demonstrates that one of the most important social situations for university students is the presence of their drinking peers, which is why this study is necessary.

2.3.5 Relationship between Temporal Classical Conditioning Cues and Harmful Alcohol Use

According to Sam (2013), temporal conditioning is a process in conditioning where frequent displays of unconditioned stimulus occur without any conditioned stimulus in between but are not joined by any conditioned stimulus. For example, like in the case of this study, the tendency of persons with alcohol use disorder to crave alcohol during a social gathering or at a specific time on the day. Social gathering and programs contribute to young people's risky alcohol consumption (Hoeppner et al., 2012). Among such events are holiday celebrations such as Easter, university cultural events, and other events like university games (Lefkowitz et al., 2012). Given the focus on the entertainment value of alcohol during sporting events, concerns regarding alcohol promotion at sporting events are a major concern. The enjoyment experience itself serves to spread the use of alcohol (Gee & Jackson, 2012).

A study by Finlay et al. (2012) examined leisure activities, the social weekend, and alcohol use among first-year college students in the US. Soares et al. (2018) conducted research in Brazil on university students' usage of alcohol as a social mediator. The Latin American and Caribbean Health Sciences Literature (LILACS), PUBMED, and Scientific Electronic Library Online (SciELO) integrative reviews served as the study's foundation. The study came to the conclusion that alcohol games, which are commonly held at university celebrations, provide support for the context of alcohol consumption among college students. Another study was carried out in a South African study on alcohol consumption among undergraduate social work students by Nyandu and Ross (2019). The study adopted a quantitative, cross-sectional survey research design with a total of 145 respondents out of a population of 284 students. Of the 145 students who completed a group-administered survey questionnaire, 88% reported using alcohol mainly for social purposes during social events. That was the concern of this study, based on the fact that one of its objectives will be to examine how temporal conditioning cues influence alcohol use among university students.

2.4 Summary of the Literature Review

The study aimed at investigating the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya. Classical conditioning theory developed by Ivan Pavlov informed the study by explaining how stimuli can become associated with certain responses through conditioning. Guided by this theory, the study sought to establish the extent to which classical conditioning cues contribute to harmful alcohol use among the participants.

The section also reviewed literature on harmful alcohol use among university students worldwide. Global, regional, and local studies established a high prevalence of alcohol use among university students, raising concern as to what could be the contributing

factors. Further, this section reviewed studies from various countries, including Australia, the United States, Asia, Nigeria, and Kenya, highlighting the influence of subjective emotional mood states and conditioning cues on alcohol consumption among university students. Some findings emphasize the role of subjective emotional moods and classical conditioning cues in shaping alcohol use patterns among university students. Few research studies in Kenya were available for review and therefore necessitated this research.

The relationship between situational classical conditioning cues and harmful alcohol use has been extensively reviewed, revealing that environmental cues associated with alcohol consumption can elicit drug-seeking behaviors and cravings. Exposure to alcohol-related cues, such as advertisements and social situations, increases the likelihood of drinking. Situational cues also play a significant role in cue-induced craving and potential relapse in alcohol use disorders. Similarly, the presence of drinking peers has been found to influence harmful alcohol use, as individuals may imitate normative behaviors within a group to conform and be accepted. Peers can significantly impact alcohol initiation, and the influence of drinking peers on alcohol use is complex and multifaceted. Temporal conditioning cues, such as specific events, were also shown to contribute to harmful alcohol use. However in Kenya little empirical data was available to confirm this relation hence the need for this study.

2.5 Conceptual Framework

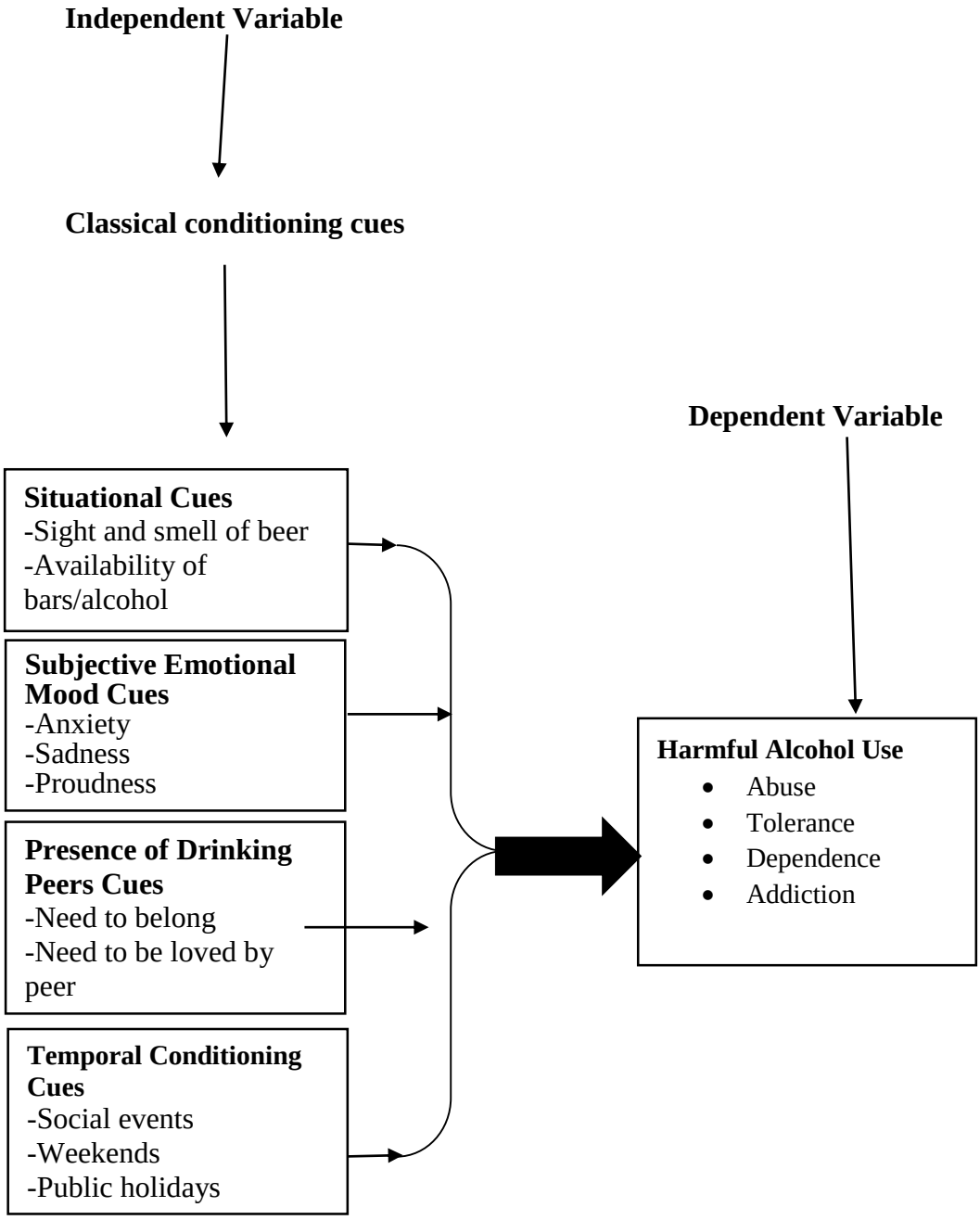

Figure 2.1: Conceptual framework
Source: Researcher generated

The conceptual framework shows a relationship between the independent and dependent variables. The independent variable is classically conditioned cues, operationalized as situational, subjective emotional mood, presence of drinking peers, and temporal classical conditioning cues. The dependent variable is harmful alcohol

use. Classical conditioning cues are divided into four categories: situational cues, subjective emotional mood cues, present-day drinking peer cues, and temporal condition cues. Situational cues include the sight and smell of beer, the availability of bars or alcohol, and advertisements. Subjective emotional mood cues include anxiety, sadness, and produce, while presence of drinking peer cues include the need to belong, the need to be loved by peers, and the need to gain experience. Temporal conditioning cues include social events, weekends, public holidays, and games. The presence of these classical conditioning cues leads to tolerable use of alcohol. However, the continued presence of these cues gradually changes the use from tolerable to abuse, then dependence, and finally to the level of addiction.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The research design, study variables, study population, study location, sample and sampling methods, research instruments, pilot study, validity and reliability of the instruments, data collection procedures, data analysis method, and logistical and ethical considerations are all covered in detail in this chapter.

3.2 Research Design

This study used correlational research design. A correlational design examines correlations between variables without modifying them. In correlational design the direction and/or degree of the relationship between two or more variables can be reflected via correlation (Bhandari, 2021). A connection may have a positive or negative direction. For this study, the correlational design worked well since it allowed the researcher to determine the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

3.3 Study Variables

The independent variable in this study was classical conditioning cues, which include; subjective mood, situational, presence of drinking peers and temporal conditioning cues. The dependent variable was harmful alcohol use.

3.4 Location of the Study

The study was conducted in Nairobi County, Kenya, at the Main Campus of Kenyatta University. Situated roughly 17.5 kilometers by road northeast of Nairobi's central business area, the main campus of Kenyatta University is situated on over 1,000 acres in Kahawa, Nairobi County, Roysambu Constituency. The school is accessible via the

Nairobi-Thika Road. The study was conducted at Kenyatta University because, according to NACADA (2014), Kenyatta University is one of the public universities with the highest harmful alcohol use among students.

3.5 Target Population

The target population included all the non-mature entry male and female undergraduate students at Kenyatta University. According to the Kenyatta University Fact Sheet (2022), the institution has a student population of 67,095 students.

3.6 Sample size and Sampling Technique

3.6.1 Sample Size

Out of the target population, the researcher used Krejcie and Morgan's (1970) table for determining sample size as presented in figure 3.1, hence coming up with a sample size of 382 respondents.

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Figure 3.1: Krejcie and Morgan (1970) sample determination formula

In the calculation of the required sample size, Krejcie and Morgan (1970) use the formula

$$S = X2NP (1-P)/ d2 (N-1) + X2P(1-P)$$

Where;

S = required sample size

X2 = the table value of chi-square for one degree of freedom at the desired confidence level

N = the population size

P = the population proportion

d = the degree of accuracy which is (.05)

Therefore, basing on the formula, a sample of 381 university students was utilized.

3.6.2 Sampling Criteria

The researcher screened the general population of students using the World Health Organization Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) Volume 3.0. Those who satisfied the moderate-high or high-risk criteria were included in the research. A simple random sampling method was utilized to select the participants. After identifying the target population, the researcher chose the sample and listed the population. The sampled individuals were then assigned specific numbers, and thereafter, random numbers were used to select a sample size of 381 university students.

3.7 Research Instruments

Data was collected using a standardized tool, namely **WHO ASSIST V3.0,** and a self-generated questionnaire.

3.7.1 Who Assist V3.0

The prevalence of hazardous alcohol use was measured using the WHO ASIST V3.0, WHO (2008). The WHO-ASSIST V3.0 questionnaire was altered before being used in the study. A modified questionnaire consisting of six questions based on the objectives of the study was given to the respondents, who were instructed to complete it as directed. The tool indicates that minimally harmful alcohol consumption doesn't need intervention. While excessive, harmful alcohol consumption necessitates referral for

intensive intervention, moderate usage will only require brief intervention. A low score means there are no problems with social or health difficulties. A moderate score indicates a reasonable risk of developing social and health issues associated with alcohol consumption. A high score indicates a high risk of social, legal, health, and financial difficulties. Affected people with a high score will be characterized by suicidal ideation, sexual dysfunctions, aggressive behaviours, accidents, gastro-intestinal hilliness, mental inability, and tremors, among others (WHO, 2008).

3.7.2 Self-Generated Questionnaire

This questionnaire contains items that were gathered based on classical conditioning cues. It was organized into different sections, informed by the type of cue. These will include: Section C, subjective mood cues (4 items); Section D, situational cues (4 times); Section E, presence of drinking peers (8 items); and Section F, temporal conditioning cues (7 items). The items in the questionnaire will be rated on a five-point Likert scale ranging from SA (strongly agree), A (agree), U-undecided, D-disagree, and SD (strongly disagree).

3.8 Validity and Reliability of Data Collection Instruments

3.8.1 Validity

To achieve the face, content, and construct validity of the instrument, the researcher sought guidance from the supervisor and other experts in the department of psychology. To achieve further validity, the researcher provided an exhaustive literature review, a review of research in the field, and a rooting in relevant theories of the constructs in question. There was also fair operationalization of the constructs so that the data collection instruments only covered the intended constructs and not any others, as advised by Cohen et al. (2018).

3.8.2 Reliability

3.8.2.1 ASSIST V3.0

Reliability Test: The ASSIST V3 scale's reliability (K-value) was found to range from 0.58 to 0.90 after it was retested among the population in a number of countries, including Australia, Israel, the United Kingdom, Brazil, India, Ireland, Zimbabwe, the Gaza Strip, the West Bank, and the United States (Coordinating Center) (WHO, 2008). As a result, this is thought to be a reasonable reliability range.

3.8.2.2 Self-generated Questionnaire

The reliability of the questionnaire was determined by computing Cronbach's alpha reliability test to check for internal consistency. According to Mohsen and Reg (2011), internal consistency refers to the degree to which every item in a test measures the same notion or construct and is therefore related to the interrelatedness of the test's elements. The Cronbach's alpha reliability coefficient typically falls between 0 and 1, with the stronger the internal consistency of the scale's components, the closer the coefficient is to 1.0. (Ibid, 2011). The size of alpha is influenced by both the mean inter-item correlations and the number of items in the scale, as per the formula $\alpha = \frac{rk}{[1+(k-1)r]}$ where r is the mean of the inter-item correlations and k is the number of items evaluated. According to Mugenda & Mugenda (2003), a coefficient of 0.80 or higher suggests that the data have a high degree of trustworthiness. Therefore, in order to gather information for determining the reliability coefficient of the research instruments, a pilot study was carried out at the University of Nairobi in Kenya. The reliability of the questionnaires was confirmed when the acquired indices were compared to the ideal values suggested by Mugenda and Mugenda (2003) and found to be within the acceptable range.

3.8.2.3 Results of Cronbach Alpha

To complement the information that was obtained from secondary sources of data regarding alcohol use among university students, a questionnaire with open questions was administered to a total of 38 students. Key areas addressed were whether the student had ever used alcohol, the age at which they started using alcohol, and the type of alcohol they have used. The responses on this questionnaire were used to generate and test both open and closed response questions for the questionnaire that was used in the data collection phase. This question had the advantages of allowing the researcher to understand that the respondents freely gave information on when they started taking alcohol and the age at which they started taking alcohol when filling out the questionnaire on their own, as opposed to when they did it in the presence of other people for fear of being judged. It also confirmed the assumption advanced in the research that the participants would be truthful in providing information. It therefore enabled the researcher to confirm that this item in the questionnaire is ready for implementation.

One of the hypotheses developed to guide the study was that the participants are actively engaged in classical conditioning cues. A questionnaire with a Likert scale was developed and administered to a total of 38 students from the University of Nairobi. This scale asked the students to report on the relationship between their moods, emotions, and self-esteem with alcohol use and their understanding of how and the extent to which subjective classical conditioning cues influence the use of alcohol. The outcome of the pilot study noted that the students posted adequate responses when the statements on the Likert scale were personalized, since it allowed them to give information about themselves and therefore allowed the researcher to confirm the reliability of the data collection instrument. It also allowed the researcher to confirm

that the set of statements in the Likert scale is properly framed and ready for implementation.

Situational cues were defined as circumstances under which the students find themselves and which, in one way or another, trigger their urge for alcohol. A Likert scale with six statements was administered to 38 students from the university, out of which 89.1% of the students' respondents to the statements on sighting of bars, smell of alcohol, sight of beer bottles, advertisements, and general sights of alcohol. Only 10.9% of them responded to all the statements on the scale, which include the above statements and two additional statements in taste of alcohol and sight of a social drinking place. This indicated that the statements in this scale were not properly structured for implementation in the data collection process, and therefore improvement was needed. The researcher therefore adjusted the two statements with the fewest responses to remove ambiguity in the questions. This was a key advantage of the study since it allowed the researcher to understand which areas of the data collection instruments needed to be adjusted before actual data collection.

The study has advanced the assumption that Kenyatta University students are involved in the harmful use of alcohol. To test this, a questionnaire with a Likert scale was administered to 38 students from the University of Nairobi. The Likert scale is framed in an attitude scale from strongly disagreed, disagree, undecided, agree, and strongly agree. The responses to the statements were varied and fairly distributed among the respondents, which therefore indicated that the statements were clear and well understood by the respondents. Items were tested in one of the questionnaires mentioned above, and a selection of items to be included in the final questionnaire, which was administered in the data collection phase, was made on the basis of an

assessment of internal consistency and reliability. The outcome had the advantage of confirming that the research instrument was reliable and therefore ready for use.

Temporal condition cues refer to an experimental condition in which the students would be influenced to engage in harmful alcohol use. A questionnaire with a Likert scale and seven statements was again administered to 38 students. The students responded to all seven statements without seeking clarification on the statements and their meaning, which was an indication that there was no ambiguity. It was therefore confirmed that the research instruments are property-formulated, reliable, and ready for use. A pilot study was conducted before the actual research was done to detect ambiguity and evaluate the type of answers that were given to enable the researcher to determine whether the laid-down objectives would be achieved. In the study, 10% of the target population (n = 381) has been chosen for the sample, and a sample of 38 (n = 38) respondents will be used for the pilot. Mugenda (2003) suggested that a pilot study sample should be between 1% and 10%, depending on the sample size. Cronbach's alpha has been calculated by taking a score from each scale item and correlating it with the total score for each observation. The resulting correlations were then compared with the variance for all individual item scores. The following formulas were used to calculate the reliability of the pilot study:

$$\alpha = \frac{(K)}{(K-1)} \frac{Sy^2 - Sum\ Si^2}{Sy^2}$$

In the study, K represented 38 respondents, which represented 10% of the target population for sampling. Sy^2 represents the sum of the variance of total items in the questionnaire (77.0467), while the sum of Si^2 represented the total variance of individual questions (1201.229).

Table 3.1 Results of Cronbach Alpha

Items	38
Sum of item variance	77.0467
Variance of Total scores	1201.229
Cronbach a	0.961154

The reliability of the study yielded an alpha of 0.961154 for all 33 questions on the Likert scale. The reliability coefficient accepted was 0.80, and therefore the instrument used was reliable. The table below shows summary of alpha reliability scores for each classical conditioning cue.

Table 3.2 Cronbach Alpha Reliability Score

Construct	**Number of Items**	**Cronbach's Alpha**
Subjective Emotional Mood Classical Conditioning Cues	8	0.860154
Situational Classical Conditioning Cues	4	0.791004
Presence of Drinking Peers Classical Conditioning Cues	8	0.870251
Temporal Classical Conditioning Cues	7	0.810594

As per the table, subject emotional mood classical conditioning cues had a reliability score of 0.860154 while situational classical conditioning cues had a reliability score of 0.791004. Additionally, Presence of Drinking Peers Classical Conditioning Cues had a reliability score of 0.870251 while Temporal Classical Conditioning Cues had a reliability score of 0.810594. All the classical conditioning cues had a reliability test high than 0.7 and therefore an indication that the instrument used was very reliable.

3.9 Pilot Study

The researcher carried out a pilot study at the University of Nairobi. Being a public

university within Nairobi, it was easily comparable to the site of the study, which is Kenyatta University in terms of the characteristics of the respondents. The questionnaire to be administered was administered to 10% of the sample (n = 381); hence, 39 respondents (n = 39) participated in the pilot study. Piloting helped enhance the validity and reliability of the questionnaires. It provided early warning regarding potential failure points for the primary research endeavor, potential violations of research procedures, and whether suggested methodologies or equipment were unsuitable or overly complex, allowing the researcher to adjust as necessary. This enabled the researcher to confirm the validity and reliability of the data collection instrument.

3.10 Data Collection Procedure

The researcher self-administered the questionnaires with the help of three duly trained research assistants drawn from psychology students at Kenyatta University who understand the school environment. After that, the researcher gave them an orientation on the purpose of the study, how to interpret the instruments, and how to collect data. After visiting the respondents at the university, the researcher and the research assistants gave them questionnaires. The participants filled out the questionnaires, after which they were retrieved by the researcher and her assistants.

3.11 Data Analysis and Presentation

The researcher verified that the questionnaires had been correctly completed after receiving them. Data cleaning, which involves examining the gathered data to eliminate any unclear components, was done. The questionnaires were then coded and examined for completeness. The process of coding replies involves giving them numbers or other symbols so that they can be categorized in a finite number of ways (Connelly, 2012). Version 26 of the statistical package for social sciences (SPSS) was used to analyze the

data guided by the objectives. For objective one, data analysis adopted descriptive statistics, specifically frequencies, percentages, and mean scores. For objectives two to five, frequencies, percentages, and mean scores were used together with the Pearson correlation coefficient test to test the null hypotheses to determine whether there are any noteworthy connections between independent and dependent variables. A value greater than 0.05 indicated a positive association; that is, as the value of one variable increases, so does the value of the other variable. A negative correlation was shown by a value less than 0.05, meaning that as one variable rises, the other variable falls. The data was presented using tables.

3.12 Logistical and Ethical Considerations

Kenyatta University first sent the researcher an introductory letter, and then the National Commission of Science and Technology Innovation (NACOSTI) granted the researcher an official authorization. After that, the researcher and her helpers provided Kenyatta University with a copy of the permit as evidence of the validity of the study and presented an explanation of its design and objectives. Because they are familiar with the school setting and have interacted with several respondents, the research assistants were utilized to speed up the data collection procedure. This lessened skepticism over the study's objectives. For this reason, a cover letter assuring anonymity and outlining the details required for informed consent—such as the voluntary nature of participation—was appended to every questionnaire. Additional assurances on data processing and management secrecy were given to the participants. They received assurances that the study's raw data would be permanently ground into powder after being safely maintained for five years.

CHAPTER FOUR
DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

The purpose of this study was to investigate the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya. This chapter presents the findings of the study in two segments. The first segment presents socio-demographic information about the respondents, while the second segment presents the findings.

4.2 Demographic Characteristics of the Respondents

The study had a sample size of 381 respondents, and therefore, the same number of questionnaires were issued to the respondents through a drop-and-pick method. A total of 302 questionnaires were returned, and 1 was discarded; therefore, the total number of completed questionnaires was 301, representing a response rate of 79.1%. Data was gathered on a number of demographic variables, which included the gender of the students, year of study, place of residence, and the courses they were undertaking. Presented below is an analysis of the demographic characteristics of the respondents.

4.2.1 Gender of the Respondents

This research sought to determine the distribution of the respondents according to their gender. These findings are presented in Table 4.1 below.

Table 4.1: Distribution of Respondents by Gender

Variable	Frequency	Percentage
Gender		
Male	181	60.1
Female	120	39.9
Total	**301**	**100**

As per the findings of the study, 39.9% (120) of the students who participated in this study were female, while male students accounted for 60.1% (181) of the participants. This means that more male students took part in the research study compared to the female students. Findings on the gender of the students are consistent with the data on university admissions in Kenya for the period between 2017 and 2022, which shows that the enrolment of male students is higher compared to their female counterparts.

4.2.2 Year of Study of the Respondents

Study participants came from different years of study, ranging from first year to fifth year, depending on the courses they were taking. The findings are presented in Table 4.2

Table 4.2: Distribution of the Respondents by Year of Study

Year of Study	Frequency	Percentage
First	30	10.0
Second	72	23.9
Third	108	35.9
Fourth	70	23.3
Fifth	21	7.0
Total	**301**	**100**

The distribution of participants across different years of study shows that there were 30 first-year students (10.0%), 72 second-year students (23.9%), 108 third-year students (35.9%), 70 fourth-year students (23.3%), and 21 fifth-year students (7.0%). This means that the majority of the students who participated in the study were third-year students, followed by fourth-year students. Fifth-year students accounted for the smallest number of participants in the study. The few numbers of 5^{th} year students at the university could be attributed to the fact that there are few courses that go beyond 4 years of study.

4.2.3 Types of Residence

The respondents were grouped into four types of residences: those who live within university hostels, those who rent houses outside the university, those who live at home and commute to and from school, and those who live with relatives. The findings have been presented in Table 4.3 below.

Table 4.3: Distribution of Respondents by Type of Residence

Type of Residence	Frequency	Percentage
University Hostel	158	52.5
Rental House	124	41.2
Home	12	4.0
With relatives	7	2.3
Total	**301**	**100**

Regarding the type of residence, 158 participants (52.5%) lived in university hostels, 124 participants (41.2%) resided in rental houses, 12 participants (4.0%) lived at home, and 7 participants (2.3%) lived with relatives. The findings mean that a significant number of the students live in rental houses outside the university, and therefore they tend to make independent decisions away from the influence of parents, guardians, and school administration. The majority of the students live in university hostels, where there is some level of control in terms of social activities, some of which might not be permitted within the campus residence. A few of them either lived with parents or guardians, and therefore, they were under some form of control.

4.2.4 Courses Taken by the Respondents

The respondents were further classified into different categories according to the courses taken. The major courses included engineering, humanities, arts, medicine, education, computer sciences, social sciences, and science, while minor courses were classified under others. The distribution of respondents according to courses taken is illustrated in Table 4.4 below.

Table 4.4: Distribution of Respondents by Course of Study

Course	Frequency	Percentage
Engineering	11	3.7
Humanities	13	4.3
Others	33	11.0
Arts	65	21.6
Medicine	10	3.3
Education	100	33.2
Computer science	4	0.01
Social sciences	50	16.6
Sciences	15	5.0
Total	**301**	**100**

In terms of courses, there were 11 participants studying engineering (3.7%), 13 studying humanities (4.3%), 33 studying other courses not listed (11.0%), 65 studying arts (21.6%), 10 studying medicine (3.3%), 100 studying education (33.2%), 4 studying computer science (0.01%), 50 studying social sciences (16.6%), and 15 studying sciences (5.0%). The findings mean that the majority of the students who participated in the study were pursuing education, while computer science had the least number of students. The observations also indicate that a significant number of students were either doing arts or social sciences, while a few were doing humanities. The high number of students taking education at the university could be attributed to the fact that Kenyatta University was historically a college of education; hence, it admits a high number of students taking education. A survey by Mogendi (2022) noted that Kenyatta University is among the institutions of higher learning that offers the highest chances for students seeking bachelor degrees in education programs.

4.3 Findings of the Study

The study established that the use of alcohol is common among university students, with the majority experiencing the urge to take alcohol at least two to three times a week. The majority of the students (50.8%) admitted to using alcohol at least 1 to 4

times every week, while a significant number (39.9%) admitted that they experience the urge to take alcohol at least once every month. The majority of the respondents (62.1%) stated that they have at least failed to do what is expected of them due to alcohol use, while 52.8% of them stated that there is a friend or relative who is concerned about their drinking habit. It was further established that the subjective mood state of the students influenced their desire to engage in the harmful use of alcohol. The findings also show that 43.5% of the respondents agreed that they use alcohol to cope with negative emotions, while 37.2% of them stated that alcohol helps them feel relaxed. Additionally, 34.9% of the respondents stated that they feel less stressed than usual when they use alcohol, while another 34.6% stated that they feel more confident than usual when they take alcohol.

Situational classical conditions were equally found to have a significant influence on harmful alcohol use among the students. A significant number of students agreed that the smell of alcohol increased their craving to take alcohol, and therefore the majority of them cannot stay in a place where alcohol is present without taking alcohol. The study further established that 36.2% of them strongly agreed that the sight of alcohol makes them crave alcohol, while 35.9% strongly agreed that their urge to take alcohol increases whenever they see a bottle of beer. A significant number of the respondents, 35.2%, strongly agreed that the smell of alcohol increases their craving to take alcohol, while another 32.9% strongly agreed that when they visit a bar, they start to crave alcohol.

The presence of drinking peers was also found to have an influence on harmful alcohol use among Kenyatta University students. From the study, 38.2% of the respondents strongly agreed that they would find it hard to resist a drink when their friends are

drinking, and 37.5% of them strongly agreed that when their friends are present in a bar, they can take alcohol up to late hours. According to the findings, 36.9% of the respondents strongly agreed that they go to take alcohol with peers just because they are popular, while 34.2% strongly agreed that they go to take alcohol in the presence of friends because they are daring. According to the study, 33.6% of them have felt pressured to take alcohol because people of their age were taking it, while another 31.6% are doing so because they are pushed by friends. Music and other temporal situational cues were also found to have a significant influence on harmful alcohol use among Kenyatta University students. The detailed findings are presented, analyzed, and discussed below as per the research objectives.

4.3.1 Prevalence of Harmful Alcohol use among Kenyatta University Students

The first objective of the study was meant to establish the extent to which university students at Kenyatta University use alcohol. The respondents were given a WHO-ASSIST V3.0 questionnaire to measure the prevalence of harmful use of alcohol. Table 4.5 provides information on respondents' alcohol use, the frequency of strong urges for alcohol, difficulties related to alcohol use, failure to meet expectations due to alcohol use, concerns from friends or relatives, and attempts to reduce or quit alcohol drinking. These findings are presented, analyzed, and discussed below.

Table 4.5: Results on Prevalence of Harmful Alcohol Use among Kenyatta University Students

Alcohol Use Indices	Frequency	Tally	Percentage
The last three months, how frequently have you used alcohol?	Never	0	0.00
	1-2 times weekly	60	19.9
	1-3 times weekly	68	22.6
	1-4 times weekly	153	50.8
	5-7 times weekly	20	6.6
How frequent have you had strong urge of alcohol in the last three months?	Never	0	0.00
	Once or twice	63	20.9
	Monthly	93	30.9
	Weekly	92	30.6
	Daily	54	17.9
Have you had any health, social, legal or financial difficulties in the last three months related to alcohol use?	Never	0	0.0
	Monthly	98	32.6
	Weekly	89	29.6
	Daily	58	19.3
How often have you failed to do what was expected of you because of alcohol use?	Never	0	0.0
	Once or twice	187	62.1
	Monthly	91	20.2
	Weekly	17	5.6
	Daily	6	2.0
Can you remember a friend or relative who was concern about your alcohol use?	No	10	3.3
	Yes, in the last 3 months	159	52.8
	Yes, but not in the last 3 Months	132	43.9
Do you remember trying to reduce or end alcohol drinking?	No	22	7.3
	Yes, for 3 months ago	108	35.9
	Yes, however not in last three months	171	56.8

In terms of frequency of alcohol use, the majority of respondents, 153 (50.8%), reported consuming alcohol 1-4 times weekly in the last three months. A significant portion, comprising 68 (22.6%) of the respondents, reported using alcohol 1-3 times monthly, while a smaller number, 60 (19.9%), reported using alcohol 1-2 times daily. Only 20 respondents (6.6%) reported consuming alcohol 5-7 times daily, and none reported never using alcohol. Regarding the frequency of strong urges for alcohol, the data shows that a considerable number of respondents experienced these urges regularly.

The largest number, comprising 93 (30.9%) respondents, reported having strong urges on a monthly basis, followed closely by 92 (30.6%) of the respondents who reported experiencing them weekly. A significant portion of 63 (20.9%) respondents reported having these urges once or twice, and 54 (17.9%) of the respondents reported experiencing them daily. None of the respondents reported ever having strong urges for alcohol.

The data also highlights the presence of difficulties related to alcohol use. Ninety-eight respondents (32.6%) reported experiencing such difficulties on a monthly basis, followed by 89 respondents (29.6%) who reported experiencing them weekly. Eighty-nine respondents (18.9%) reported encountering these difficulties once or twice, while 58 respondents (19.3%) reported experiencing them daily. None of the respondents reported ever experiencing any health, social, legal, or financial difficulties related to alcohol use. In terms of failing to meet expectations due to alcohol use, a majority of respondents, comprising 187 (62.1%), reported doing so once or twice. A smaller number, comprising 91 (20.2%) respondents, reported failing to meet expectations on a monthly basis, while 17 (5.6%) of them reported doing so weekly. Only a minimal number of 6 (2.0%) reported failing to meet expectations daily, and none of the respondents reported never failing to meet expectations.

The data indicates that a significant number of respondents had friends or relatives who expressed concern about their alcohol use. The largest number comprised 159 respondents (52.8%) who reported having someone concerned about their alcohol use in the last three months. A slightly lower number, comprising 132 respondents (43.9%) who reported having someone concerned, but not within the past three months, only a minority of 10 respondents (3.3%) reported no one being concerned about their alcohol

use. Lastly, the data shows that the majority of respondents, comprising 171 respondents (56.8%), tried to reduce or quit alcohol drinking but not in the last three months. A smaller number, comprising 108 respondents (35.9%), reported attempting to do so three months ago, while 22 respondents (7.3%) reported never trying to reduce or quit alcohol drinking.

The data presented above reveals that there is a high prevalence of harmful alcohol use among Kenyatta University students. The fact that the majority of the respondents had once attempted to quit alcohol means that there is some level of harmful use of alcohol among the students. According to the research tool used (WHO-ASSIST V3.0), a high score predicts a severe threat to health, social, legal, and economic challenges. When the prevalence of alcohol use among Kenyatta University students is high, there are increased chances that the students will engage in harmful alcohol use. On the other hand, if the prevalence is low, then there are fewer chances that they will engage in harmful alcohol use. The results show that the rating of alcohol prevalence among university students is high and requires some form of intervention. Based on WHO-ASSIST V3.0, university students who participated in this study are engaged in harmful alcohol usage.

The findings of the study are consistent with the findings of a study conducted by Boitt (2016), which established that there is a high prevalence of alcohol usage among university students, especially those who live alone either in the university hostel or outside the university. The findings also compare favorably with the outcome of a study conducted by Ndegwa, Munene, Oladipo, and Ndegwa (2017), which established that the majority of university students had a moderate risk of alcohol use problems. A study by Hongthong and Areesantichai (2014) in the United States revealed that alcohol

consumption among youths is a major concern that should be addressed, and the prevalence revealed by the findings of the study shows a similar trend. Excessive consumption of alcohol among youths was also found to be a major concern for public health officials in a study conducted by Marshalt (2012), and a survey by WHO (2016) revealed that hazardous alcohol use around the world was the cause of 3.3 million deaths a year.

4.3.2 Relationship between Subjective Emotional Mood Classical Conditioning Cues and Harmful use of Alcohol Use among Kenyatta University Students

The above objective is intended to establish the relationship between subjective emotional mood, classical conditioning cues, and the harmful use of alcohol among Kenyatta University students. The respondents were presented with a questionnaire containing a 5-point Likert scale with ratings from strongly disagree, disagree, uncertain, agree, and strongly agree. The results of this descriptive analysis are presented in Table 4.6.

Table 4.6: Findings on Subjective Emotional Mood Classical Conditioning Cues and Harmful Alcohol Use

N = 301

Subjective Mood Cues (n=7)	Strongly Disagree		Disagree		Uncertain		Agree		Strongly Agree		
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**Mean**
I use alcohol to cope with negative emotions.	38	12.6	15	5.0	15	5.0	102	33.9	131	43.5	3.9
Alcohol helps me to feel relaxed.	34	11.3	38	12.6	29	9.6	88	29.2	112	37.2	3.7
With alcohol use, I feel less stressed than usual.	27	9.0	45	15.0	33	11.0	91	30.2	105	34.9	3.7
There is a pattern between my mood state and alcohol consumption.	42	14.0	56	18.6	21	7.0	78	25.9	104	34.6	3.5
When I take alcohol, I feel more confident	20	6.6	65	21.6	22	7.3	90	29.9	104	34.6	3.6
My current mood state influences my desire to consume alcohol.	39	13.0	51	16.9	54	17.9	69	22.9	88	29.1	4.3
I feel more sad than usual if I don't take alcohol	82	27.2	98	32.6	20	6.6	57	18.9	44	14.6	2.6
Average subjective emotional mood classical conditioning cues rating											**3.6**

From the study, 131 (43.5%) of the respondents strongly agreed that they use alcohol to cope with negative emotions; 102 (33.9%) of them agreed, while 15 (5.0%) were undecided. Another 15 (5.0%) of the respondents disagreed that they use alcohol to cope with negative emotions, while 38 (12.6%) of them strongly disagreed. From the

study, 112 respondents (37.2%) strongly agreed that alcohol helps them feel relaxed, while 88 (29.2%) agreed. The study also established that 29 respondents (9.6%) were undecided, 38 (12.6%) of them disagreed that alcohol helps them feel relaxed, and the remaining 34 (11.3%) strongly disagreed.

The study further noted that 105 (34.9%) of the respondents strongly agreed that with alcohol use, they feel less stressed than usual; 91 (30.2%) of them agreed, while 33 (11.0%) of them were undecided. The findings further showed that 45 (15.0%) disagreed that with alcohol use, they feel less stressed than usual, while 27 (9.0%) strongly disagreed. The study also established that 104 respondents (34.6%) strongly agreed that there is a pattern between their mood state and alcohol consumption; 78 of them (25.9%) agreed, while 21 respondents (7.0%) were undecided. The study further showed that 56 respondents (18.6%) disagreed that there is a pattern between their mood state and alcohol consumption, while 42 (14.0%) strongly disagreed.

The study also noted that 104 respondents (34.6%) strongly agreed that when they take alcohol, they feel more confident; 90 (29.9%) of them agreed, while 22 (7.3%) of them were undecided. Sixty-five respondents (21.6%) disagreed that when they take alcohol, they feel confident, while the other 20 (6.6%) strongly disagreed. In the study, 88 (29.1%) strongly agreed that their current mood state influences their desire to consume alcohol; 69 of them (22.9%) disagreed, while 54 (17.9%) were undecided. It was further noted that 51 respondents (16.9%) disagreed that their current mood state influences their desire to consume alcohol, while 39 (13.0%) strongly disagreed. From the study, 44 (14.6%) of the respondents strongly agreed that they feel more sad than usual if they don’t take alcohol; 57 (18.9%) of them agreed, while 20 (6.6%) of them were

undecided. The study also noted that 98 (32.6%) of the respondents disagreed that they feel more sad than usual if they don't take alcohol, while 82 (27.2%) strongly disagreed.

The findings of the study mean that the subjective mood state of the students influences their desire to engage in harmful consumption of alcohol. The students would consume alcohol to develop or gain certain feelings, such as being confident or relaxed. This means that they would continue taking alcohol until they achieved the desired feeling, which leads to harmful alcohol consumption. It therefore implies that subjective emotional moods significantly influence harmful alcohol use among university students, and therefore any intervention measures should aim at addressing how the students can manage their emotions without necessarily using alcohol.

These findings are consistent with the findings of research conducted by Lammers et al. (2020), which linked negative effects to alcohol use in 75 countries worldwide. It was established that the majority of youth turn to alcohol as a way of dealing with negative emotions. The study also established that personal mood swings among youths have a significant influence on alcohol consumption. A study by Forgas (2018) also found that negative emotions such as anxiety, depression, and stress greatly influence alcohol consumption among youths. This descriptive data was further subjected to hypothesis testing using the following hypothesis that guided the study:

H_{01}: There is no significant relationship between subjective emotional mood classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

A Pearson Correlation Coefficient (r) test was conducted to establish if any significant relationship existed between subjective emotional mood, classical conditioning, and harmful alcohol use among university students. A significant P-value was set at 0.05,

in which a P-value of less than 0.05 would show that a significant relationship between the variables does not exist and therefore leads to a null hypothesis of subjective emotional mood, classical conditioning, and harmful alcohol use. The results of inferential statistical analysis are presented in Table 4.7.

Table 4.7: Results of Pearson Correlation Coefficient (r) Test

		Harmful use of alcohol
Subjective mood classical conditioning cues	Pearson Correlation (r)	.437
	Sig. (2-tailed)	**.000**
	N	301

Correlation is significant at the 0.05 level (2-tailed).

The results in Table 4.7 show that there is a significant relationship between subjective mood, classical conditioning cues, and the harmful use of alcohol ($r = 0.437$, $P<0.05$). This means that subjective mood and classical conditioning cues significantly contribute to harmful alcohol use among university students. Consequently, the hypothesis that there is no significant relationship between subjective emotional mood, classical conditioning cues, and harmful alcohol use among Kenyatta University students in Nairobi, Kenya, was rejected. This means that the desire to engage in the harmful use of alcohol among university students is influenced by the desire to change or maintain a certain mood pattern.

Similar outcomes were recorded by other researchers across the world who found that some university students engage in harmful alcohol consumption due to negative feelings, stress, and the need to feel relaxed. For example, a study conducted by Leyvers et al. (2019) on personality and alcohol-related risk: neuroticism, extraversion, and alexithymia in Australia. The outcome of the study showed that neuroticism is

associated with proneness to negative moods; a reliance on drinking to cope with such states may account for the links between both traits and risky or problematic drinking in line with Cloninger's Type I alcoholism. The findings also resonated with the outcome of a study conducted by Grant et al. (2017) on the prevalence of 12-month alcohol use, high-risk drinking, and DSM-IV alcohol use disorder in the United States. The study found that individuals with a history of major depression were more likely to develop an AUD than those without such a history. A study by Boitt (2016) also revealed that there was a significant relationship between the mood of the students and alcohol consumption. These similar findings by different researchers imply that there could be many students involved in the harmful use of alcohol because they have emotional illnesses that they may or may not be aware of.

4.3.3 Situational Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

The second objective of the study was to establish the relationship between classical conditioning cues and harmful alcohol use among Kenyatta University students. The descriptive results from this objective are shown in Table 4.8.

Table 4.8: Descriptive results on Situational Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

Situational Cues (n=4)	Strongly disagree		Disagree		Undecided		Agree		Strongly Disagree		
	F	%	F	%	F	%	F	%	F	%	Mean
The sight of alcohol makes me crave for alcohol	35	11.6	37	12.3	25	8.3	95	31.6	109	36.2	3.7
Whenever I see a bottle of beer my urge to take alcohol increases.	13	4.3	28	9.3	30	10.0	92	30.6	108	35.9	3.5
The smell of alcohol always increases my craving to take alcohol.	49	16.3	32	10.6	25	8.3	89	29.6	106	35.2	3.6
When I see the bar, I start to crave for alcohol.	61	20.3	34	11.3	22	7.3	85	28.2	99	32.9	3.4
Average situational classical conditioning cues rating											**3.6**

The study established that 109 respondents (36.2%) strongly agreed that the sight of alcohol makes them crave alcohol, while a small number of 35 respondents (11.6%) strongly disagreed. The study also noted that 108 respondents (35.9%) strongly agreed that whenever they see a bottle of beer, their urge to take alcohol increases, while 13 respondents (4.3% of them) strongly disagreed. One hundred and six respondents (35.2%) strongly agreed that the smell of alcohol always increases their craving to take alcohol, while 49 (16.3%) strongly disagreed.

Situational classical conditioning cues had a mean rating of 3.6, which is an indication that there exists a relationship between situational classical conditioning cues and the

harmful use of alcohol among university students. The findings mean that a significant number of students engage in the harmful use of alcohol when they see or get exposed to it. The sight of beer, the smell of alcohol, and the sight of a bar also increase the urge of students to take alcohol and make them engage in harmful alcohol use. These findings are consistent with the findings of a study by Zetteler et al. (2019), which identified situational classical conditioning cues as environmental cues or stimuli that are associated with the experience of consuming alcohol or other substances that result in the elicitation of drug-seeking or craving behaviors in response to exposure to certain cues. A study by Barrett et al. (2017) also established that both internal and external cues have a significant influence on alcohol consumption among college students. The state of mind of the university students as well as the external environmental cues significantly influence the harmful use of alcohol among them. This descriptive data was further subjected to hypothesis testing using the following hypothesis that guided the study:

H_{02}: There is no significant relationship between situational classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

Again, the Pearson Correlation Coefficient (r) test was conducted to establish if there was any relationship between situational classical condition cues and harmful alcohol use among Kenyatta University students. The results are presented in Table 4.9.

Table 4.9: Results of Pearson Correlation Coefficient (r) Test

		Harmful use of alcohol
Situational classical conditioning cues	Pearson Correlation (r)	.098
	Sig. (2-tailed)	**.000**
	N	301

Correlation is significant at the 0.05 level (2-tailed).

As per table 4.9, the study further noted a statistically significant correlation between situational classical conditioning cues and harmful alcohol use among university students ($r = 0.089$, $n = 301$, $P<0.05$). This is an indication that situational cues have a significant influence on harmful alcohol use among the students, and therefore it led to the rejection of the hypothesis that there is no significant relationship between situational classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi, Kenya.

The findings of the current study also mirror the outcome of a study conducted in Kenya by Hassan (2013), who investigated situational cues associated with alcohol abuse among University of Nairobi students. It concluded that an association between situational cues and harmful alcohol was significant among Nairobi University students. This means that situational cues contribute to the harmful use of alcohol among university students, which therefore confirms the validity of this research study.

4.3.4 Presence of Drinking Peers Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

The third objective of the study was to determine the relationship between the presence of drinking peers, classical conditioning cues, and the harmful use of alcohol among Kenyatta University students. Table 4.10 provides a summary of the descriptive results obtained from the study.

Table 4.10: Descriptive Results on Presence of Drinking Peers Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

N = 301

Statement	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		
	F	%	F	%	F	%	F	%	F	%	Mean
If my friends are drinking, it would be hard for me to resist having a drink.	25	8.3	38	12.6	25	8.3	98	32.6	115	38.2	3.8
Whenever I am with my friends in the bar, we can take alcohol up to late hours.	26	8.6	45	15.0	20	6.6	97	32.2	113	37.5	3.8
At times, I go to take alcohol with peers, just because they are popular.	23	7.6	49	16.3	22	7.3	96	31.9	111	36.9	3.7
At times, I take alcohol because others dare me to.	24	8.0	47	15.6	33	11.0	94	31.2	103	34.2	3.7
I've felt pressured to take alcohol because a lot of people my own age is taking.	28	9.3	55	18.3	19	6.3	98	32.6	101	33.6	3.6
My friends could push me into doing just about anything like alcohol.	35	11.6	38	12.6	24	8.0	98	32.6	106	35.2	3.7
I take alcohol to make me more popular, even when it meant doing something I would not usually do.	25	8.3	73	24.3	28	9.3	80	26.6	95	31.6	3.5
I take alcohol to avoid being seen as a 'loser'.	30	10.0	65	21.6	31	10.3	83	27.6	92	30.6	3.5
Average presence of drinking peers classical conditioning cues rating											**3.7**

The overall index of the relationship between the presence of drinking peers, classical conditioning cues, and harmful alcohol use was computed and found to be 3.7. This implies that participants perceived a high association between the presence of drinking peers, classical conditioning cues, and harmful alcohol use. From table 4.10, 115

respondents (38.2%) strongly agreed that if their friends were drinking, it would be hard for them to resist having a drink, while 25 (8.3%) strongly disagreed. The findings also show that 113 of the respondents (37.5%) strongly agreed that whenever they are with their friends in the bar, they can take alcohol up to late hours, while 26 (8.6%) strongly disagreed. 111 respondents (35.2%) strongly agreed that their friends could push them into doing just about anything, like drinking, while 23 (7.6%) strongly disagreed. Ninety-two respondents (30.6%) strongly agreed that they take alcohol to avoid being seen as a 'loser', while 30 respondents (10.0%) strongly disagreed. One hundred and three respondents (34.2%) strongly agreed that at times they take alcohol because others dare them to, while 24 (8.0%) strongly disagreed. From the study, 111 respondents (36.9%) strongly agreed that at times, they go to take alcohol with peers just because they are popular, while 23 (7.6%) strongly disagreed. 101 respondents (33.6%) strongly agreed that they felt pressured to take alcohol because a lot of people their own age is taking it, while 8 (9.3%) strongly disagreed.

The majority of the students find it difficult to resist drinking when their friends are drinking, which is an indication that the respondents are more likely to engage in harmful use of alcohol when in the company of friends who are already drinking alcohol. The company of friends in a bar also increases the chances of overindulgence in alcohol since it increases the chances of respondents taking alcohol up to late hours. Their presence in the bar encourages the respondents to take alcohol for longer hours. The data was further subjected to hypothesis testing using the following hypothesis that guided the study:

H_{03}: There is no significant relationship between presence of drinking peers classical conditioning cues and harmful alcohol use among Kenyatta University Students in Nairobi City County, Kenya.

Again, the Pearson Correlation Coefficient (r) test was conducted to establish the relationship between the presence of drinking peers, classical conditioning cues, and harmful alcohol use among Kenyatta University students. The results are presented in Table 4.11.

Table 4.11: Correlational Analysis of the Relationship between Presence of Drinking Peers Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

		Harmful use of alcohol
Presence of drinking peers classical conditioning cues	Pearson Correlation (r)	.364
	Sig. (2-tailed)	**.000**
	N	301

As illustrated in Table 4.11, the presence of drinking peers was also found to have a significant correlation with harmful alcohol use among university students ($r = 0.364$, $n = 302$, $P<0.05$). This means that the presence of drinking peers has a significant contribution to harmful alcohol consumption among university students, and therefore the hypothesis that there is no significant relationship between the presence of drinking peers, classical conditioning cues, and harmful alcohol use among Kenyatta University students in Nairobi, Kenya, was rejected.

4.3.5 Results on Temporal Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

The fourth objective of the study was to establish the relationship between temporal classical conditioning cues and harmful alcohol use. Table 4.12 presents the descriptive results obtained.

Table 4.12: Descriptive Results of Relationship between Temporal Classical Conditioning Cues and Harmful Alcohol Use among Kenyatta University Students

N = 301

Statement	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		
	F	%	F	%	F	%	F	%	F	%	Mean
During weekends I get the urge of going out to take alcohol	27	9.0	32	10.6	22	7.3	99	32.9	121	40.2	3.8
Good music, friends or watching football make me crave for alcohol.	31	10.3	35	11.6	20	6.6	98	32.6	117	38.9	4.1
When I attend parties, I crave for alcohol.	27	9.0	39	13.0	15	5.0	105	34.9	115	38.2	3.8
I have the tendency of an alcoholic to crave for alcohol at specific time on the day.	34	11.3	37	12.3	28	9.3	89	29.6	113	37.5	3.7
Whenever I take alcohol in a bar that has good music, I always tend to take more alcohol.	23	7.6	38	12.6	31	10.3	101	33.6	108	35.9	3.8
Listening to music played in the bar while taking alcohol trigger my urge to take alcohol.	16	5.3	44	14.6	37	12.3	98	32.6	106	35.2	3.7
Whenever I have free time, I get the urge to take alcohol to pass time.	27	9.0	45	15.0	30	10.0	97	32.2	102	33.9	3.7
Average temporal classical conditioning cues rating											**3.8**

From the data collected, it was noted that the average rating for the relationship between temporal classical conditioning cues and harmful alcohol use is 3.8, as indicated in

Table 4.6. This suggests that participants generally recognized the high influence of temporal classical conditioning cues on their urge to use alcohol. From the study, 121 respondents (40.2%) strongly agreed that during weekends they get the urge to go out to take alcohol, while 9.0% strongly disagreed. This means that weekends provide an opportunity for students to take alcohol due to the availability of time since most university academic activities end on Fridays and students have their free time over the weekends. According to Sam (2013), temporal conditioning is a process in conditioning where the unconditioned stimulus is shown at regular intervals without being joined by any conditioned stimulus. Weekends come at regular intervals, and therefore, given the above findings, the students are always looking forward to the weekend as a time to socialize and interact with others and get an avenue for taking alcohol. 117 respondents (38.9%) strongly agreed that good music, friends, or watching football make them crave alcohol, while 31 (10.3%) strongly disagreed. This means that when the students are with their friends in a place where good music is being played, they start craving alcohol, and therefore this cue increases their probability of engaging in harmful alcohol use. 106 respondents (35.2%) strongly agreed that listening to music played in the bar while taking alcohol triggers their urge to take alcohol, while 16 (5.3%) strongly disagreed. This means that there is a strong relationship between the presence of music, the type of music played in a bar, and the harmful use of alcohol among the respondents. The respondents are likely to drink more alcohol, depending on the type of music being played in the bar.

From the study, 108 (35.9%) of the respondents strongly agreed that whenever they take alcohol in a bar that has good music, they always tend to take more alcohol, while 23 (7.6%) of them strongly disagreed. This means that a combination of location and music influences the students to harmful use of alcohol through prolonged drinking

hours. In the findings, 106 respondents (35.2%) strongly agreed that listening to music played in the bar while taking alcohol triggered their urge to take alcohol, while 16 respondents (5.3%) strongly disagreed. From the findings, 113 (37.5%) of the respondents strongly agreed that they have the tendency to crave alcohol at specific times during the day, while 34 (11.3%) strongly disagreed. This means that the majority of the students develop a craving for alcohol at a specific time of the day, which is therefore an indication of possible addiction and harmful use of alcohol. The study also noted that 115 respondents (38.2%) strongly agreed that when they attend parties, they crave alcohol, while 27 of them (9.0%) strongly disagreed, and therefore the majority of them strongly agreed that they crave alcohol when they attend parties. This means that parties provide an avenue and increase the chances of university students indulging in the harmful use of alcohol. Parties are social events that provide students with the opportunity to drink. 102 respondents (33.9%) strongly agreed that whenever they have free time, they get the urge to take alcohol to pass time, while 27 of them (9.0%) strongly disagreed.

The above results were subjected to an inferential statistic, and the findings showed that temporal classical conditioning has a mean rating of 3.8, which is therefore an indication that temporal classical conditioning has a significant influence on the harmful use of alcohol among university students. According to Taib (1996), a mean of between 3.5 and 5.0 on a five-point Likert scale is considered significant. It therefore means that the temporal classical condition affects alcohol usage among Kenyatta University students. Regular exposure to certain conditions over a period of time triggers reactions in the body system and can therefore lead to an increased urge for an individual to behave in a certain way. For example, a cumulative 67.8% of the students supported the statement that music played while in the bar while taking alcohol triggers

their urge to take alcohol. The study also noted that some of the respondents agreed that when they take alcohol in bars that have good music, they tend to take more alcohol. When university students are exposed to certain types of music and other conditions, such as watching football and social gatherings, the urge to drink more alcohol is automatically increased. Exposure to certain activities and/or events triggers the urge to take alcohol by students and therefore, by extension, leads to increased harmful alcohol use since it presents an avenue for the students to take more alcohol than they are supposed to. The data was further subjected to hypothesis testing using the following hypothesis that guided the study:

H_{04}: There is no significant relationship between temporal classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

The Pearson correlation coefficient was conducted to determine the relationship between temporal classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya. The findings are presented in Table 4.13.

Table 4.13: Correlational Analysis of the Relationship between Classical conditioning cues and Harmful Alcohol Use among Kenyatta University Students

		Harmful use of alcohol
Temporal classical conditioning cues	Pearson Correlation (r)	.424
	Sig. (2-tailed)	**.000**
	N	301

Correlation is significant at the 0.05 level (2-tailed).

Temporal conditions were equally found to have a significant relationship with harmful alcohol consumption ($r = 0.424$, $n = 301$, $P<0.05$). Again, this means that temporal conditions play a significant role in promoting harmful alcohol consumption among Kenyatta University students. Consequently, the hypothesis that there is no significant relationship between temporal classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi, Kenya, was rejected.

The results of this study are consistent with the outcome of a study conducted by Gee & Jackson (2012), which established that there was a significant relationship between entertainment and alcohol consumption among university students in the Caribbean and Latin America. These findings are also consistent with the findings of a study conducted in South Africa by Nyandu and Ross (2019), in which 88% of the respondents reported that they would use alcohol for social purposes during social events. The findings of this study are also consistent with the outcome of a study conducted by Finlay et al. (2012) among first-year college students in the US, which concluded that there is higher alcohol usage among university students while attending social athletic events. There are instances when university students engage in harmful alcohol consumption out of temporary situations, especially social events when the students come together.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of the study was to investigate the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya. The study adopted a correlational research design to investigate the relationship between the variables. A sample size of 301 students participated in the study, and data was collected by using 5-point Likert scale questionnaires. This chapter presents a summary of the major findings, conclusions, recommendations, and suggestions for further research. The discussion is guided by the following research questions

i. What is the prevalence of harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya?

The study also sought to confirm the following hypotheses

$H_0$1 There is no significant relationship between subjective emotional mood classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

$H_0$2 There is no significant relationship between situational classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

$H_0$3 There is no significant relationship between presence of drinking peers classical conditioning cues and harmful alcohol use among Kenyatta University Students in Nairobi City County, Kenya.

H_04 There is no significant relationship between temporal classical conditioning cues and harmful alcohol use among Kenyatta University students in Nairobi City County, Kenya.

5.2 Summary of the Findings

The study established a high prevalence of harmful alcohol use among Kenyatta University students. The majority of the respondents reported consuming alcohol at least 1 to 4 times every week. A substantial number uses alcohol between 1 and 3 times every month, while a small number uses alcohol between 1 and 2 times every day. The majority of the respondents reported experiencing a strong urge to take alcohol at least once every month, while a substantial number reported that they had experienced the urge on a weekly basis. This means that the harmful use of alcohol among Kenyatta University students is high and poses a problem of alcohol addiction. Respondents also reported difficulties related to alcohol use, with the majority experiencing these difficulties monthly and a significant number experiencing them on a weekly basis. More than half of the respondents reported falling short of expectations due to alcohol use at least once to twice, and another half of them reported that friends and relatives have expressed concerns about their use of alcohol over the last three months. This means that the harmful use of alcohol among the students is prevalent and should therefore be a concern to stakeholders.

Subjective emotional mood and classical conditioning cues were found to have a significant influence on the harmful use of alcohol among Kenyatta University students. The most prevalent subjective emotional mood classical conditioning cue was the use of alcohol to cope with negative emotion, followed by the use of alcohol by students to make them feel relaxed. There is a relationship between mood states and alcohol

consumption among university students, and a small number feel that they feel sad if they don't take alcohol. Inferential statistics show that $r = 0.437$ and $P < 0.05$. This test result confirms that subjective mood and classical conditioning cues significantly contribute to harmful alcohol use among university students.

Situational classical conditioning cues were also found to have a significant influence on harmful alcohol use among university students. The majority of the students reported developing a craving for alcohol at the sight of alcohol, while a significant number reported that their urge to take alcohol increases when they see a bottle of beer. The smell of alcohol was also found to increase cravings for alcohol among the students, while a small number reported that they craved alcohol at the sight of a bar. Inferential statistics show statistically significant correlations between situational classical conditioning cues and harmful alcohol use among university students ($r = 0.089$, $n = 301$, $P<0.05$). This means that situational classical conditions lead to harmful alcohol use among university students.

Presence of drinking peers Classical conditioning cues have significant influences on the harmful use of alcohol among. The majority of the respondents stated that when their friends are drinking, they find it hard to resist having a drink, while a similar number reported that they take alcohol up to late hours when in the company of their friends in a bar. Social groups influence individual students to engage in the harmful use of alcohol when they join their peers to drink just because they are popular, while others engage in alcohol simply because others dare them to do so. A significant number of students take alcohol because they are pressured to do alcohol by people of their age, while a similar percentage reported that their friends can push them into doing anything like taking alcohol. A small number reported that they take alcohol to make them

poulaine, even when it is something they would not usually do, while very few admitted that they take alcohol to avoid being called a 'loser'. Inferential statistics revealed that ($r = 0.364$, $n = 302$, $P<0.05$), and therefore an indication that the presence of drinking peers was also found to have a significant correlation with harmful alcohol use among university students.

On temporal classical conditioning cues, the majority of the respondents reported that they develop the urge to take alcohol during weekends, while a significant number reported that good music, the presence of friends, or watching football make them crave alcohol. Few respondents reported that they crave alcohol when they attend parties, while some students crave alcohol at specific times of the day. These findings shed light on the contextual factors and triggers that contribute to alcohol cravings among students. Based on the correlation analysis, in general, the analysis shows that there is a statistically significant relationship between classically conditioning cues and harmful alcohol consumption among university students ($r = 0.534$, $n = 301$, $P<0.05$).

5.3 Conclusions of the Study

The study has established that the prevalence of alcohol use among Kenyatta University students is high, with most students taking alcohol between 1 and 4 times every week. According to the research tool used (WHO-ASSIST V3.0), a high score predicts a severe threat to health, social, legal, and economic challenges. The general findings in the study show a high prevalence of alcohol use, which is an indication that students are experiencing potential challenges associated with the harmful use of alcohol.

The study established that there is a significant association between subjective mood, classical conditioning cues, and harmful alcohol use among students. The P-value in inferential statistics is 0.437, which is therefore an indication of a significant

relationship between the two variables. The study revealed that a substantial percentage of students reported their current mood state influencing their desire to consume alcohol, indicating a link between mood and alcohol consumption. Additionally, students perceived a pattern between their mood state and alcohol use.

Similarly, the study established that there is a significant impact of situational classical conditioning cues on students' harmful alcohol use. P-value = 0.089 and <0.05, therefore an indication of a strong relationship between situational classical conditioning cues and the harmful use of alcohol among students. The presence of cues such as seeing a bar, smelling alcohol, seeing a bottle of beer, and the sight of alcohol itself were found to trigger cravings for a substantial proportion of students. These cues had a notable influence on increasing their desire to consume alcohol.

The study found that the presence of drinking peers plays a significant role in shaping harmful alcohol use among students. r = 0.364, which is <0.05 and therefore confirms a strong relationship between drinking peers and harmful alcohol use. The results demonstrated a high percentage of students who agreed or strongly agreed with various statements regarding peer influence and alcohol consumption. This indicates the influential role of peers in students' decision-making processes when it comes to drinking alcohol. The findings revealed that the presence of friends who were drinking made it difficult for students to resist joining them, highlighting the influence of peer pressure.

This study found that temporal conditioning cues significantly contribute to alcohol cravings among students, hence influencing harmful alcohol use. For instance, the study revealed that listening to music played in bars while consuming alcohol was strongly associated with an increased urge to drink, indicating the influence of environmental

cues on alcohol cravings. Additionally, the presence of good music in bars was found to lead to higher alcohol consumption.

5.4 Recommendations of the Study

i. The study established a high prevalence of alcohol usage among university students. In view of this, a recommendation is made to the university to develop and implement educational programs that provide accurate information about the risks and consequences of harmful alcohol use. Raising awareness about the recommended guidelines for low-risk alcohol use and the potential harms of regular heavy alcohol use will help reduce the prevalence of harmful alcohol use among university students. The university needs to partner with other state agencies, such as NACADA, to come up with campaign mechanisms and strategies to create awareness and address the high prevalence of alcohol usage among the students.

ii. This study therefore recommends that the government through the relevant ministries and the management of the university develop and implement policies and practices in educational institutions, bars, and social venues within the institutions to minimize the visibility and availability of alcohol cues, especially for students living in the university's halls of residence. This may involve strategic placement of non-alcoholic alternatives in shops and other outlets within the institution, minimizing alcohol-related visuals, and implementing responsible alcohol serving practices, especially close to learning institutions such as universities.

iii. The management of the university need to partner with law enforcement agencies such as the National Police Service to implement the Alcoholic Drinks

Control Act of 2010 regarding the proximity of bars and other alcoholic drink outlets to learning institutions as well as the timing of sales of alcoholic drinks.

5.5 Suggestions for Further Research

This study addressed the relationship between classically conditioned cues and harmful alcohol use among Kenyatta University students in Nairobi, Kenya. It focused on the short-term effects and therefore did not track down the usage of alcohol among the university students over a period of time to confirm the outcome. To address the limitations of this study, the researcher suggests the following:

i. This study applied correctional research to examine the relationship between classical conditioning cues and harmful alcohol consumption among university students. Further research can be conducted as a longitudinal study to explore the long-term effects of classically conditioned cues on harmful alcohol use among university students. This would involve tracking the students' alcohol consumption patterns and their exposure to various cues over an extended period of time.

ii. The study was based on a sample size of 381 students from Kenyatta University. The total student population in universities in Kenya is 563,000, and therefore, this sample size limits the generalization of the findings. A similar could therefore be replicated at other universities because students in other universities might have their own unique characteristics.

iii. This study did not analyse the extent to which demographic variables such age career and gender influence alcohol drinking behaviour. Future studies could investigate this relationship. .

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APPENDICES

APPENDIX A: RESEARCH CONSENT FORM FOR THE PARTICIPANTS

Dear Respondent,

My name is Julian Makena Micheni, a Master of Arts degree in Counselling Psychology student at the Kenyatta University. I am conducting a study titled "The relationship between classical conditioning cues and alcohol consumption among Kenyatta University students in Nairobi County, Kenya.' I request you to complete for me a short questionnaire that will take about 20 minutes. Your participation in this study is voluntary and you can decide not to volunteer or to stop participating in the study at any time. The information you provide will not be shared with anyone and will be kept confidential. There are no possible risks because of your participation.

I agree to participate in this research project and I have received a copy of this form

Respondent's code _____

Respondent's Signature _____

Date _____

I have clarified to the above respondent, the nature and purpose of the study. The benefits and possible risks associated with participation in this research. I have answered all questions that have been raised and I have provided the participant with a copy of this form.

Researcher's signature _____

Date _____

APPENDIX B: DEBRIEF FORM

Thank you for participating in this study. The purpose of the study is to investigate the relationship between classical conditioning cues and alcohol consumption among Kenyatta University students in Nairobi County, Kenya as part of requirement for my graduation. Your participation will assist the researcher understand the relationship between classical conditioning cues and alcohol consumption among Kenyatta University students in Nairobi County, Kenya.

If the study causes any discomfort in your life, please feel free to contact the researcher using the contact and the email below.

+254 724 891254

jmakenauk@gmail.com

Kind regards,

Julian Makena

APPENDIX C: QUESTIONNAIRE FOR THE STUDENTS

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF THE UNIVERSITY STUDENTS

1. What is your gender?

   Male [ ]
   Female [ ]

2. What is your year of study?

   First year ( )
   Second year ( )
   Third year ( )
   Fourth year ( )
   Fifth year ( )

3. Kindly indicate your place of residence

   University hostel ( )
   Rental house around the University ( )
   Commuting from home ( )
   Living with relatives ( )
   Any other specification……..

4. What course are you studying?.....

SECTION B: PREVALENCE OF HARMFUL ALCOHOL USE

5. Have you ever used alcohol of any kind? ……
6. If yes in question 1 above:
   a) What type/types of alcohol have you ever used?.....
   b) At what age were you when you first took alcohol?.....

WHO -ASSIST V3.0, WHO (2008)

Instructions: Answer alcohol use questions in your life time habits. Nevertheless, if use of alcohol drink was recommended by a doctor do not indicate unless it was taken more than it was recommended. The information you give will be confidential.

	Statement	**Response**				
7	The last three months, how frequently have you used alcohol?	Never 0	1-2 times daily 2	1-3 times monthly 3	1-4times Weekly 4	5-7 times Daily 6
8	How frequent have you had strong urge of alcohol in the last three months?	Never 0	Once or Twice 3	Monthly 4	Weekly 5	Daily 6
9	Have you had any health, social, legal or financial difficulties in the last three months related to alcohol use?	Never 0	Once or Twice 4	Monthly 5	Weekly 6	Daily 7
10	How often have you failed to do what was expected of you because of alcohol use?	Never 0	Once or Twice 5	Monthly 6	Weekly 7	Daily 8
11	Can you remember a friend or relative who was concern about your alcohol use?	No 0	Yes, in the last 3 months 6	Yes, but not in 3 Months ago 3		
12	Do you remember trying to reduce or end alcohol drinking?	No 0	Yes, for 3 months ago 6	Yes, however not in last three months 3		

SECTION C: SUBJECTIVE MOOD CLASSICAL CONDITIONING CUES

Kindly respond to the items as honestly as possible by placing a tick on your choice.

	Statement	**SD**	**D**	**U**	**A**	**SA**
12	My current mood state influences my desire to consume alcohol.					
13	There is a pattern between my mood state and alcohol consumption.					
14	I use alcohol to cope with negative emotions.					
15.	Alcohol helps me to feel relaxed.					
16.	When I take alcohol, I feel more confident					
17.	I feel more sad than usual if I don't take alcohol					
18.	With alcohol use, I feel less stressed than usual.					
19.	When I take alcohol i feel more sociable than usual.					

SECTION D: SITUATIONAL CUES

Kindly respond to the items as honestly as possible by placing a tick on your choice.

	Statement	**SD**	**D**	**U**	**A**	**SA**
20.	When I see the bar, I start to crave for alcohol.					
21.	The smell of alcohol always increases my craving to take alcohol.					
22.	Whenever I see a bottle of beer my urge to take alcohol increases.					
23.	The sight of alcohol makes me crave for alcohol					

SECTION E: PRESENCE OF DRINKING PEERS CUES

Kindly respond to the items as honestly as possible by placing a tick on your choice.

	Statement	**SD**	**D**	**U**	**A**	**SA**
24.	If my friends are drinking, it would be hard for me to resist having a drink.					
25.	Whenever I am with my friends in the bar we can take alcohol up to late hours.					
26.	My friends could push me into doing just about anything like alcohol.					
27.	I take alcohol to make me more popular, even when it meant doing something I would not usually do.					
28.	I take alcohol to avoid being seen as a 'loser'.					
29.	At times, I take alcohol because others dare me to.					
30.	At times, I go to take alcohol with peers, just because they are popular.					
31.	I've felt pressured to take alcohol because a lot of people my own age are taking.					

SECTION F: TEMPORALCONDITIONING CUES

Kindly respond to the items as honestly as possible by placing a tick on your choice.

	Statement	**SD**	**D**	**U**	**A**	**SA**
32.	Listening to music played in the bar while taking alcohol trigger my urge to take alcohol.					
33.	Whenever I take alcohol in a bar that has good music, I always tend to take more alcohol.					
34.	Whenever I have free time, I get the urge to take alcohol to pass time.					
35.	Good music, friends or watching football make me crave for alcohol.					
36.	I have the tendency of an alcoholic to crave for alcohol at specific time on the day.					
37.	When I attend parties, I crave for alcohol.					
38.	During weekends I get the urge of going out to take alcohol					

APPENDIX D: APPROVAL OF RESEARCH PROPOSAL

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Executive Dean, Graduate School

DATE: 11th October, 2023

TO: Julian Makena Micheni
C/o Psychology Dept.

REF: C50/CE/34807/2016

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the Graduate School Board of 12th July, 2023 entitled "Relationship between Classically Conditioned Cues and Harmful Alcohol Use among Kenyatta University Students in Nairobi City County, Kenya.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your project before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

ELIJAH MUTUA
FOR: EXECUTIVE DEAN, GRADUATE SCHOOL

C.c. Chairman, Department of Psychology

Supervisors:

1. Dr. Agnes Nthangi
C/o Department of Psychology
Kenyatta University

EM/mo

APPENDIX E: APPROVAL OF RESEARCH AUTHORIZATION

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: C50/CE/34807/2016

DATE: 11th October, 2023

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR JULIAN MAKENA MICHENI – REG. NO. C50/CE/34807/2016

I write to introduce Julian Makena Micheni who is a Postgraduate Student of this University. The student is registered for M.A degree programme in the Department of Psychology .

Julian intends to conduct research for a M.A Project Proposal entitled, "Relationship between Classically Conditioned Cues and Harmful Alcohol Use among Kenyatta University Students in Nairobi City County, Kenya.

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
EXECUTIVE DEAN, GRADUATE SCHOOL

EM/mo

APPENDIX F: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 421678

Date of Issue: 25/October/2023

RESEARCH LICENSE

This is to Certify that Ms.. JULIAN MAKENA MICHENI of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: RELATIONSHIP BETWEEN CLASSICALLY CONDITIONED CUES AND HARMFUL ALCOHOL USE AMONG KENYATTA UNIVERSITY STUDENTS IN NAIROBI CITY COUNTY for the period ending : 25/October/2024.

License No: NACOSTI/P/23/30551

421678

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions