KENYATTA UNIVERSITY

DEPARTMENT OF SOCIOLOGY

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

ASSESSMENT OF THE EFFECTS OF *KHAT* CONSUMPTION ON THE WELLBEING OF FAMILIES IN MERU COUNTY, KENYA

By

RUTH KAGWIRIA MUGAMBI

C82/11287/2006

A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (PhD) OF KENYATTA UNIVERSITY

DECLARATION

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

_____ Date_____

Ruth Kagwiria Mugambi

C82/11287/2006

We confirm that the work reported in this thesis was carried by the student under our supervision.

_____ Date_____

Professor Halimu Suleiman Shauri (PhD)

Department of Social Sciences

Pwani University

_____ Date _____

Dr. Daniel Muia (PhD)

Senior Lecturer

Department of Sociology

Kenyatta University

DEDICATION

Dedicated to my husband, Mathew Gitonga Ntuara

and our lovely children, Edwin Muthomi and Shirlene Kendi for their support and perseverance during my study.

ACKNOWLEDGEMENTS

First and foremost, I thank the Almighty God for giving me the intrinsic motivation, good health and perseverance to endure very long and hard times in completing this work. Second, to my supervisors, Professor Halimu Shauri and Dr. Daniel Muia, for their patience, guidance and expertise which helped me to complete this work. Third, I express my gratitude to all staff members and postgraduate students of the Department of Sociology, Kenyatta University for their contribution that helped me improve the quality of this thesis. My special appreciations go to Dr. Dickson Ombaka (Chairman Department of Sociology), Dr. Samuel Mwangi, Dr. Sophia Bironga, Patricia Nzioka, Dr. Gladys Nyachieo, Charles Wayoike, and Tabitha Mwanzia for their assistance and encouragement to complete this thesis. Fourth, my special thanks go to my research assistants whose patience and teamwork assisted in obtaining and recording responses from the *Khat* consumers, the key informants and those involved in Focus Group Discussions (FGDs). To all respondents, I say thank you, for sparing your time to participate in this study. Fifth, to my parents, Justus and Elizabeth Mugambi for supporting and believing in my academic ability. I say thank you. Last but not least, to my husband Matthew Gitonga Ntuara and our children Edwin Muthomi and Shirlene Kendi Gitonga, thank you for understanding and offering unconditional support which encouraged me to pursue and complete this thesis.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

LIST OF ACRONYMS AND ABBREVIATIONS

ADSA	:	Alcohol, Drug and Substance Abuse
ACMD	:	Advisory Council on Misuse of Drugs
ANPPCAN	:	African Network for Protection and Prevention of Child Abuse and Neglect
FGDs	:	Focus Group Discussions
GDP	:	Gross Domestic Product
GoK	:	Government of Kenya
KNBS	:	Kenya National Bureau of Statistics
Kshs	:	Kenya Shillings
MA	:	Master of Arts
MCAs	:	Members of County Assembly
MSc	:	Master of Science
NACADA	**:**	National Agency for Campaign against Drug Abuse
NACOSTI	:	National Commission for Science, Technology and Innovation
NDPS	:	Narcotic Drugs and Psychotropic Substances
NGOs	:	Non-Governmental Organisation
NYAMITA	:	Nyambene *Miraa* Traders Association
ODCCP	:	Office for Drug Control and Crime Prevention
SPSS	:	Statistical Package for Social Sciences
UK	:	United Kingdom
UNDCP	:	United Nations Drugs Control Programme
UNESCO	:	United Nations Educational Scientific and Cultural Organisation

USA	:	United States of America
WHO	:	World Health Organisation.

ABSTRACT

This study assessed the effects of *Khat* consumption on the wellbeing of families in Meru County. Wellbeing is a condition of holistic health in all its dimensions, namely; physical, social, and psychological. Accordingly, this study endeavoured to establish the prevalence of *Khat* consumption in Meru County; to find out the socio-economic drivers of *Khat* consumption; to determine the effects of *Khat* consumption on the physical health of consumers' families; to establish the influence of *Khat* consumption on the social health and psychological aspects of *Khat* consumers' families. The study adopted a descriptive cross-sectional research design. Meru County was purposively selected for this study because it is predominantly a *Khat* growing and consuming county. Additionally, *Khat* plays a major role in social occasions such as marriage negotiation process to date. Three sub-counties were purposively selected for this study due to limited financial resources. A multi-stage sampling technique involving purposive, simple random and systematic methods were used to select the county, three sub-counties, six wards and 583 respondents. Pilot study was carried out to establish content validity and reliability. Reliability was established using Cronbach's alpha coefficient and the Likert scales used had a reliability of above 0.7. In line with ethical considerations, respondents comprised of adult family heads (male or female) of age eighteen (18) and above only. The study used primary data gathering instruments, namely, interview guides and observation checklists. The Statistical Package for Social Sciences (SPSS version 16, 2007) was used in data management and analysis. In the analysis, descriptive statistics used included percentages and frequency distribution tables. These descriptive statistics were used to summarise variables into thematic areas and to convey the characteristics of key variables. Inferential statistics used included Pearson's Chi-square and Simple Linear Regression analysis. Inferential statistics were also used to establish relationships, provide predictions and in drawing conclusions. Focus Group Discussions were carried out, summarized, categorized and emerging themes used in the discussion to augment quantitative information. Research findings revealed that *Khat* availability was the main driver for its consumption. The respondents consumed *Khat* in groups mostly with their friends, family members and business associates. The mean age of the *Khat* consumers was 43. Low levels of education were reported with only 16.1% having attained college/University education. Pearson's Chi-Square (χ^2) test indicated that, there was a significant relationship between hours spent chewing *Khat* and the wellbeing of families. Linear regression analysis indicated that, there is no relationship between *Khat* consumption and lack of sleep as well as consumers' happiness. Linear regression analysis indicated that, there is a positive relationship between *Khat* consumption and consumers' education status, marital instability, poor family relationships, addiction and low investment with p-values of 0.000, 0.000, 0.003, 0.003, and 0.000 respectively. It was concluded that availability of *Khat* and peer pressure encouraged *Khat* consumption, thus influencing the physical, social and psychological wellbeing of families. The study recommended that NACADA should create awareness in *Khat* chewing communities on the negative effects of *Khat* consumption. The study also recommended that, the Ministry of Agriculture through the field extension officers should engage with the *Khat* farmers to find alternative economic livelihoods to cut the supply chain and hence reduce *Khat* availability to the consumers.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Wellbeing of families is a priority among nations of the world. This is because functional governments have strong foundations within families (McGillivray and Clarke, 2006). In African societies, families were greatly valued because they define their continuity and strengthened their existence as a social entity (Adams & Trost 2005). Today, wellbeing of families is also among the top agenda for many governments in Europe, Asia and Africa. Accordingly, families are central to both developed and developing countries and any socio-economic issue related to the families is closely evaluated. Similarly, *Khat* consumption among family members is a matter of concern to individuals, families, communities and governments. Despite the global recognition for the need for favourable family wellbeing, *Khat* chewing is rapidly increasing worldwide because of its availability. According to Zeleke, Awoke, Gebeyehu, and Ambaw (2013) about ten million people are estimated and classified as daily *Khat* consumers worldwide.

According to Adams & Trost, (2005), Wellbeing is a condition of holistic health in all its dimensions: Physical, emotional, psychological, social and spiritual, which is totally in agreement with (Diener, 2009; Diener & Suh, 1997; Michaelson, Marks, & Thompson, 2009). Furthermore, wellbeing consists of a range of what is worthwhile for a person: particularly in a meaningful social manner such as feeling happy and hopeful, living according to acceptable values, supportive environment, coping with challenges through the use of appropriate life skills and having security, protection and access to quality services such as health and education. Other research

findings have placed different emphases on what wellbeing is: happiness, Pollard & Lee, (2003) and life satisfaction (Diener & Suh, 1997; Seligman, 2002).

The World Health Organization (1997) presented wellbeing as a broad concept affected in a complex way by a person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment. Wellbeing of families is influenced by a number of issues because of its multi-dimensional nature; thus consumption of *Khat* by family members have far-reaching social, economic, physical, and psychological health effects on the wellbeing of its members. As much as growing of *Khat* has some economic gain for the regions where it is grown and Kenya as a whole, its consumption undermines personal, social and national development with respect to productivity, safety and welfare of public institutions and community life (Hansen, 2010; Kassim, Islam, & Croucher, 2010).

In Djibouti, every day, people flock to houses and cafes in groups to chew *Khat* quietly with their friends. According to Reuters (2007), "it was reported that, Djibouti men sit on pillows beside small piles of stems and cigarette packets, munching mouthfuls of the green narcotic." This has been made possible by the availability of fast transport, such as flights, which ferry *Khat* every day to Djibouti from Ethiopia which is then sold in small shops across the country (Kassim et al., 2010). Use of fresh leaves of *Khat* acts like a stimulant and causes intoxicating effects (Alem, Kebede and Kullgren, 1999). It keeps the user awake and interferes with the reception of well-coordinated information.

National Agency for the Campaign Against Drug Abuse [NACADA], (2012) identifies Alcohol, Drugs and Substance Abuse (ADSA), as a major social problem in Kenya, which influences the functioning of families. The same study identified *Khat* use, as being very high in Central and North-Eastern regions of Kenya. This extent of substance use, according to (NACADA 2007; Shauri, 2007) has negative consequences on family members. The effects are health related as well as socio-economic in nature. Furthermore, NACADA, (2012) indicated that *Khat* was among the substances of abuse in Kenya after alcohol and tobacco products.

Traditionally, wellbeing was identified with a single objective dimension: material progress measured by level of income which influences the socio-economic wellbeing of families (Seligman, 2002). From a socio-economic point of view, *Khat* is associated with lucrative trade and financial benefits for the families. However, it is now widely accepted that wellbeing cannot be solely captured by income. Wellbeing has been equated with material position of a country, measured by its Gross Domestic Product (GDP). According to McGillivray & Clarke, (2006) wellbeing is generally viewed as a description of the state of people's life situation. This makes wellbeing a multidimensional concept encompassing many aspects of human life. Accordingly, different approaches have been taken to go beyond the GDP measure, conceptualising wellbeing in a more holistic manner. Since the 1970s, many non-economic indicators have been created to complement GDP.

In Kenya, *Khat* consumption has been embraced by many people in many areas especially where it is grown and viewed as a cash crop for economic gains, as well as fulfilling some definite social and cultural wellness (Thiringi, 2001). According to Haji (1985) *Khat* was embraced and accepted by the Garissa people because it

enhanced interaction among consumers. It is important to note that the consumption of substances which were socially accepted in many African communities, was done within their cultural context (Donde, 1984; Ogolla, 1993; Shauri, 2007). *Khat* is one of such substances which communities have seemingly, lost such control and this has resulted into its misuse.

Khat consumption in the recent past has had great implication on the social, economic and psychological wellbeing of families. This situation is exacerbated by the fact that its consumption is legal in many countries making it readily available to consumers. However, *Khat* leaves contain the psychoactive alkaloid cathinone, which is structurally similar to amphetamine and cathine, giving those who consume it a moderating and a milder feeling of euphoria (Guantai, 1982; Haji, 1985; Maitai, 1996), thus activating the functioning of the central nervous system. Consumers select fresh leaves, which have comparatively higher alkaloid content, chewed intermittently and retained in the mouth to maintain the amphetamine-like effects.

Apparently, amidst all these negative consequences, *Khat* has been used as a religious and recreational substance by the peoples of the Arabian Peninsula and East Africa regions thus impacting positively on their social wellbeing. Similarly, these societies have traditionally evolved cultural systems, integrating *Khat* consumption into their social fabric, giving positive reinforcement and meaning to the experience. *Khat* consumption during the traditional times was used to enhance family ties, which was one of the positive wellbeing gains from *Khat* use. Additionally, *Khat* was one of the items of exchange during marriage negotiations among the Igembe and Tigania sub-groups of the Meru community. This practice

has been retained to date due to its facilitation of negotiations, thus retaining its social function as *Khat* is shared between the above two groups.

On the other hand, *Khat* has been reported as having led to decreased libido, withdrawal tendencies, irritability and insomnia which have been cited as main causes of marital problems, impacting negatively on the family relationships (Haji, 1985; Maitai, 1996). The above aspects results in quarrels and fights as well as extra-marital affairs, which impact negatively on the social, physical and psychological wellbeing of families. Accordingly, this has negative effects on the families' wellbeing. The African continent is equally under the pressure of the drug abuse menace, though the use of illicit drugs and substances has been assumed to be minor (Office for Drug Control and Crime Prevention [ODCCP], 2000; Shauri, 2007).

Accordingly, most of the Kenyan communities had values and rules that vividly stipulated when, where, and under what circumstances substances could be consumed (Shauri, 2007). Nevertheless, while the potential of drug abuse existed in this context, the existence of drug abuse as a social problem was minimal due to strong social cohesion and control, which acted as mitigating mechanisms (Mwenesi, 1995; Wainaina, 1981; [UNDCP], 1998). Traditionally, communities had well organised systems of control and use of such substances was within socially controlled environments.

Traditionally, *Khat* consumption was deemed acceptable during specific social activities such as marriage ceremonies and during festivities such as celebrating the birth of babies, initiation ceremonies, post-harvest and other social events. This has been the cultural practice for many communities in Kenya that used and consumed substances such as alcohol, tobacco and *Khat*. This cultural practise was done within the cultures of the communities. Their use was observed with the culture and traditional rules and values that strictly prescribed the circumstances under which these substances could be obtained, used and consumed (Shauri, 2007).

Restriction of consumption to such periods and events acted as regulatory mechanisms aimed at controlling abuse (Shauri, 2007). However, this strong cultural and traditional control mechanism over abuse of drugs and other substances such as *Khat* has been eroded over time by the process of modernization (Haji, 1985; Hoffman & Al Absi., 2010) and easy availability of such substances from place to place. This has made such substances available to a wider cross-section of people; which has direct or indirect effects on the wellbeing of families. Furthermore, *Khat* is a social drug which has both socio-economic and health effects on the consumers (United Nations Educational Scientific and Cultural Organization [UNESCO], 2013). In fact, in Meru county *Khat* remains one of the items of exchange before any marriage negotiations could commence. This practice has been retained by the Igembe and Tigania sub-groups of the Meru people to date (Mugambi, 2005).

In the colonial Kenya, the British Government realized the problems associated with *Khat* use, especially amongst its military personnel and local administrators and imposed control measures in the then British Colony and East African Protectorate

in 1939. The first serious step was taken when an Act prohibiting the use and sale of *Khat* was enacted in 1952, *Miraa* Prohibitive Act of 1952 (revised, 1962) Laws of Kenya, Chapter 339. The *Miraa* Prohibitive Act was suspended in January (1977) by the first Kenyan President, the late Mzee Jomo Kenyatta. Today, in Kenya, *Khat* is readily available for as little as Kshs. 20 - Kshs. 50 depending on the quality and quantity. In particular, *Khat* consumers living in *Khat* growing areas can easily get it, either by purchasing it, or provision of labour in exchange for *Khat*; or simply getting into *Khat* chewing groups. Thus, in *Khat* growing areas nearly every household own *Khat* trees making it readily available for consumption. Studies have been conducted focusing on the effects of *Khat* growing and consumption on education (Mugambi, 2005; UNESCO, 2013).

A Government of Kenya Report dated June, 1996, cited the exporters of *Khat* being of Somali origin, who use their great fortune in funding criminal activities and creation of violence. This is also due to increased disagreements that have led to family instability in form of violence, separation and divorce, Elmi, (1983); Haji, (1985); Pennings, Opperhuizen & Amsterdam, (2008), or neglect of family needs through diversion of income to support *Khat*-chewing related habits such as multiple relationships (Kalix, 1987). It is against this background, therefore, that this study assessed the effects of consumption of *Khat* on the wellbeing of families in Meru County.

1.2 Statement of the Problem

Wellbeing of families is a growing area of concern, especially when associated with drug and substance abuse. In fact, this is a worldwide concern as captured by various bodies such as the World Health Organization, governments and Non-governmental Organizations (NGOs). Apparently, the available literature on *Khat*, reveals, many contradictions brought forth by both western and African studies pertaining to the effects of *Khat* consumption, with some citing positive (such as its economic and social cohesion) and others citing negative effects to health, social and psychological aspects of human life. Many glaring gaps in knowledge still persist. More precisely, studies have been done on the effects of *Khat* consumption on Education (Mugambi, 2005); Nutrition (Ringera, 2013) and Health (Guantai, 1982).

There is need for this study on the effects of *Khat* consumption on the wellbeing of families because if *Khat* chewing continues, it will affect the education sector with low enrolment as well as lack of basic needs. The families' and communities may also result to loss of human and financial resources due to *Khat* consumption. The diversion of resources to *Khat* consumption habits influences the wellbeing of families. Additionally, there are no specific studies that have assessed the effects of *Khat* consumption on the wellbeing of families underscoring the need for this study in Meru County, where *Khat* is extensively grown and consumed.

1.3 Purpose of the Study

The purpose of this study was to assess the effects of *Khat* consumption on the wellbeing of families in Meru County. It is only with the knowledge of such a gap that one can begin to understand the effects of *Khat* consumption from the physical, social and psychological dimensions and be able to suggest coping mechanisms or alternative livelihood strategies in communities in Kenya.

1.4 Objectives of the Study

This study sought specifically:

i. To establish the prevalence of *Khat* consumption in Meru County.
ii. To find out the socio-economic drivers of *Khat* consumption.
iii. To determine the effects of *Khat* consumption on the physical health of consumers' families.
iv. To determine the influence of *Khat* consumption on the psychological aspects of *Khat* consumers' families.
v. To establish the influence of *Khat* consumption on the social health of families.

1.5 Research Hypotheses

In order to focus on the above problem, this study explored three major hypotheses. These have been generated from the literature on *Khat* chewing and its effects on the consumers' families. The null hypothesis is stated first followed by the alternative hypothesis. The hypotheses of the study were:

i. H_0 There is no relationship between *Khat* consumption and consumers' lack of sleep.

H_a *Khat* consumption has a positive relationship with the consumers' lack of sleep.

ii. H_0 There is no relationship between *Khat* consumption and the happiness of consumers' families.

H_a *Khat* consumption has a positive relationship with the happiness of consumers' families.

iii. H_0 There is no relationship between *Khat* consumption and consumers' level of education.

H_a There is a positive relationship between *Khat* consumption and consumers' level of education.

1.6 Significance of the Study

Wellbeing of families is a matter of concern for all nations because labour force emanates from families, which needs to be empowered to nurture, develop and capture talents to build and participate in the greater agenda of development. Thus, for this to happen, family wellbeing should be given priority. Apparently, drug and substance abuse has become a widespread social phenomenon in families (Shauri, 2007). This phenomenon has adverse effects on the wellbeing of families and needs to be studied and understaood for effective mitigation. Additionally, NACADA (2012) stated that *Khat* is a substance which needed more research to help in formulating policies and regulations for its control.

Many people may benefit from the findings of this study. The findings may provide a clear picture of the effects posed by consumption of *Khat* on the wellbeing of families in these areas. Such information is useful to both policy makers and

practitioners in developing intervention measures to mitigate the problem and enhance the welfare of families in the study area. This study has shown that *Khat* consumption has several effects on the wellbeing of families. Accordingly, the study findings not only creates awareness on the effects of *Khat* consumption on the wellbeing of families but also provides additional information to the existing literature on *Khat*-related issues, especially its use and implications on the welfare of families.

The study is significant since its findings, if utilised, may inform and strengthen policy-making processes through bodies such as National Agency for Campaign against Drug Abuse (NACADA), private institutions, the United Nations Drug Control Programme (UNDCP) and individuals on the effects of *Khat* consumption on the wellbeing of families. This study has generated concrete data which may facilitate the formulation of policies and strategies to enhance the wellbeing of the families of *Khat* consumers.

The study has made a contribution to the on-going debate on whether *Khat* is a drug or a cash crop and its ban in some countries such as the United Kingdom with regard to its consumption and exportation. This study has provided some insights with regard to effects of *Khat* consumption on the wellbeing of families and set the ground for further research in other contentious aspects of *Khat* and areas in Kenya where *Khat* is grown and consumed.

The findings have also provided additional materials to the existing literature on *Khat*. The pros and cons of *Khat* consumption on the wellbeing of families may contribute to behaviour change of readers who are consumers of *Khat*.

Finally, the study has made useful contribution on the methodological triangulation in the investigation of social phenomena. This is because the study has used both quantitative and qualitative methodologies to explore and understand the effects of *Khat* consumption on the wellbeing of families.

1.7 Scope of the Study

Geographically, the study was carried out in Meru County, which is predominantly known for its expansive area under *Khat* cultivation (Government of Kenya (GoK), 2008; Maitai, 1996; Ringera, 2013; Thiringi, 2001), which is a driver for its consumption. Whereas *Khat* is a problem facing many countries, in Kenya, Meru County is uniquely affected for the reason that the area has a long history in the consumption of *Khat*. Accordingly, *Khat* consumption has been incorporated in the social fabric of the residents and has since served many traditional purposes. In fact, *Khat* is widely grown and consumed in Meru County, where it has been widely accepted for its socio-economic reasons such as asking for audience from elders and traditional ceremonies such as marriage proposes and other social gatherings (NACADA, 2012; Ringera, 2013). The study was carried out in only three sub-counties of Meru County, namely Igembe South, Igembe North and Igembe Central which are predominately *Khat* growing and consuming areas of the county.

1.8 Limitations of the Study

Accordingly, the study has limited the generalizability of the results to the other *Khat* consuming areas. The findings of this study therefore were only generalized to the selected study areas and any other region with similar characteristics but not all areas in Kenya.

The study focused only on *Khat* consumers who were adult family heads. The sample was obtained from *Khat* consumers through use of systematic sampling from household heads of 18+ years. In this regard, the study confined itself to the responses given by family heads and did not include other family members' views and yet they were *Khat* consumers at the time of the study in a similar environment just like the study respondents. Furthermore, the study was limited to the wellbeing of families that consumed *Khat* and did not consider the wellbeing of families that did not consume *Khat.*

The study utilised a cross-sectional descriptive survey design, meaning that the data was collected at one point in time. Accordingly, the findings may not take into account of what had happened before the study or may happen after the data had been collected. This is a characteristic feature that limits survey design in explaining the past and the future but give situations as it were during the time of the study. The choice of the cross sectional descriptive survey design was necessitated by financial constraints that led to exclusion of other research designs such as participant observation and clinical approaches to the assessment of the effects of *Khat* consumption on the wellbeing of families.

1.9 Organisation of the Thesis

This thesis is organised into five chapters. Chapter one is an introductory chapter which provides the Background to the study, Statement of the problem, objectives, Hypotheses, Justification and Significance of the study, Scope of the study, Limitations of the study and definition of Key terms.

Chapter two reviews relevant literature presenting global, regional and Kenyan experience on prevalence of *Khat* consumption, socio-economic drivers of *Khat* consumption, effects of *Khat* consumption on the physical wellbeing of consumers' families, influence of *Khat* consumption on the psychological aspects of *Khat* consumers' families and effects of *Khat* consumption on the social health of consumers' families. Likewise, a section on observed gaps in literature review is presented as well as the theoretical and conceptual frameworks. Summary of literature review has been presented.

Chapter three presents information on research design, location and site description target population, sampling strategy and sample size, sampling procedures, research instruments, operationalisation of key variables, data collection procedures, management and analysis of data, ethical and logistical considerations. Finally, the problems encountered during field work and their solutions are also presented.

Chapter four presents the study findings. It starts with identifying the demographic characteristics of *Khat* consumers, socio-economic drivers of *Khat* consumption, influence of *Khat* consumption on the psychological aspects of *Khat* consumers' families, and the effects of *Khat* consumption on the physical health of consumers' families. This includes the frequencies, as well the bivariate (using Pearson's Chi-

square) and multivariate simple linear regression models) analyses. Further results from qualitative data are presented in themes *and* categories.

Chapter five provides summaries of the major findings of the study and draws conclusions. The chapter also contains the recommendations of the study and highlights their relevance in informing practice, policy and those for further research.

1.10 Definition of Concepts

Family - A group of people related by blood, marriage or adoption living in the same house or compound.

Household - A group of people living in the same compound fenced or unfenced answerable to the same head and sharing a common source of food four times in seven days preceding the survey and income during the study period includes unrelated servants and relatives.

***Khat* consumption -** This refers to chewing of green twigs from a *Khat* tree.

Physical health effects - These refer to observable positive or negative outcomes associated with chewing *Khat* such as stained teeth, headaches, loss of appetite, low productivity, lack of sleep, inability to cater for respondents' families basic needs

Psychological effects – These refers to emotional outcomes or experiences associated with *Khat* chewing such as lack of sleep patterns, feelings of meaningfulness of life, feelings of loneliness, confidence, anxiety and safety.

Socio-economic drivers - This refers to aspects leading to chewing of *Khat* such as availability of *Khat*, pass time, and peer pressure. It also refers to affordability of *Khat* for consumption by buying, from respondents' farms and from friends.

Social health - This refers to provision of social support to family members, spare time use, noise in the areas where respondents consumed *Khat* and provision of social support by family members.

Wellbeing - Wellbeing is a condition of holistic health in all its dimensions: physical, psychological, socio-economic aspects. In this study wellbeing refers to the Socio-economic, Physical and psychological aspects such as ability to feed and educate the children, provision of health care, employment status, level of incomes, fulfilment, personal experiences and level of happiness derived from *Khat* consumption. It also includes satisfaction levels of the consumers with their ability to make decisions, sleep, energy and ability to learn new information.

Effects - This refers to positive and negative outcomes posed by consumption of *Khat*.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The purpose of the literature reviewed in this study was to examine conceptual and empirical research to provide further understanding of the effects of *Khat* consumption on the wellbeing of families in Meru County. In this section the review is organised according to the study objectives. The Prevalence of *Khat* consumption, socio-economic drivers of *Khat* consumption, influence of *Khat* consumption on the Physical health of families, influence of *Khat* consumption on the psychological aspects and effects of *Khat* consumption on consumers' social health are presented. The chapter also has a section showing the theoretical and conceptual frameworks. Finally, a summary of literature review is presented.

2.2 Prevalence of *Khat* Consumption

Khat is a plant grown in the countries around the Red Sea and on the Eastern Coast of Africa. *Khat* grows wild in the countries bordering the Red sea and along the East Coast of Africa. *Khat*, scientifically known as Catha edulis is a popularly grown and consumed plant in Yemen, Ethiopia and Kenya (Kassim, et al., 2010). In recent years, improved roads, off-road motor vehicles, and air transportation have increased the global distribution of this perishable commodity. The demand from the *Khat* consumers encourages *Khat* growing due to profits made from *Khat* sales.

Khat consumption is a widespread practice in many European and African countries. A report by UNDP (2004) revealed that 4.1% of the global population use drugs among which *Khat* was included, a situation which was worrying for world nations. Globally, about 10 million people Chew *Khat* (Zeleke, et al., 2013).

Griffiths (1998) did a study among the Somali *Khat* consumers in London and noted that three fifths 60%, smoked cigarettes, of which three quarters were men. Heavy chewers of *Khat* reported that they used *Khat* to stay awake, increase work productivity and to feel 'high. He also reported that 47% of the respondents were unemployed, a fact that the study associated with *Khat* chewing. Additionally, the same study also found out that women chewed *Khat* secretly and that they were often labelled by men as prostitutes which impacted negatively on the family institution. This clarifies that *Khat* is mainly consumed by males and that female consumption was not traditionally accepted in many communities (Beckerleg, 2006).

Zeleke, et al. (2013) conducted a research to assess prevalence of *Khat* chewing practice, its associated factors and perceived health effects among communities in Dera, Woreda, and Amhara regions of Ethiopia. The study adopted a cross-sectional descriptive design and used lottery method to select respondents from the household members aged 15 years and above. Questionnaires were distributed to the respondents and in-depth interviews were conducted with purposively selected individuals. The study findings indicated that males were more likely to chew *Khat* at (OR, 18.53.; 95% CL) than females. The *Khat* chewing habit was more predominant among males 98.2%. Additionally, among all respondents 92.8% perceived health effects of *Khat* chewing practice. The respondents, who did not

perceive health effects of *Khat* chewing and did not have any family members chewing *Khat*, were 5 times more likely to chew *Khat*. The study concluded that, the prevalence of *Khat* chewing practice was 17% with high proportion of the *Khat* chewers found in the urban setting. Family chewing habit and perceived health effects reported were sleeping disorder, hallucination, teeth staining, depression, anxiety and loss of appetite. The findings of this study suggested that more research need to be done to ascertain the effects of *Khat* chewing among family members. However, no mention is made on its effects on the wellbeing of families that host its consumers.

There are many myths and traditions as to where and how *Khat* originated. *Khat* is said to have originated from Ethiopia and spread until its use covered Kenya, Nyasaland (Malawi), Uganda, Tanzania, Arabia, Congo, Zimbabwe, Zambia and South Africa (Krikorian, 1984); Haji, 1985). *Khat* was used in Yemen even before coffee and it was very popular. Most writers however, believe that *Khat* was introduced into Yemen from Abyssinia (Ethiopia) around the 15th Century. From Yemen it spread to Aden, Egypt, Southern Arabia, Kenya, Somalia and other countries along the East African Coast (Warfa, Klein, Bhui, Leavey, Craign & Stanfeld, 2007). The earliest scientific report of *Khat* presented to Western culture was by Peter Forskal in 1778. Forskal's findings were edited by Niebuhr who, in memory of his friend, gave it the scientific name Catha edulis (Haji, 1985). `

According to Osman and Soderback (2011), in a study they carried out among the Somali people, they found that, *Khat* is primarily chewed as a substance by four fifths 80% of males compared to 20% females.

A study done by Kebede (2002) in Ethiopia, indicated that slightly over two fifths 42%, of the Ethiopian college instructors were life time smokers of cigarettes or life time *Khat* chewers. Over half 56.8% and two fifths 40% of the instructors started smoking cigarettes and chewing *Khat* while in high school respectively. The study indicated that *Khat* chewing by the respondents enhanced performance of their duties and communication. *Khat* chewing was also suggested as an important factor for consumption of other substances.

Alem, Kabende and Kullgren, (1999) did a study, to determine the prevalence and socio-demographic correlates of *Khat* chewing in Butajira in Ethiopia. It was a house to house survey with a sample population of 10,468 adults. The findings revealed that more than half 55.7% of the population reported lifetime *Khat* chewing experience and the prevalence was at 50%. The respondents gave reasons such as to gain a good level of concentration for prayer and other activities such as work and for leisure activities for chewing *Khat*.

In Kenya, *Khat* is known by a number of names, *Miraa* is the most widely used, but its other names include *mairungi*, *ngomba*, *jiti* and *chat. Khat* is a tree of the celestraceae family that grows at high altitudes in East Africa and Yemen. The plant takes 2-6 years to yield its first crop. In Kenya, *Khat* is commercially grown in Mount Kenya region, although it grows wild in many other parts of the country (Maitai, 1973; Haji, 1985; Mwenda, Aroma & Kyama 2003; Ringera, 2013).

UNESCO (2013) noted consumption in Embu County have posed negative effects on the education sector and has led to the disregard of food crop growing as well cash crops such as coffee. Thus, availability of *Khat* has encouraged its consumption and disregard of other socio-economic activities.

According to NACADA (2007) the nation rate of *Khat* usage among males and females was 10% and 1.8% respectively. North Eastern province was listed as having the highest rate among the males at 38.7%, followed by Eastern province at 21.5%, Coast 16.8% and Nairobi 14.3%. The same report revealed that eastern province had the highest rate of female *Khat* consumers at 7% which was associated with its availability.

A report by NACADA (2012) showed that 4 million Kenyans use alcoholic drinks, 2.7 million take tobacco products and 1.6 million chew *Khat*. The same report listed *Khat* as one of the most abused drug and the third most consumed substance after alcohol and tobacco products in Kenya. The same report listed Eastern province as the leading consumer of *Khat* at 5.6 %. The report also listed *Khat* as an addictive substance but according to the Agricultural Acts Cap 318, laws of Kenya, *Khat* is recognized as both horticultural and a special crop under subsection "others". The prevalence rate of abuse of Alcohol, Tobacco, *Khat* and bhang was reported at 13%, 22%, 5.5% and 1% respectively.

It is apparent in all the studies reviewed that none had a direct link to the effects of *Khat* on the wellbeing of families underscoring the need for this study in Meru County- a region whose mainstay is *Khat*, the main means of livelihood.

2.3 Socio-economic Drivers of *Khat* Consumption

Khat is widely accepted as a social substance in Yemen, Djibouti and Somaliland where in some houses there is a special room set aside for *Khat* chewing by men. Usually a large number of people come together for "*Khat* party" during which ideas are exchanged (Kassim et al., 2010). This view is shared by Griffiths, (1998) who argued that more men chewed *Khat* than women. This view was also shared by the respondents in this study as more men participated in *Khat* chewing related habits than women.

According to Terfera, Kristen and Perret, (2004), *Khat* production is the second largest crop in terms of land area in Ethiopia, after coffee and it has taken over arable land because of its economic value and it is widely chewed by family adult members. Their findings also showed that, consumption of *Khat* were common among males of ages 16-55 years. The study cited the reasons for *Khat* chewing as a way of promoting social interaction and passing time. This study was done in Ethiopia and the results from its widespread cultivation, which increases its accessibility to the consumers in Ethiopia. This led to decreased production of other essential crops such as millet, sorghum, peas, beans and maize. It also encouraged intercropping of *Khat* with food crops to sustain the market for *Khat*, making its availability an important aspect in its consumption.

In Nyeri County, *Khat* consumption has been associated with *Khat* growing in the areas where constant food crop destruction by wild animals such as elephants has been experienced and the fact that it fetches higher returns than the food and cash crops (Michuki, 2013; Muthui, 2013 & UNESCO, 2013). This has promoted poor

dietary habits which have led to malnutrition and other diseases in the affected areas (Thiringi, 2001, Ringera, 2013). Plates taken by the researcher from the study areas also indicate the extent of intercropping of *Khat* and food crops such as maize, arrowroots and beans to avail *Khat* to the consumers in the study areas and the widespread markets elsewhere as illustrated in Plates 4.1 and 4.2.

According to Donde (1984) and Ogolla (1993), in their studies done in Kenya they noted that traditional African communities lived in a rural setting and their lives were controlled by the natural order of wet and dry seasons. Leisure today is different from what it used to be in African traditional communities which lacked Western calendars and clocks. This has led to increased misuse of substances that were otherwise meant to facilitate socialization (Shauri, 2007).

Khamis (2004) did a study to determine the socio-demographic correlates of *Khat* users, patterns of *Khat* use, attitudes and evaluated the associated social and psychological problems on *Khat* users in Nairobi. He used a cross-sectional descriptive survey method and conducted face-to-face interviews among 201 respondents, comprising 138 males and 63 females. The results indicated that, 69% males and 31% females were *Khat* consumers. Further, the findings revealed that, 52% of the consumers did not associate *Khat* chewing with any negative effects, while 41% were aware of the negative effects associated with *Khat* chewing. The study concluded that there was a significant relationship between the level of income and quantity of *Khat* chewed. This meant that constant income improved the ability of the consumers to purchase *Khat*.

Additionally, consumption of *Khat* may lead to adoption of deviant behaviours such as addiction to substances and drugs which take toll on the family stability. These alien practices negatively impact on the wellbeing of families. This is consistent with Michuki (2013) who reported that there was need to put in place some regulations to avert the negative social economic effects associated with consumption *of Khat*. Similarly, consumption of *Khat* has been perceived as a contributing factor, to abuse of other substances such as bhang and cocaine (NACADA, 2007, 2012). Thus, lack of control and its availability on *Khat* has according to these reports encouraged its consumption.

In Meru County, there are three well-known commercial varieties of *Khat,* namely *Kangeta, Giza* and *Lare,* each deriving its name from the location where it is grown. The *Kangeta,* long red variety is tied in 'twos' (twigs) and the *Giza* type is tied in 'fours' or 'fives' as it is a smaller variety. The bundle refers to the retail unit; hence ten bundles form a *"kilo*," which is the commercial unit (Abdi, 2008). The price of a bundle (*bandari)* varies, from Kshs. 50 to Kshs. 400, depending on the place where *Khat* is bought, type and season. It is also reported that cultivation, and trade of *Khat* is very lucrative in Kenya and other countries where it is consumed. This makes it possible for consumers to have easy access to *Khat* for consumption. This has been made possible by improved transport to the market centres and access through provision of labour in the *Khat* farms.

The ban of *Khat* importation by the United Kingdom, as well as looming classification of *Khat* as a drug of abuse by NACADA, has thrown both *Khat* growers and consumer off balance. The NYAMITA spokesman in the Standard

Newspaper stated that the move will adversely affect the famers and traders in the Eastern Region of Kenya (Mwaura, 2013). Newspapers and periodicals, occasionally comment on the importance attached to *Khat* consumption among *Khat* growers; thus popularising it and indirectly downplaying its negative effects on the wellbeing of the families. In another study, Guantai, (1982) emphasised the importance attached to *Khat* consumption because of its cultural importance which was also highlighted by (Haji, 1985) . Thiongo (2015) reported that, the County Assembly of Nairobi had passed a motion to have official *Khat* markets in Nairobi. He further urged that the move would enhance the distribution and mark the end of harassment of *Khat* traders by County authorities. He further emphasized the importance of *Khat* as a revenue earner for Kenya and for employment to thousands of Nairobi residents. The effects of chewing *Khat* were not mentioned in the discussion.

Nationally, diversion of resources towards the production or importation and marketing of *Khat* has a negative influence on the economies of *Khat* consuming countries. Baasher (1980) estimated that, in the cities of Somalia and Yemen, consumers spend about 25% of their daily earnings on *Khat*. The countries such as Kenya which grow and consume *Khat*, consider it as a double-blessing to its economy. This is more so among the Meru County residents, who consider *Khat* as a cash crop and economic backbone of the county. The Nyambene *Miraa* Traders Association and the Meru County leaders are determined to go to any level, to enable *Khat* to be listed as a cash crop (Kimathi, 2013). This view was supported by the respondents in this study, who maintained that *Khat* was a cash crop just like tea and coffee. In most countries where *Khat* is grown and consumed, such as Kenya, studies

related to its growing or consumption are necessary to fully understand it from the residents' perspectives hence this study was deemed necessary to assess the effects of *Khat* consumption on the wellbeing of families.

Among the Meru people, *Khat* chewing sessions took place after a long day's work and were usually accompanied by traditional beer taking. This was usually in celebration of a long day's work. According to Maitai (1996), *Khat* chewing was reserved for the elderly men in a wide range of African cultures. Today, *Khat* is used by anyone who can access it. This has allowed the youth and young adults to venture into *Khat* use and activities both in the rural and urban areas, which in turn has affected the family unit (Mugambi, 2005; Thiringi, 2001; Ringera, 2013). The above researchers agree that, *Khat* consumption negatively impacts on the nutrition, education and health status respectively if taken in excess.

2.4 Influence of *Khat* Consumption on the Physical Health of Families

According to Klein (2008); ACMD, (2013), *Khat* use among immigrants in London neighbourhoods resulted to low anti-social behaviour such as noise, smoking cigarettes on the pavements and fighting. These ant-social behaviours according to the two reports can only be controlled if tangible legal frameworks are developed to regulate *Khat* consumption to minimise its effects on the consumers and their families. The findings further indicated that *Khat* use facilitated interaction and communication among immigrants in London.

Griffiths (1998) report did not consider *Khat* use among immigrants in London as dangerous to the families and did not associate importation ban to consumption effects. He carried out a survey of 207 Somalis living in London. The use of *Khat* was associated with cultural identity, high unemployment and more free time available for the practice. The effects of *Khat* chewing reported were anxiety, irritability, agitation and aggression. Cigarette smoking was reported by three fifths of the respondents, with only a minority 6% who admitted use of cannabis as they chewed *Khat*.

Patel and Murray (2005) reported low crime rate and violence associated with *Khat* consumption. Among the women, only six out of 602 respondents reported association of *Khat* with domestic violence but among the Ethiopians and Yemenis, there was no mention of any link of violence to *Khat* consumption.

Additionally, Bhui and Warfa (2010) carried out a study to investigate whether there was a relationship between *Khat* use and psychotic disorders among Somali immigrants in the UK. The study had a population sample of 180 Somali men and women. The study findings indicated that, there was no relationship between *Khat* use and psychotic disorders. The study also reported that, the frequency of *Khat* use was not associated with common psychotic symptoms of anxiety and depression. The study associated the finding with the environmental conditions where *Khat* was used by the Somali immigrants.

Doughlas, Boyler, and Lintzeris (2011) did a study to identify the patterns of *Khat* use among Somali-Australians in Australia and to explore their views about the links between *Khat* use and personal health. The study administered semi-structured

FGDs among adult members of Somali communities in Brisbane. The study reported increased energy, lack of sleep, anxiety, loneliness and reduced appetite among the *Khat* chewers. This study provided insights on the effects of *Khat* use thus it provided background information on the subject matter of the current study though no linkage was demonstrated by the study on its effects on the wellbeing of families.

Family breakdown was reported by UK Somali Women as the most serious consequence of *Khat* consumption (Turning, 2004). Similarly, Sundhedsstyrelsen (2009) did a study in Denmark, among Somali resident and reported that two thirds of Heavy *Khat* users were divorced and had not completed secondary school. This, according to Milanov (2008) could have been due to diversion of income to *Khat* chewing and neglect of family responsibilities.

Giannini, Burge, & Shaheen (1986) found out that regular chewing of *Khat* led to adverse effects on health and socio-economic status of the families. They reported effects such as loss of work hours, decreased socio- economic productivity, malnutrition and diversion of resources meant for family use. The above effects were reported in *Khat* chewing communities in Ethiopia, Somali, Uganda and Kenya. The same studies also reported that moderate use of *Khat* led to desirable results such as, enhance work performance and increased workout.

Khat consumers commonly divert their income into *Khat* chewing related activities, neglecting their families' needs (Kalix, 1987; (Numan, 2004). Other effects they reported were that *Khat* chewing was a widespread habit among students, employees and housewives. The sample size was 800 respondents of ages (15-76) years. The study concluded that *Khat* chewing was not associated with adverse psychological

effects. *Khat* has furthermore been implicated as a causal factor for family instability, divorce and violence (Elmi, 1983; Muthuri & Muchui, 2012). The average family income can sometimes be halved to support *Khat* chewing (Basher & Sadoun, 1983).

Haji (1985) did a study on the socio-economic related to *Khat* use and abuse in Garissa, Kenya. The sample size was one hundred and fifty respondents randomly selected from the same number of households. The study findings showed that Rapid social change 60% availability 35% of *Khat*, boredom 35%, and influence from friends 50% encouraged its consumption. Other effects reported were marital instability, child neglect, poor health, poverty and neglect of work by *Khat* consumers.

United Nations Educational Scientific and Cultural Organisation [UNESCO], (2013) report indicates that *Khat* is a social drug that has both social and health effects on the users. The study used a cross-sectional survey design and collected data from varied range of stakeholders from Embu County. The study found that, *Khat* business had adverse effects on education in Embu County. The study also cited lack of effective strategies to mitigate the effects of *Khat* consumption on schooling. Notably, education is one of the aspects that contribute to the general wellbeing of the family institution.

2.5 Influence of *Khat* Consumption on the Psychological Aspects

Tulloch, Frayn, & Craig (2012) in one of their study conducted among mental health database covering 150,000 patients in the UK. They found, from the 240 Somali patients investigated that 71.7% reported having used *Khat* at some time in their

lives, with only 33.3% reporting current use as per the time of the study. The study revealed that, large numbers of Somali reporting mental health problems were not consumers of *Khat*. This agrees with Numan, (2012) , that evidence relating to the relationship between *Khat* and broader mental health conditions such as depression and anxiety are inconclusive and contradictory because according to Odenwald, Warfa, and Bhui (2010), *Khat* use has beneficial mental health effects when used in moderation and in a traditional *Khat* setting. No wonder in the current study, the respondents agreed that they consumed *Khat* with their family members, business associates and friends which enhance interaction among them.

A study done by Kassim and Croucher (2006) did a study among Yemeni UK permanent residents and reported that there was no relationship between *Khat* use and loss of productivity or absenteeism from work. Furthermore, in a study done by Sykes, Coleman, Desai, Groom, Gure & Howarth (2010) among Yemeni, Somali and Ethiopian consumers indicated that they used their free time to chew *Khat*, which included weekends. Anderson and Carrier (2011) found a general lack of robust evidence relating to social harms associated with chewing of *Khat*. Accordingly, *Khat* consumption was associated with violent behaviour but causal connection was not clearly demonstrated.

Hoffman & Al Absi (2010); Kassim, Islam, & Croucher (2010) reported that *Khat* contains alkaloids *cathine* and *cathinone* which have amphetamine-like properties and produce a euphoric effect, a sense of elevated self-esteem and increase in libido which are found with the use of amphetamines in general. The study associated *Khat* consumption with negative effects of irresponsibility and an undesirable lifestyle.

Hassan, Gunaid, El-Khally, & Murray-Lyon (2002) did a study on the effects of chewing *Khat* leaves on human mood in Saudi Arabia. They reported sporadic reports of a possible association between *Khat* use and the occurrence of hypomania, aggressive behavior among users. Subjective experiences of *Khat* use were reported to be positive when small amounts were consumed. These subjective experiences reported were feelings of Psychological wellbeing such as excitement, increased energy levels, increased alertness, increased ability to concentrate, improved self-esteem and increased libido. In addition, an enhanced imaginative ability and capacity to associate ideas, improvement in the ability to communicate and a subjective improvement in work performance were also reported. When chewing ceases, unpleasant after-effects such as insomnia, numbness, lack of concentration and low mood occurred. Some chewers also reported unpleasant effects during the chewing, such as anxiety, tension, restlessness and hallucinations.

The Somalis consume *Khat* in places they refer to as "*Marfishris*" which according to Asha (2012) were unhygienic and generally unattended to, which may cause health-related problems. A cross-sectional study was conducted using snowball sampling, Privileged Access Interviewing and area mapping in order to identify *Khat* sale establishments. Data was collected via face-to-face interviews using mixed

methods for data collection. This included information about the establishments selling *Khat,* pricing and its use among different ethnic minority groups, in addition to the potential sale of *Khat* to children and risk assessment (such as use of *Khat* sprayed with of pesticides). The study was carried out in the United Kingdom (UK) before the country imposed a ban on the importation of *Khat*. These places are usually private and are limited for occupation by up to 8 males (Nanuzoka & Badhadhe, 2000).

Numan (2004) carried out a cross-sectional survey to find out whether there were any associations between psychological symptoms and *Khat* use in the Yemeni population of 800 adults, both males and females. Details of *Khat* use and socio-demographic data were collected. At least one life-time episode of *Khat* use was reported in 81.6% of men and 43.3% of women. Male users tended to use *Khat* more frequently. The incidence of adverse psychological symptoms was not greater in *Khat* users. In fact, there was a negative association between the incidence of phobic symptoms and *Khat* use. Though *Khat* use is very common in the Yemeni population, particularly in men, the study found that it was not associated with adverse psychological symptoms. Moderate use of *Khat* was found to lead to relative psychological wellbeing among respondents who consumed *Khat* three times a week.

Al Habori (2005) did a study among the Somali immigrants in London and found that, 34% had used *Khat* in the month prior to the interview although less than 4% reported using the drug on a daily basis. Studies generally reported more use of the plant among males, usually in group settings (Kassim et al., 2010). There may be a

tendency to under-report *Khat* use among women, which shows a more stigmatized behaviour and more likely to occur at home or alone. Use of *Khat* was highly associated with recreational and unemployment related aspects among immigrant communities.

Khat is taken to produce excitation, banish sleep and promote communication and is both social and culture-based activity (Kalix, 1984). In animals, it produces excitation and increased motor activity, while in human beings; it is a stimulant producing a feeling of exaltation, and of being liberated from space and time. Also, in humans, consumption produces extreme loquacity, inane laughing and ultimately semi-coma. Sometimes produces depression, sleeplessness and then deep sleep. In rare cases, the user becomes aggressive and over-excited. The respiratory rate and pulse rate are accelerated and the blood pressure tends to rise. Sometimes the victims have a decrease in the functional capacity of the cardiovascular system. It also leads to low productivity due to absenteeism and the after-effect of its use (Critchlow, 1987).

Khat consumption has traditionally been confined to the regions where it is grown, because only the fresh leaves have the desired stimulating effects and growing it is an important confounding factor to its use. In addition, *Khat* chewing produces strong aroma and generates thirst. This explains why *Khat* consumers take soda and other drinks during *Khat* sessions. Casual users claim that consumption of *Khat* uplifts their spirits, strengthens their thinking and when its effects wear off, generates mild lapses of depression similar to those observed among cocaine users (Kalix, 1987). This finding is supported in a study done by Kassim, et al. (2010), among

Somali immigrants in Australia, which revealed that *Khat* was mainly chewed for its stimulating effects.

George, Zahid, & Tim, (1995) reported a positive association between the occurrence of anxiety, aggressive behaviour and depression in *Khat* users in Britain. The study referred to *Khat* use as self-limiting with several subjective experiences which were perceived as positive when small amounts of *Khat* were consumed. The experiences reported were excitement, increased energy levels, increased alertness, increased ability to concentrate on work, improved self-esteem, increase libido and ability to communicate and receive information. However, the study reported a number of unpleasant after-consumption effects such as loss of appetite, agitation, restlessness, low mood, numbness, tension and anxiety. This makes the present study relevant among *Khat* consumers in an area where *Khat* is grown and consumed to try reconciling this lack of consensus with regard to its effects, especially on the wellbeing of families.

Aden, Dimba, Ndola, & Chindia, (2006) did a study on the socio-economic effect associated with *Khat* chewing in North Eastern of Kenya. The study was done in Ijara Sub-county. The study used across sectional descriptive survey method and found that; majority 80.0% of the respondents had family members who engaged in *Khat*-chewing and there were general low levels of education and misuse of family resources to purchase *Khat*. The respondents also reported mood changes and withdrawal symptoms which made them to feel lonely. Over half 54%, of the respondents who consumed *Khat* started the habit from morning, leading to waste of time which could have been used for productive work. However, two fifths 40% of the persons who consumed *Khat* admitted that *Khat* affected their work

performance negatively. The same view was shared by Turning, (2004) and Sykes, et al. (2010) who reported that *Khat* consumption acted as a barrier to gainful employment because of the time spent chewing it and in its associated habits. The *Khat* chewing habits were associated with strain on family relationships, anti-social behaviour and health effects such as insomnia.

Additionally, Ringera, (2013); Thiringi, (2001); found out that *Khat* consumption posed negative effects on the families nutrition. The study also found out that *Khat* consumption posed negative effects on the families' nutrition. The present study was done among family heads in Meru County where *Khat* is the main economic mainstay and therefore extensively consumed to assess the effects of *Khat* consumption on the wellbeing of families.

2.6 Effects of *Khat* Consumption on Consumers Social Health

Khat chewing is an ancient practice which was socially and traditionally acceptable in many parts of the African and Arabia though its long-term use can lead to addiction (Kalix, 1983). According to Cox & Rampes (2003), *Khat* use is claimed to have originated in Ethiopia but it is now widely used in Somalia and East African scholars who have done various researches on *Khat* (Baasher, 1983; Haji, 1984; Cox & Rampes, 2003; Omar & Besseling, 2008). In recent years, improved roads, off-road motor vehicles, and air transportation have increased the global distribution of this perishable commodity. This has increased its distribution and availability hence lack of dosage control has led to widespread consumption across all ages and gender. *Khat* availability has also led to increased markets for countries and consumption where it is grown and its consumers (Al Habori, 2005; Odenwal, Warfa, & Bhui 2009).

Khat use is sporadically reported in Europe as a substance of choice among immigrants from Yemen, Somalia, Ethiopia and Kenya. There are a number of published studies by Kassim & Croucher (2006); Klein, (2008); Bhui and Warfa, (2010) on *Khat* use by immigrant communities in European countries. However, these have mostly been conducted in the UK, and it is unclear to what extent their findings can be assumed to reflect patterns of use elsewhere in Europe. Such reports are subject to sampling bias due to the way in which interviewees were recruited. Nonetheless, the studies available do point to significant levels of use within some migrant communities but evidence relating to dental health and other health risks amongst *Khat* chewers was inconclusive, according to Wabe (2011) but the habit exposes them to toxic pesticides, where *Khat* is sprayed (Corkery, Schifano, & Oyefeso, 2011).

In Netherlands, where *Khat* use was legal until 9th January 2012, Douglas, Boylers & Lintzeris, (2012), reported low levels of anti-social behaviour such as spitting of *Khat* cud on the street, noise and fighting. The finding shows, the need to put proper legislation to enhance order among *Khat* chewing societies.

Kassim, Islam & Croucher (2011) did a cross-sectional study among Yemeni *Khat* Chewers resident in UK with a purposive sample of 204 respondents. The study revealed that 65% of the respondents also smoked cigarettes. The scores recorded during *Khat* chewing and a linear multiple regression modeling showed that increase in levels of severity of dependence on *Khat* chewing were positively correlated in levels of nicotine dependence. The study formed the basis of the current study.

According to Hussein and Areely, (2008) consumption of *Khat* is widespread in several countries of Eastern Africa. Chronic consumption of *Khat* leads to loss of appetite. The study further indicated that moderate use of *Khat* leads to relief from boredom, enhanced communication, increased libido and increased efficiency, aggressive behaviour and hyper alertness. Furthermore findings from the study done by Hussein , et al. (2008) suggested that there was need to fill the knowledge gaps especially in areas where *Khat* is widely grown and consumed.

According to Alem, Kabede, & Kullgren, (1999), *Khat* chewers reported their subjective experiences on *Khat* use in a positive way when consuming small amounts. They described a feeling of excitement, increased energy levels, and increased alertness, increased ability to concentrated and increased libido. The study also found that the chewers also experienced an enhanced imaginative ability and capacity to communicate and a subjective improvement in work performance. On the other hand, the study, reported unpleasant negative effects such as anxiety, tension and restlessness among chronic *Khat* users. An earlier clinical study done by Alem and Shibre, (1997), in west London, confirmed that adverse negative effects are dose-related. The same study reported loss of working hours, decreased socio-economic productivity and malnutrition among habitual *Khat* consumers. These contradictory findings points to literature gaps and need for more research to understand the effects *Khat* consumption on the wellbeing of families.

According to Klein, Metaal and Jelsme (2012), *Khat* prohibition cannot be a measure for integration and social inclusion of Somali communities in European countries. They further noted that *Khat* consumption reinforced isolation and vulnerability.

Anderson & Carrier, (2011) concluded that the effects of *Khat* consumption on social cohesion and community reputation were disputed and more studies should be done to clarify the effects of *Khat* chewing. Due to the above contradictory findings, there was need for this study to be conducted in a social environment where *Khat* is grown and consumed.

Khat is mostly chewed in the predominantly Muslim and Christian parts of Eastern Africa and the Middle East; which are greatly associated with its availability. Baasher (1980) observed that, the use of *Khat* had begun to affect many relationships among families leading to separation and divorce. Additionally, Alem, Kebede and Kullgren (1999); Hoffman and Al' Abisi (2010) found that more men consumed *Khat* than women and they were recognised by the brownish stains on their teeth. He further found that they suffered from chronic insomnia, and constipation. Additionally, Elmi (1983); Kennedy, (1987); Nabuzoka & Badhadhe, (2000), reported that *Khat* chewing was less appealing to women, although in Somaliland, chewing had become more popular among middle class and educated women, which was an indication of higher socio-economic status enjoyed by the elites (Gebissa, 2010).

Kebede, Belew, and Kassaye, (2010) did a study on the magnitude of *Khat* use and its association with health, nutrition and socio-economic status; results borne out of a sample of 1200 rural Ethiopians indicated that, males of 15-34 years were habitual *Khat* chewers. The findings also showed that, there was a significant association with factors such as physical illness (OR= 1.52), under nutrition (OR= 1.76) and injuries at (OR= 2.31) and mental distress (OR=8.30). The study concluded that,

Khat use was strongly related to physical and mental ill-health and family socio-economic wellbeing was unrelated to *Khat* use. The study also revealed that they chewed slowly over several hours (average 4-6) as they engaged in long discussions. This put strain on the families' socio-economic wellbeing through the use of family earnings to buy *Khat* for consumption, use working time to chew *Khat* and use of other substances and alcohol. The findings make the present study relevant because respondents are consumers of *Khat* in a county where *Khat* is predominantly grown and consumed.

A study done by Kassim, Islam, & Croucher, (2010) indicated that *Khat* is a recreational psycho-active drug with psycho-stimulant properties which is widely grown in Eastern Africa, including the horn of Africa and widely consumed in many parts of the world due to improved means of transport. The study concluded that, chronic short-term use of *Khat* and ethanol produced noteworthy effects on the blood of the rats that were randomly selected for the study. This study was done in Uganda and revealed that, simultaneous *Khat* and ethanol administration did not produce more toxic consequences in chronic users of *Khat.*

Khat is readily available and widely chewed in Kenya by people of all ages and gender (Maitai, 1996). *Khat* is a stimulant and is used to improve work performance; stay alert and to increase output capacities, when taken in moderation (Haji, 1985; Ringera, 2013). On the other hand, consumption of *Khat* leads to diversion of family resources, which hinders families from accessing basic commodities such as food, clothing, formal education and medication. *Khat* is usually packaged in plastic bags or wrapped in banana leaves to retain its moisture and freshness. It is usually

sprinkled with water during transport to keep the leaves moist. *Khat* also may be consumed as dried or crushed leaves or in powdered form. It is sold in kiosks, open air markets and from the farms. It is also shared among chewing-cliques, as they catch up with daily happenings. Family members are often seen chewing *Khat* as they perform their daily activities.

Mwenda, Arimi and Kyama (2003) did a research on the effects of *Khat* consumption on reproductive functions. The study reported that, *Khat* chewing had negative effects on human reproduction health, low birth weight of infants born of *Khat* chewing mothers, and adverse effects on the potency of male sexuality among *Khat* consumers. This study pointed out the need for more *Khat* related studies, to fill the existing knowledge gaps and to ascertain the reported findings. This explains why NACADA, (2012) emphasises that *Khat* should be regulated, due to health related effects, however, the regulation of *Khat* consumption may affect the socio-economic wellbeing of communities who depend on growing of *Khat* as a cash crop.

2.7 Theoretical Framework

The main aim in this section is to outline the major theoretical perspectives by which guided the research. This is in realization of the fact that any sociological analysis involves theorizing because the act of research itself necessarily involves making certain questionable propositions about the nature of social reality and how it becomes intelligible to us. In this view, this study was guided by three theories, which enhanced the understanding of the subject of study and the interaction of study variables. According to Singleton (1998:24), "all empirical studies should be grounded in theory". Kombo and Tromp (2006:56) defined "a theory as a reasoned

statement or groups of statements which are supported by evidence, meant to explain a phenomena".

Accordingly, the theories used in this work include the Reference Group Theory by Herbert & Singers, (1968), Social Learning Theory by Newman and Newman, (1999) and Symbolic Interaction theory by Andersen & Taylor, (2004). Each of these theories has been discussed sequentially showing their applicability to this study in the sections that follow.

2.7.1 Reference Group Theory

This theory is credited to Herbert & Singers, (1968). According to Herbert and Singers (1968), "Men shape their attitudes to reference groups other than their own". The references groups, according to them, are the groups within which individuals are members or aspire to maintain membership. Such groups provide a form of reference and attitude formation for members. The basic assumptions of reference group theory are that an individual's attitudes and conduct are shaped by the group in which he has membership and that self-appraisal and the correlative feelings and behaviour flow from the individual's location in a particular group within a social hierarchy. This point is collaborated by the psychology of groups which states that in a group environment, individuals will conform to the norms of the group so as to have a sense of belonging. The choice of a reference group according to these authors is based on simple assumptions about motivation and maintenance of social patterns which are of value to the group members. In their view, group members have their own set rules and they understand their limits.

Reference group theory is considered relevant to this study in that people may get involved in *Khat* consuming habits, to fit in their peer groups or for identity purposes. Furthermore, *Khat* consumers acquire a sense of belonging and identity as they consume *Khat*. They consider *Khat* to be a prestigious commodity to the community for its socio- economic aspects. This encourages others to follow emulate reference groups for identity and solidarity purposes. *Khat* consumption activities are done in groups and mostly in the company of family members, business associates, relatives and friends. Following this line of argument, we can deduce that the *Khat* consumption is a practice which is learnt from individuals or reference groups. Some members of a group may depart from the modal pattern of behaviour simply because of their simultaneous membership in other groups.

2.7.2 Social Learning Theory

According to Newman and Newman (1999), the key tenets of social learning theory are that, learning is not purely behavioral; rather it is a cognitive process that takes place in a social context. Learning can occur by observing behaviour and by observing the consequences of the behaviour (vicarious reinforcement). Additionally, learning also involves observation, extraction of information from those observations, and making decisions about the performance of the behaviour (observational or modeling). Consequently, reinforcement plays a role in learning but is not entirely responsible for learning. Finally, the learner is not a passive recipient of information. Cognition, environment, and behaviour all mutually influence each other (reciprocal determinism).

Accordingly, Social learning theory considers the formation of one's identity to be a learned response to social stimuli. It emphasizes the societal context of

socialization rather than the individual mind. This theory postulates that an individual's identity is not the product of the unconscious (such as the belief of psychoanalytic theorists), but instead is the result of modeling oneself in response to the expectations of others. Behaviors and attitudes develop in response to reinforcement and encouragement from the people around us. While social learning theorists acknowledge that childhood experience is important, they also believe that the identity people acquire is formed more by the behaviours and attitudes of others (Abraham, 1992).

The concept of social learning evolved from awareness that much learning takes place as a result of observing and imitating other people's behaviour (Newman & Newman, 1999). Thus, changes in behaviour occur without being linked to a specific pattern of positive or negative reinforcement and without numerous opportunities for trial and error practice, but merely from the imitation of observable models. This means that according to the Social Learning Theory, imitation is emphasized as the mental process through which, one can learn certain behaviour and also acquire a motivation to perform or resist performing that behaviour depending on what is learned about the behaviour (Andersen & Taylor, 2004; Newman & Newman, 1999). In this way, through observational learning, both young and old people become acquainted with the general concepts of situations as well as specific behaviours.

According to Berk (1999) parents influence their families' behaviour and social relationships. This fact explains why consumption of *Khat* is entrenched in families. The rules for behaviour in each social setting are constructed from what has been

observed in watching others and what happened to them following their behaviour in the past and what one understands about the demands in the immediate situation (Newman & Newman, 1999). This theory is important for understanding why people indulge in *Khat* consumption and other *Khat*- consumption behaviours. Most people learn from their social environment and according to the interpretation of what they consider worthwhile. This is where families and other social environments play a major role in either practicing the learnt behaviours.

Social learning theory is also applicable to this study because it emphases on people learning through observation. This explains the use of other substances such as alcohol and bhang during *Khat* chewing sessions. Precisely, as they grow up, there is a tendency to develop a positive attitude towards consumption of *Khat* especially if they have a role model who consumes *Khat.* Given the fact that *Khat* growing is the economic mainstay in the county, the people in this environment associate wealth and prestige to *Khat* growing, Thiringi (2001) thus reinforcing its consumption. At this point, widespread *Khat* consumption among family members especially the elder members whom are looked up to, for guidance and direction. Furthermore, consumption of *Khat* is a legal and acceptable behaviour in Kenya. This fact explains why family members chew *Khat* irrespective of age and gender, while traditionally *Khat* chewing was a preserve of the elderly after a hard day's work.

2.7.3 Symbolic Interaction Theory

The symbolic interaction perspective, also referred to as symbolic interactionism, is a major sociological framework which relies on symbolic meaning that people develop and rely upon in the process of social interaction. Although this theory traces its origin to Max Weber's assertion that individuals act according to the interpretation of the meaning of their world, the American Theorist George Herbert Mead introduced this theory to the American Sociology in the 1920s. Herbert Bulmer coined the term "symbolic interactionism".

According to Eshlemon, Cashion, & Basirico, (1993), symbolic interactionists assumes that society exists within every socialized individual and that its external forms and structures are through the social interaction taking place among individuals at the symbolic level.

Symbolic interaction theory analyses society by addressing the subjective meanings that people impose on objects, events, and behaviours. Subjective meanings that people are given primacy because it is believed that people behave based on what they believe rather than what is objectively true. Thus, society is thought to be socially constructed through human interpretation that forms the social bond. The social bonds are known as the definition of situations in society**.**

According to Andersen and Taylor (2004), People do not act or react automatically but carefully consider and even rehearse what they are going to do. They take into account the other people involved and the situation in which they find themselves.

The expectations and reactions of other people greatly affect each of the individual's actions.

According to Symbolic Interaction perspective therefore, human behaviour is determined by the social and cultural environment within which they live". In this way, as social beings, humans act in response to other people's actions. They make symbolic meaning out of other people's actions, modify the meanings and eventually interpret them to fit in their situations. Depending on the interpretation derived, they may want to copy other people's behaviour thereby reaching a common understanding of reality and consequently displaying a common response (Giddens, Duneier, & Appelbaum., 2005).

Symbolic Interaction theory assumes that one is not under any obligation to act or think as the group members dictate. Antithetically, the Symbolic Interaction theory, asserts that external forces do not determine action but can influence behaviour patterns. This helps people in developing their own orientations to define and shape their social reality. This may lead to other alien behaviours, which are not in tandem with the group norms, hence a high likelihood that the non-chewers may end up adopting these values to fit in the social group or even develop deviant behaviours which are alien to the prevailing ones (Giddens, 2001).

From the interactionists' perspective, meanings are created, modified and changed by actors in interaction situations. To understand social actions, sociologists must examine the process of interaction and interpretation of meanings that develop within it and which guides and directs the action of the actors, who are in this case, consumers of *Khat.*

Symbolic interaction theory is relevant to this study because it explains how people tend to try and fit into certain groups that they hold in high esteem. In this scenario, people may indulge in *Khat* consumption in order to belong or to identify with those already consuming it because of the interpretation of the signs they receive from their role models. *Khat* consuming residents who are also in an environment where *Khat* is grown believe that they have to chew their '*green gold'* which they say is the best in the world. In other words, people's interaction with *Khat* consumers encourages them to get involved in *Khat* consumption in order to fit in their social environment.

This theory is also applicable to this study because it can be used to explain why some of the respondents consumed *Khat* with other substances such as alcohol and drugs which deviates from the traditional *Khat* consuming norms, which were strictly adhered to in most African traditional *Khat* chewing societies. Yet to understand the practices of *Khat* consumers, it is necessary to discover the meaning that directs their actions in participation in *Khat* consumption practices which in turn have negative effects on the wellbeing of families.

The rationale derived from the theories explained above was that *Khat* consumption is a group practice and the socio-economic importance attached to *Khat* in a social environment where its easily availability for consumption. The socio-economic aspects associated with *Khat* consumption may prevent the household heads from providing basic needs such as food, school fees, clothing, and payment of bills and provision of healthcare to their families. This is explained by diversion of income to other *Khat* consumption-related practices such as taking alcohol and cigarettes.

These practices have socio-economic, physical and psychological negative effects on the wellbeing of families.

From the preceding discussion, none of the three theories was sufficient enough in explaining the complexity of the nature of *Khat* consumption on the wellbeing of families. Paradoxically, each theory might become correct under different circumstances. Nevertheless, for all the differences, these theories have one fundamental commonality: they all underscore the centrality of the social environment in determining the effects *Khat* consumption may have on the families' wellbeing. Therefore, to fully assess the effects *of Khat* consumption on the social health, physical health and psychological aspects of the families' wellbeing, this research has combined Group reference, Social learning and Symbolic interaction theories. This helped to knead the Physical, socio-economic and psychological aspects related to *Khat* consumption and the wellbeing of *Khat* consumers' families.

The Group Reference theory explored the attitude formation processes through reference groups in consuming *Khat*. Additionally, Social learning theory brought in observational learning through response to stimuli and reciprocal determinism. Consequently, Symbolic Interaction theory made its contribution to this study by showing how social environments produces individuals who may make proper use of symbols or deviate from them. This depends on the interpretations and meanings they internalised and associated to certain actions. A conceptual framework is drawn to illustrate the anticipated interrelationships (Figure 2.1).

2.8 Conceptual Framework

According to Ngechu, (2006:24), "a conceptual framework is a theoretical explanation of the research problem". In a *Khat* consuming environment many factors come into play to determine the nature of effects posed by *Khat* consumption to the wellbeing of families. The conceptual framework for the present study is presented in Figure 2.1:

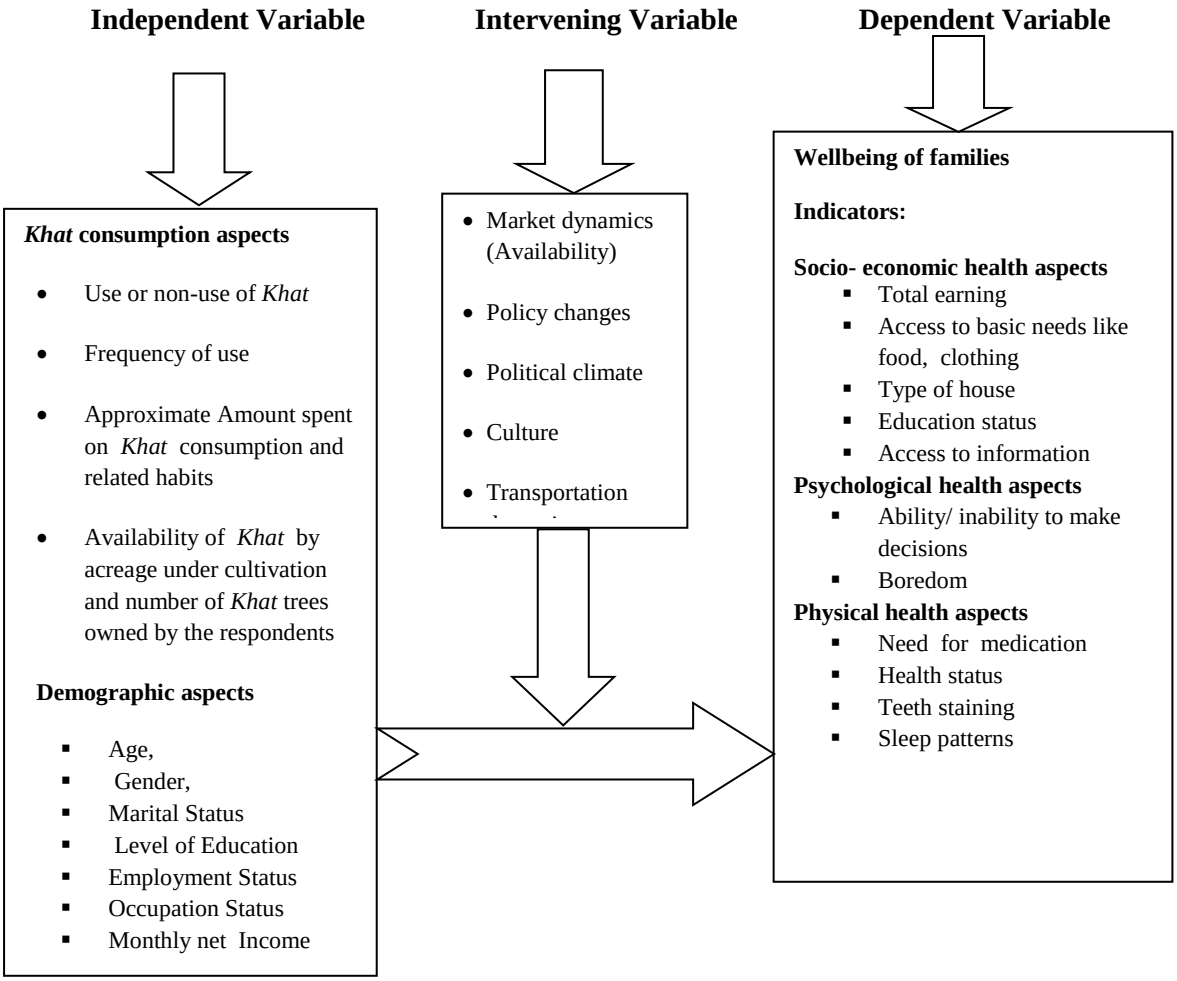


Figure 2.1: Conceptual Framework

Figure 2.1 shows how the variables of the study interact with each other in a social environment where *Khat* is extensively consumed. More precisely, it shows the effects of consumption of *Khat on* the wellbeing of families. In areas, where *Khat* is

grown, the availability of *Khat* for consumption is greatly determined by the farm size under *Khat* cultivation and number of *Khat* trees. *Khat* consumption is indicated by use or non-use, amount of money spent on *Khat* and frequency of use. Consequently, *Khat* consumption is determined by availability through growing of *Khat*, which acts as a driver to widespread consumption of *Khat* in the study areas. Market strategies and forces, policy changes, political climate and transportation dynamics determine the availability of *Khat* to consumers. *Khat* consumption impacts on the social, economic, physical and psychological health of the families. Specifically, such families' wellbeing aspects as total incomes, access to basic needs such as food and shelter, and access to medication are determined by how families' income is spent. Additionally, families ability to support and be supported by others, ability to access information, level of education, ability to make decisions and sleep patterns also determine the wellbeing of families. Thus, this study will attempt to fill the knowledge gaps that are pertinent to the families' wellbeing due to *Khat* consumption.

2.9 Summary of Literature Review

This chapter has presented a review of relevant literature, the theoretical framework and the conceptual basis of this study. The review has been organised according to the objectives of the study. Past studies have revealed a lack of consensus in that *Khat* consumption had both positive and negative effects on the wellbeing of consumers' families. It is prudent to assess the effects of *Khat* on the wellbeing of families to try and resolve this impasse. There is need for further studies therefore to ascertain the effects of *Khat* chewing on the wellbeing of families, especially in Meru County focusing on the social, physical and psychological health aspects. This

is because *Khat* is not only grown but consumed in Meru County. Additionally, literature has shown that, some country's legal framework is against the consumption, growing and sale of *Khat*, while in other countries use and sale of *Khat* is legal, and still in others, cathine and cathinone are controlled but use of *Khat* leaves continues to be legal and yet they contain these very illegal chemicals. Further, in the areas where *Khat* is grown, *Khat* consumption is highly entrenched in families. This therefore calls for more studies related to *Khat* consumption, setting the ground for this study. Chapter three presents the research methodology.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the procedures that were used to carry out the study. It presents the approaches and areas where the research was conducted and shows how data were obtained, analysed and presented. More precisely, the chapter covers research design, site of the Study, target population, sampling strategy and sample size, operationalisation of variables, Piloting, validity and reliability of research instruments, data collection procedures and management and analysis of data, ethical and logistical considerations as well as Problems encountered during field work and their solutions.

3.2 Research Design

This study adopted cross-sectional descriptive survey design to assess the effects of *Khat* consumption on the wellbeing of families. The study answered the questions of who, what, when, where, and how issues associated with *Khat* consumers wellbeing in Meru County. The potency of descriptive design is that it yields rich data that leads to useful study recommendations. The current study points to potential areas for further research.

Descriptive studies provided a 'snapshot' of the outcome and the characteristics associated with it at a specific point in time. A descriptive cross-sectional survey design was deemed appropriate for this study because it collects information by interviewing or administering questionnaires to a sample of individuals (Orodho, 2003). Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation (Anastas, 1999). In this study, the researcher conducted a

face-to-face interview to obtain responses on issues related to *Khat* consumption on the families' wellbeing. In-depth and detailed accounts of social, physical and psychological health effects of *Khat* consumption were also obtained through discussions held with the key informants and Focus Group Discussions (FGDs). This mode of administration yielded a high rate of response although it was expensive and time consuming. FGDs are a method of collecting data that taps into the dynamism of human social interaction on the social, physical and psychological effects of *Khat* consumption on the wellbeing of families. The study also used observation methods such as checklists and pictures, which supplemented the information gathered through interview guide and FGDs.

Given that the study was conducted at one point in time, a cross-sectional survey was best suited for this study. The study focused on capturing and drawing inferences from existing differences among the subjects, in this case the *Khat* consumers. This design helped in examining the relationships between variables at one moment in time. Moreover, the cross sectional survey allowed for the collection of data from a large number of subjects (583).

Under the stewardship of a moderator who doubled up as the note-taker in an informal setting, FGDs allowed the participants to reflect on the social, physical and psychological effects of *Khat* chewing on the families' wellbeing in relationship to their life experiences as a cultural group. The informality allowed the researcher and the participants a more in-depth analysis of the research questions than what a survey could have harvested (Debus & Novelli, 2007; Kothari, 2009). Additionally, descriptive research gives an account of the characteristics of particular issues at a specific time (Nyandemo, 2007). Thus, the triangulation of approaches was a

strategy to allow a more in-depth understanding of the effects of *Khat* consumption on the wellbeing of families in Meru County.

3.3 Location and Site Description

The study was carried out in Meru County in Kenya. Meru County is one of the forty seven counties in the Republic of Kenya. It is located in the Eastern part of Kenya. The county is divided into nine Sub- Counties, namely; Igembe Central, Igembe North, Igembe South, Tigania West, Tigania East, North Imenti , South Imenti, Central Imenti and Buuri. The county boarders Isiolo County to the North and North East, Tharaka Nithii County to the South west, Nyeri County to the South West and Laikipia County to the West. It is essentially an agricultural county and also a business and educational centre for Eastern and North eastern parts of Kenya. See the location of the county in Appendix I.

Meru County was purposively selected as the study area because *Khat* is extensively grown and consumed in some parts of the county. The county is also the traditional home to *Khat* trees in Kenya and the residents economic mainstay (Thiringi, 2001). The social role played by *Khat* in marriage negotiations has also been upheld to date validating its consumption by a wider cross section of the population. *Khat* consumption is widespread in the County due to its availability.

3.4 Target Population

The target population in this study were household heads either males or females who were consumers of *Khat* of ages 18 and above in Meru County. The respondents were selected because of their position as family heads and decision-makers in their households. Socially, family heads hold an authoritative position and are looked up to by their family members for direction. Family heads also play a major part as role models in their families and their respective communities (Bironga, 2014).

3.5 Sampling Techniques and Sample Size

3.5.1 Sampling Techniques

The researcher used multistage sampling to select the consumers who were the participants of the study. Different sampling methodologies were used at different stages. Meru County was purposively selected because it is the principal *Khat* growing area in Kenya and the residents also consume it. Three sub-counties were purposively selected from the nine sub-counties in Meru County. Purposive method was used because *Khat* is not grown and consumed in all the sub-counties in Meru County. Subsequently, two wards were selected from each of the three sub-counties using simple random. Simple random was used to give every ward in the three sub-counties an equal chance of being included in the study. The six wards selected were Ntunene, Antubetwe Kiongo, Antubochiu, Kanuni, Akirang'ondu and Kangeta. These wards were considered adequate due to very limited financial resources. The sample was proportionally obtained from the six randomly selected wards in the three sampled sub-counties in Meru County. In each of the sampled wards a sampling frame was constructed and assigned numbers from one to the last. The 3rd household in each ward was included in the sample. Additionally, subsequent households were selected through systematic sampling until the 10% sample of 583

was obtained. The K^{th} number used was every 9^{th} household in each of the sampled wards. The family heads of the selected households were automatically included in the sample.

3.5.2 Sample Size

A total of 583 respondents were selected from *Khat* consuming households comprising the families' adult males or females of 18+ years. The sample of 583 was considered adequate due to the complexity and sensitivity of the study because *Khat* is presently a controversial topic due to the importation ban by a number of European countries such as the United Kingdom and the proposal for *Khat* to be classified as a drug of abuse by NACADA. The sample comprised 10% of the total accessible population in the selected wards (Table 3.1), which was considered adequate because a descriptive study requires a sample of at least ten per cent of the accessible population (Kothari, 2004; Mugenda & Mugenda, 1999). This was also occasioned by very limited financial resources. The sample of respondents by wards is presented in Table 3.1.

Table 3.1: Distribution of Sample Population by Sub- County and Ward

Sub- Counties	Wards	No. of households	Sample size per ward: 10%
Igembe North	Ntunene	560	56
	Antubetwe Kiongo	1449	145
Igembe South	Antubochiu	667	66
	Kanuni	897	90
Igembe central	Akirang'ondu	1040	104
	Kangeta	1214	122
Total		**5827**	**583**

Source: Kenya National Bureau of Statistics (KNBS)

Selection of Key Informant Interviewees

The key informants for the study were selected due to their positions and knowledge on matters pertaining to *Khat* consumption in the area. Among those selected and interviewed were three (3) people from each of the categories namely, Members of County assembly (MCAs), county administrators, officials of *Miraa* Traders Association (NYAMITA), social development officers, religious leaders, youth leaders and women leaders. In each of the above categories, three respondents were purposively selected from each of the three sub-counties which had been randomly selected. In this case, a total of twenty one (21) key informants were interviewed. The information obtained contributed to the interpretation and discussion of study findings and in the drawing of conclusions.

Selection of Focus Group Participants

A total of nine (9) FGDs were conducted in the three selected sub-counties. Nine FGDs were considered adequate to enable the study to draw divergent views. Three FGDs were conducted in each of the categories (*Khat* consumers, Men and Women

leaders). These FGDs were deemed necessary to widen the scope of information. Each FGD in this study had eight (8) to ten (10) participants, The *Khat* consumers, men and women leaders were selected on the basis of their knowledge and position. The groups were categorised on the basis of gender to allow the participants to make their contributions and speak freely. The FDGs were necessary for enhancing the depth of responses of the Main field data collected from the family heads, Key informants and secondary sources. A note-taker wrote the notes as the discussion took place and the information was analysed according to the research themes (Debus & Novelli, 2007). The information was transcribed while identifying the recurrent themes and concepts which were then grouped using thematic content analysis (Braun & Clarke, 2008). The views which emanated from the FGDs, were then used to strengthen the findings and drawing of conclusions.

3.6 Operationalisation of Variables

The independent variable is that which explains or predicts changes in the dependent variable(s). In the context of this study the operationalisation of the variables was categorized in a tabular form as shown in Table 3.2.

Table 3.2: Operationalisation of Key Variables of the Study

Type of variable	Study Variables	Variable Indicators/observation	Measurement of variables
Dependent Variable • **Wellbeing of families**	Social/Physical health aspects	▪ Employment status ▪ Occupational status ▪ Monthly income ▪ Employment ▪ Security	▪ Employed or unemployed ▪ Actual form of employment ▪ Education status ▪ Rate your security
	psychological health aspects Socio-economic drivers	▪ Access to health services ▪ Need for medication ▪ Sleep patterns ▪ Anxiety ▪ Availability of *Khat*	▪ Frequency of seeking health services ▪ Frequency of need for medication ▪ Sleep adequacy ▪ Feelings of anxiety ▪ *Khat trees* owned ▪ Sources of *Khat* ▪ Income spent on *Khat*
Independent variables **Background factors for *Khat* consumers**	Age	▪ Number of years since respondents first birthday	▪ Actual number of years at the time of interview
	Gender	▪ Biological characteristics of being male or female	▪ Male or Female
	Net Income	▪ Refers to amount of money accrued monthly.	▪ Actual monthly disposable funds
	Occupation	▪ Respondents' means of livelihood or type of work done by respondents.	▪ Actual job position held
	Level of Education	▪ Refers to years or level of schooling achieved	▪ Level of education achieved
	Marital Status	▪ Social recognition of being a husband, wife, widow, widower or single	▪ Actual socially recognized status
	Khat consumption	▪ Use or non-use ▪ Availability ▪ Amount spent	▪ Frequency of use per day. ▪ Number of hours spent chewing *Khat* per day. ▪ Money spent on *Khat* consumption habits

3.7 Piloting

According to Mugenda & Mugenda (1999), the pilot procedure helps ascertain that the instrument for collecting data is free of any pitfalls and mistakes that would have surfaced in the main data collection process if the pilot of the instrument had not been done. Furthermore, Saunders, Lewis, and Thornhill (2003) suggest that prior to using the questionnaire to collect data it should be tested in order to refine it. A pilot study was carried out prior to the actual study. A face to face interview was conducted with a sample of 58 *Khat* consumers who had similar characteristics as the actual sample. The procedures for the pilot were the same as those of the main study. The instruments were piloted in one sub-county with similar characteristics to ones sampled for the main study. These were drawn from the population of the study but were not included in the main study. Piloting of the instrument was done to help point out any flaws or errors in the instruments. The researcher used the findings of the pilot study to revise and refine the research instruments and to enhance their validity and reliability. The pilot study also helped to estimate the time sufficient for the interview. The validation and reliability of the research instruments are discussed in the subsequent two subsections.

3.7.1 Validity of the Instruments

To establish content validity, the researcher assessed the clarity of the items and checked on how the items were relevant to the objectives of the study. The items were also cross examined against the stated objectives to ensure content validity. The researcher and the supervisors checked whether the items covered all the objectives and the variables of the study. After pilot study some of the items were changed. For instance, the age at which the respondents started chewing *Khat.*

3.7.2 Reliability of the Instruments

Best (1992) suggest that an instrument is reliable to the extent that it measures what it is measuring consistently. Reliability analysis provided information about the relationships between individual items in the scale. The study used Five-point Likert scales with varying number of items in each scale. Cronbach's alpha coefficient was used to measure the reliability of the scale. Table 3.3 summarizes the findings of the analysis.

Table 3.3: Summary of Reliability Analysis of Likert Scales Used in the Study

Name of Indicator Measured	No of Cases	Cronbach's Alpha	No. of Items
Physical and social health aspects according to the *Khat* consumers	58	0.7873	12
Psychological health effects according to the *Khat* consumers	58	0.7203	12

Although there is no lower limit for Cronbach's alpha coefficient, the general rule is that the closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. However, George and Mallery (2003, p. 231) provide the following rules of thumb: "Alpha ≥ 0.9 – Excellent; Alpha ≥ 0.8 – Good; Alpha ≥ 0.7 – Acceptable; Alpha ≥ 0.6 – Questionable; Alpha ≥ 0.5 – Poor; and Alpha < 0.5 – Unacceptable". Going by the above guideline, the two Likert- scales used had alpha coefficients greater than 0.7, which are within accepted levels. The Likert-scale for testing the physical/ social health aspects had a reliability of 0.7873 while that of psychological/ social health effects had 0.7203.

3.8 Data Collection Procedures

In this study, several methods were used to collect data. These included:

Interview schedule: This was utilized to elicit information from 583 *Khat* consumers who were household heads from three sub counties in Meru County. Data was collected using a face-to-face method to elicit necessary information at a personal level. More importantly, this was to ensure clarity and probing for any vague responses. The instrument was designed according to the themes that enabled the study to get the information to assess the *Khat* consumers' wellbeing. According to Best (1992), an instrument is valid if it measures what it claims to measure. Through the help of the supervisors, the researcher assessed the clarity of items and checked their relevance to the objectives and purpose of the study.

Key Informants Interviews: These were held with the area political leaders (MCAs), county administrators, religious leaders, social development officers, youth leaders, Women leaders and Nyambene *Miraa* Traders Association (NYAMITA) leaders who were purposively selected to give more insights on the effects of *Khat* consumption on the Physical, social and psychological wellbeing of families. A total of three (3) key informants were interviewed from each of the aforementioned groups, making total of twenty-one (21) Key informants.

The Observation Checklist: This was used by the researcher to understand issues related to *Khat* that influenced its consumption from areas of study. It was observed that, there were permanent, semi-permanent houses in the study areas and grass-thatched ones. Additionally, *Khat* consumption was done in groups by male consumers as they smoked cigarettes and drank sodas. The respondents consumed *Khat* in areas scattered with *Khat* and banana leaves. Motorcycles were the main mode of transportation in the study areas. The information added insights, in enhancing the findings obtained from interview schedules.

Focus Group Discussions: These were held with purposively selected *Khat* consumers, Men and Women leaders. The FGDs were conducted with the respondents, selected through a contact person. Three (3) FGDs were conducted in each of the randomly selected wards. This method was able to include members who were knowledgeable on matters of *Khat* to elicit information on the effects of *Khat* consumption. This method provided rich descriptions on the issues relating to the effects of *Khat* consumption on the wellbeing of families. A total of nine (9) FGDs were conducted and the information was recorded using the respondents' "voices".

Plates: These were taken by the researcher to confirm the presence of *Khat* farms in the area of study. The plates also show that *Khat* is widely grown in the County and therefore readily available for consumption.

Additionally, secondary sources of data such as relevant reports, theses, dissertation, books, journals, newspapers and manuals were used to supplement data gathered through surveys, FGDs, Key Informant Interviews and observations.

3.9 Management and Analysis of Data

Data obtained from *Khat* consumers through face-to-face interviews were coded and entered into the computer for statistical analysis using Statistical Package for Social Sciences (SPSS version 16, 2007). The study used both descriptive and inferential statistical procedures.

According to Harper, Ralph, & Stanley (1997) descriptive statistics are used to describe the basic features of data into simple summaries. The analysis and presentation of data from the FGDs and the in-depth interviews were done qualitatively using rich descriptions on thematic issues and participants' voices. Descriptive statistics were arranged in themes and summarised in a way to convey the characteristics of the key variables. The descriptive statistics used in this study included percentages, frequency distributions, mean and contingency tables.

In addition, inferential statistics were utilised to predict and draw conclusions on the major factors explaining the nature of the effects of *Khat* consumption on the wellbeing of the families in Meru County. The Inferential statistics were also used to make generalizations about the population. Pearson Chi-Square (χ^2) goodness of

fit to test whether the observed differences in the hours spent chewing *Khat was* significant. Simple linear regression analysis was carried out to test relationships between independent and dependent variables. The three null hypotheses are stated below:

i. H_0 There is no relationship between *Khat* consumption and the consumers' lack of sleep.

ii. H_0 There is no relationship between *Khat* consumption and consumers' happiness.

iii. H_0 There is no relationship between *Khat* consumption and the Consumers' level of education.

3.10 Ethical and Logistical Considerations

Ethical issues are critical for success of any investigation and particularly in social research (*B*laxter, Huges, & Tight, 2006). The respondents were given assurance that the information they gave was for research purposes only. They were shown the authorisation letter to carry out research from Kenyatta University Graduate School (Appendix VI), Research Authorisation letter (Appendix VII) and a Research Permit (Appendix VIII) from the National Commission for Science, Technology and Innovation (NACOSTI) and a consent note for plates inclusion (Appendix IX). Respondents were not required to write their names, this assured them that, the information they gave would be treated with confidentiality. Anonymity was guaranteed in that the interview schedules had code numbers and names were not required. This enabled the respondents to share their views freely. To safeguard

unauthorised access to questionnaires and Data, a password protected computer was used.

3.11 Problems Encountered During Field Work and Their Solutions

A number of problems were experienced during the study. First, because of the researcher being self-sponsored there were instances when financial constraints slowed down some research activities such as data collection during field work. This constrained data collection process in some occasions but the process was eventually completed successfully.

Second, transportation was a challenge in some of the sampled wards for data collection. Some of the roads were impassable especially during the rainy season. Some areas were very insecure, from the wondering wild animals and banditry attacks. This caused rescheduling of the fieldwork and in two occasions the researcher sought help from the Administration Officers based at the sub-county headquarters to provide armed security. However the researcher ensured that the armed security personnel stayed far during the interviews in order to make the respondents to feel free in responding to the research tools.

Third, given the nature of the study, there were open suspicions that the study was aimed at criminalising *Khat*, which would jeopardise the community's socio-economic main stay of their livelihood strategies. More precisely, some of the respondents questioned why their households were selected. This problem was solved by giving elaborate explanation that the intention of the study was not in any way aimed at criminalising *Khat* but was for the purposes of fulfilling the

requirements of my degree award**.** The explanations were satisfactory to the respondents. Additionally, the researcher had the Kenyatta university identification card, research authorisation documents and research permit, which assisted in allaying the respondents' fears.

Fourth, during the interview, some informants took the opportunity to elaborate on other issues not related to the study. While this was obviously time-wasting for our study, it could have appeared very rude if we shelved their narratives. This issue was solved by carefully and strategically shifting the discussion to questions contained in the interview schedule.

Finally, there was the problem of other family members, who were also consuming *Khat* wanting to contribute to the discussions held with the household head. Accordingly, we had to make it clear that the interviews were confidential; the family members saw the sense and kept themselves busy, away from the venue of the interview. In the next chapter, a detailed presentation of the analysis of Key variables of the study is presented.

CHAPTER FOUR: FINDINGS, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the findings, interpretation and discussion of results based on the objectives and hypotheses of the study. The discussions have also been done in relation to the reviewed literature, information from FGDs, Key Informants and field observations. The demographic information of the respondents is presented first followed by the other findings organized according to the objectives of the study. The presentation has been done according to the following objectives:

i. To establish the prevalence of *Khat* consumption in Meru County.
ii. To find out the socio-economic drivers of *Khat* consumption.
iii. To determine the effects of *Khat* consumption on the physical health of consumers' families.
iv. To determine the influence of *Khat* consumption on the psychological aspects of *Khat* consumers' families.
v. To establish the influence of *Khat* consumption on the social health of families.

Field data were coded and analyzed using Statistical Package for Social Sciences (SPSS version 16, 2007). The information collected from the Key Informants and FGDs were arranged according to the themes for completeness and respondents' voices were directly generated where applicable. Presentation is done using tables and charts. Plates were also used to enhance the presentation of information from the respondents. Pearson's Chi-square for goodness of fit test, and simple linear regression analysis were carried out to test for relationships between variables.

4.2 Demographic Characteristics of *Khat* Consumers'

This section focuses on the personal attributes of the studied *Khat* consumers, namely; gender, age, marital status, educational level, employment status, occupation status and monthly net income. Showing the variation in characteristics of *Khat* consumers was the criterion under which the background attributes were included in the study. Particularly, some of the respondents' background characteristics may have influenced them to consume *Khat* thus impacting on their Families wellbeing. The background characteristics of the respondents are presented in Table 4.1.

Table 4.1: Socio-Economic and Demographic Characteristics of Respondents

Variable		Number	Percentage
Gender N= 583 %=100	Male Female	497 86	85.2 14.8
Age Category (Years) N=583	18 to 24 25 to 34 35 to 44 45 to 54 55 to 64 65 and above	64 122 102 107 83 105	11.0 20.9 17.5 18.4 14.2 18.0
Marital Status N=583	Married Single Separated Divorced Widowed	444 81 21 11 26	76.1 13.9 3.6 1.9 4.5
Education Level N=583	No formal education Std. 1-4 Std.5-8 Form 1-4 A- Level College/University level	131 129 133 85 11 94	22.5 22.1 22.8 14.6 1.9 16.1
Employment Status N=583	Employed Self employed	271 312	46.4 53.6
Occupational Status N=271	Teacher Secretary Banker Accountant Doctor Nurses	185 19 26 22 3 16	68.3 7.0 9.6 8.1 1.1 5.9
Monthly Net Income in Kshs. N=583	< 5,000 5,000-9,999 10,000-14,999 15,000-19,999 20,000 and above	120 125 103 15 220	20.6 21.4 17.7 2.5 37.8

Source: Field data

Table 4.1 shows that out of the 583 *Khat* consumers interviewed majority 85.2% were males while females were only 14.8%. The results were not a surprise because the population sample was made up by household heads whom majority happened to be males. In this study, variation in *Khat* consumers' age ranged from 18 to slightly over 65 years. Age is indicated by actual number of years of the respondents at the time of the interview, from their first birthday. The mean age of the

respondents was 43 years with a range of 63. This implies that the majority of the respondents were middle-aged people. Similarly, other studies done elsewhere with different sample composition showed same results. The finding supports the study by Alem, Kebende and Kullgren, (1999); Haji, (1985); Hoffman & Al' Absi, (2010); Thiringi, (2001), which revealed that men have been majority *Khat* consumers as a traditional practice. In fact, this observation was supported by some of the key informants, who reported that,

> *"Khat chewing is dominated by males of all ages in Meru County. They chew as they engage in discussions on business and other issues".*

The variable marital status was used to explain the extent of involvement of spouses in *Khat* consumption in relation to wellbeing aspects of the family. Survey data on the distribution of respondents by their marital status in Table 4.1 indicate that over three quarters 76.1% of the study participants were married while only slightly over one tenth 13.9% were never married (single). The findings imply that, most of participants involved in *Khat* consumption were married. This finding may be reflecting that consumption of *Khat* is a practice which is widely accepted among families in the area.

Although *Khat* use may be implicit in some relationship breakdowns, no evidence was found to support a causal link for these assertions. Relationship breakdowns may have not been due to *Khat* consumption *per se* but may instead have related to the implications of the manner in which it is consumed. Anderson et al., (2007) suggest that women's opposition to *Khat* use originated from its use in special rooms (*marfishris)* away from home rather than in the domestic setting, which distanced men from their families and obligations for long periods. According to Haji (1985),

marital status was not an important factor, because, 70% of the respondents were not in any marital relationship. However, Tefera et al. (2004) stated that, in Ethiopia *Khat* chewing is not confined to people in Marital relationship only.

The Women leaders interviewed also confirmed this when they stated that,

"Khat chewing is entrenched in families and the men encourage the practice as they share Khat with their family members. Khat chewing becomes a problem when spouses spend many hours in prolonged Khat sessions".

This showed that *Khat* chewing practice is widespread in families and among males in the families. Additionally, one interviewee from the one *Khat* consumers' FGD reported that:

"I have been divorced for over five years because my wife urged me to stop chewing Khat and I could not because I am used to chewing ever since I was ten (10) years" (*FGD 23/4/2013*).

Table 4.1 shows that, over one fifth 22.1% and 22.8% of the sampled *Khat* consumers reported that their levels of education ranged from primary class one to class four and class five to class eight respectively. Additionally, over one fifth 22.5% of the *Khat* consumers had no formal education. Cumulatively, over 67.4% of the respondents had primary school education and no formal schooling. The low levels of education among *Khat* consumers have negatively impacted on their family wellbeing. Similarly, the low levels of education among *Khat* consumers can probably be explained by the preference for families to participate in *Khat* related activities than formal schooling. Table 4.1 also shows that, over two fifths 32 % of

the respondents had attained varied levels of education from secondary and university education.

The findings in Table 4.1 support those of Mutembei (2007) who observed that: "*Miraa* has negatively influenced education levels due to its consumption and quick money associated with its sale". The finding also corroborates that of Ongeri (2008), when he reported that, *Khat* chewing is entrenched in families and has affected the levels of education in Meru county. This finding is further solidified by information obtained from the women leaders FGDs who observed that:

> *Education standards have greatly been affected by the presence of Khat in areas where Khat is grown and consumed in Meru …, Young boys drop out of school to participate in Khat related activities.* FDG 2/6/2013

This finding is further supported by Mugambi (2005) who also found out that *Khat* consumption led to school dropout in Meru North district where *Khat* is extensively grown and consumed. Further, Aden et al. (2006) did a cross sectional descriptive study in Ijara district in Northern Eastern Kenya and reported low levels of education. They reported that there was a relationship between low levels of education and chewing of *Khat.* This finding also concurs with Kassim, et al., (2010), who did a study among Yemeni male residents in UK and reported low levels of education among the consumers of *Khat.*

From Table 4.1 it was established that over half 53.6% of the consumers had no formal employment and were self-employed. This suggests that self-employment is a widespread practice among *Khat* consumers because of the extent of freedom

associated with its use and related habits in the study areas. *Khat* availability offers a livelihood strategy for many families to cope with underemployment and unemployment situation in the county. This finding is in line with, Al Habori (2005) who observed that *Khat* is a recreational substance associated with unemployment. The finding is further supported by Feyissa & Aune (2003) who reported that *Khat* cultivation is an alternative livelihood sustainer among *Khat* consuming communities in their study done in Egypt. This practice encourages its consumption, which according to Sykes et al. (2010) and Turning, (2004) acts as a barrier to gaining formal employment in their studies done in London.

The study also sought to establish the occupational statuses of *Khat* consumers. Occupation status is a crucial socio-economic wellbeing aspect in the human society. Results from Table 4.1 show that, over thee fifths 68.3% of the *Khat* consumers were teachers. This finding was attributed to the presence of various rural schools in the region. More so, teaching is a stable occupation which can enable teachers to stay for a long time in one work station. Due to this long duration, teachers acquire habits of the resident communities, thus making them to be the most *Khat* consumers. The finding is in line with Symbolic Interaction theory which postulates that human behaviour is determined by the social and environmental contexts within which they live (Anderson & Taylor, 2004).

The study sought to find out the net income (in Kenya shillings) earned by the respondents on a monthly basis. Results in Table 4.1 reveal that slightly more than one third 37.8% of the consumers reflected total net earnings of Kshs.20, 000.00 and above. Their net earnings from salaried employment are seemingly not adequate to

cater fully for their family needs. Accordingly, such respondents engage in *Khat* related activities to supplement their monthly incomes from their non-*Khat* related activities. In fact, field observations indicated that, the respondents participated in multiple *Khat*-related activities, which were further confirmed by FGDs held with women leaders, in the surveyed areas confirmed in the following voice;

…..both males and females participate in multiple activities to earn a living. This makes them work for very long hours (9-12), with little pay which is a challenge as families' needs are not adequately catered for……. FGD 4/5/2013

The same opinion was shared in an FGD held with religious leaders that, both male and female work for long hours to provide for their families. This was confirmed in the following voice;

…all the people, whether male or female, work for long hours in varied activities to provide for the families' needs. FGD 4/5/2013 held with Religious leaders.

The implication for working for long hours as reported by discussants could be explained by the tedious and laborious nature of *Khat*-farming activities which are characteristic of agricultural-related operations. This also enhanced *Khat* consumption among area residents due to work pressure. Thus, it was deemed important to find out the prevalence of *Khat* consumption in the study areas.

4.3 Prevalence of *Khat* Consumption

The variable age at first *Khat* consumption was used to assess the age for the respondents. This also helped in establishing the level of involvement in *Khat* consumption by the respondents. The results are shown in Table 4.2.

Table 4.2: Age at Which Respondents Started Using *Khat*

Age at first *Khat* use in years	No. of Respondents	Percentage
6-10	07	1.2
11-15	206	35.3
16-20	243	41.7
21-25	62	10.7
26-30	38	6.5
Over 30	27	4.6
Total	**583**	**100.0**

Source: Field data

Findings of the study in Table 4.2 reveal that slightly over two fifths 41.7% of the respondents started consuming *Khat* at the age between 16-20 years while over one third 35.3% started consuming *Khat* between ages 11-15 years. Overall, almost all 95.4% of the sampled informants began using *Khat* below the age of 30 years. This finding can be explained by an earlier finding that *Khat* is readily available for consumption from respondents' family farms and sharing with friends. Early entry into *Khat* consumption explains the observed widespread patterns of *Khat* consumption within families in the study area. The finding supports Ongeri (2008) argument that *Khat* chewing is entrenched in families. The mean age at which the consumers started chewing *Khat* was 18 years. Furthermore, Aden et al. (2006), found that over half of the respondents 54% started chewing *Khat* before their 18th birthday and learnt the habit from their family members. The finding also explains why probably family members got involved in *Khat* chewing habits because the social environment is conducive for the habit.

It was also important for the study to find out the number of hours consumers spent in chewing *Khat* per day. The finding on the number of hours used by the respondents in chewing *Khat* are reported in Table 4.3.

Table 4.3: Hours Spent Chewing *Khat* per Day

Hours spent chewing *Khat*	No. of Respondents	Percentage
1-3	65	11.1
4-6	252	43.2
7-9	151	25.9
10-12	76	13.0
Over 12	39	6.7
Total	**583**	**100**

Source: Field data

Findings in Table 4.3 reveal that, over two fifths 43.2% of the consumers of *Khat* spent an average of 4-6 hours chewing *Khat*. More so, another over one quarter 25.9% of the respondents spent 7-9 hours chewing *Khat*. This shows that much of the labour force's time is spent consuming *Khat*. The findings diverge from the traditional *Khat* chewing parameters that allowed *Khat* sessions to go on after a hard day's work. This also shows that, there are current trends in *Khat* consumption which compromise the principles of hard work, as evidenced by some consumers who reported that they chewed *Khat* for over 10 hours per day. The mean hours spent chewing *Khat* was 7.67 per day. Furthermore, observations from the field indicated that some consumers utilized *Khat* from early hours of morning casting doubts on their labour contribution to the family economy. Consequently, according to Omar & Bessling (2008) men gather in the open air markets and local canteens to chew *Khat* and drink local brews. This gathering of men in the open air markets and canteens reduces their ability to perform their marital duties as well as take care of

their families. This influences family relationships thus impacting on the families' wellbeing.

The finding is further supported by Aden, et al. (2006); Giannini, et al. (1986; Hussein & Al Absi (2008) that excessive *Khat* chewing results into loss of work hours, decreased socio-economic productivity and diversion of family resources to support consumption related habits. However, these findings are inconsistent with Kassim & Croucher (2006) who revealed that there was no relationship between *Khat* use and loss of productivity or absenteeism from work citing that *Khat* consumption energizes the consumers to enhance their productivity. Supporting this finding of Sykes et al. (2010) indicated that consumption of *Khat* done during the respondents' free time especially after work and weekends increases work output and has no effects on productivity. The report emphasized that consumption should follow the acceptable cultural practices and be moderately used.

To test whether the observed differences in hours spent chewing *Khat* can be generalized to a wider population, a Pearson Chi-square (χ^2) test was conducted and found to be significant at ($\chi^2 = 38.714$, df = 16, significance = .001). Thus, it can be said that there is a significant relationship between hours spent consuming *Khat* and the family wellbeing. This finding concurs with the information provided by the women leaders that:

"When husbands become daily consumers of Khat, they lack interest in marital responsibilities and infidelities have become a common practice among spouses".

FGD 2/6/2013.

4.3.1 Persons Who Consume *Khat* with the Respondents

Khat consumption is a social activity and it takes place in the company of friends and family. Accordingly, the researcher wanted to find out the persons with whom the respondents chewed *Khat*. This also helped to find out how widespread this practice was among the respondents families. Obtained responses to this question are captured in Table 4.4.

Table 4.4: Persons Who Consume *Khat* with the Respondents

Whom we consume *Khat* with	No. of Mentions	Percentage
Khat Consumed with Age mates /Friends	522	54.7
Khat Consumed with Family members	411	43.1
Khat Consumed with Business Associates	21	2.2
Total Mentions	**954**	100

Source: Field data

Results in Table 4.4 show that there was a clear pattern of the respondents consuming *Khat* with their age mates, family members and business associates. From Table 4.4, slightly over half 54.7% of the total mentions, indicated that they consumed *Khat* with their age mates while less than half 43.1% mentioned consuming *Khat* with family members. These findings concur with the Reference Group Theory by Herbert & Singers (1968), that men shape their attitudes to reference groups other than their own. These groups solidify their relations as they chew *Khat* discussing their group relationships and activities. This leads to marital problems because they spend long hours (from 7-12+) chewing *Khat as* represented by almost three fifths 58.9% of the observed consumers (Table 4.9). In fact, the finding is in tandem with the information given by Key Informants that *Khat* consumption is a group activity among most Consumers in the area. This finding

also concurs with that of (Haji, 1985) who reported that Men chewed *Khat* in groups in Garissa town.

4.3.2 Substance Consumed with *Khat*

The researcher probed to find *out* whether the respondents consumed *Khat* only or with other substances. Obtained results of the study are contained in Table 4.5.

Table 4.5: Substance Consumed with *Khat*

Substance	No. of Mentions	Percentage
Traditional Brew	425	**44.8**
Bhang	110	**11.6**
Cigarettes	414	**43.6**
Total	949	100

Source: Field data

Findings in Table 4.5 indicated that over two fifths 44.8% of the total mentions, reported that they consumed *Khat* with traditional brews, while almost an equal number 43.6% mentioned that they used cigarettes. Field observations indicated that *Khat* consumers still practice traditional beer parties and used substances such as bhang and traditional brews. The results are consistent with those reported by Alem et al. (1999) and Griffiths (1998) that there was a positive relationship between *Khat* consumption and use of cigarettes, alcohol and illicit drugs. Further, the results concur with those of the research done by Shauri (2007) which showed that users of one drug or substance use different other drugs such as bhang and also smoked tobacco.

Similarly, the finding is also consistent with that of Gondar (2000) and Kassim, Islam & Croucher (2010) who reported that there was a significant relationship between *Khat* chewing and cigarette smoking. Furthermore, a Pearson's Chi-square

goodness of fit test confirmed that the observed differences in substances consumed with *Khat* in the present study can be deduced for wider population. The test was found to be significant (χ^2 = 179.02, df = 1 and significance = .001).

Additionally, the researcher sought to find out the other drinks or beverages which were used by the respondents as they consumed *Khat.* The results are shown on Table 4.6.

Table 4.6: Beverages Used by *Khat* Consumers

Beverages	No. of Respondents	Percentage
Soda	202	34.6
Tea	70	12.0
Water	271	**46.5**
None	40	6.9
Total	**583**	**100**

Source: Field data

Results in Table 4.6 indicate that, more than two fifths 46.5% of the respondents used water during the *Khat* chewing sessions, while over one third 34.6% used sodas. These findings are consistent with those of Haji (1985) who she reported that *Khat* chewing is associated with use of soda and water because *Khat* generates thirst in the consumer hence the need for drinks. Observations made by the researcher in the field indicated that *Khat* consumers also used substances and beverages which amount to an additional cost to their families. *Khat* is bitter, which explains the use of sweet soft drinks which may have health implications such as tooth decay. According to Al Hebishi & Skaug, (2005), 68% of the *Khat* chewers reported oral side effects such as tooth decay. This has effects on consumers' oral health and may affect their personal confidence as well as their marital relationships.

4.4 Socio-Economic Drivers of *Khat* Consumption

4.4.1 Social Reasons for *Khat* Consumption

The researcher also tried to find out the reasons for *Khat* consumption in the study area. Findings are summarized in Table 4.7.

Table 4.7: Reasons for *Khat* Consumption

Reasons for *Khat* consumption	No. of mentions	Percentage
Peer pressure	500	**21.6**
To Pass time	500	**21.6**
To relax (overcome tiredness)	243	**10.5**
It is readily available	342	**14.8**
For enjoyment	420	**18.1**
To aid concentration	311	**13.4**
Total Mentions	**2316**	**100.0**

Source: Field data

Findings in Table 4.7 show that slightly over one fifth 21.6% of the total mentions reported that they consumed *Khat* due to peer pressure and to pass time. This was probably because it enabled them to fit well in their respective groups. Interestingly, the findings supports studies by Al Habori (2005) ; Griffiths (1998), which indicated that Somali residents chewed *Khat* in group settings. According to Asha (2012) the Somalis chewed *Khat* in groups in *Marfishris* (special rooms used for chewing *Khat*). This finding further supports the Reference Group Theory by Hebert & Singers (1968) which postulates that men shape their attitude to reference groups other than their own. Thus, *Khat* chewing habits are maintained by group members and adopted by those who aspire to join such groups. This further enhances their identity and sense of belonging, while influencing their values and practices. Furthermore, less than one fifth 14.8% of the total mentions indicated that ready availability of *Khat* led them to consume while, slightly less than one fifth 18.1% of

them reported that they consumed *Khat* for enjoyment purposes. These findings support Kassim, et al. (2010), that *Khat* is a recreational psycho-active stimulant.

To establish whether availability of *Khat* for consumption was enhanced by ownership of *Khat* trees by consumers, further probing was done on participants and findings are presented next.

4.4.2 Ownership of *Khat* Trees by Consumers

Khat trees owned by the respondents in the study area maintains the market chain supply and increase availability of *Khat* for consumption among the residents. In fact, the number of *Khat* trees owned by the *Khat* consumers were meant to probe availability of *Khat* for consumption as shown in Table 4.8.

Table 4.8: Number of *Khat* Trees

Number of Trees	No. of Respondents	Percentage
0-299	123	21.1
300-499	110	18.9
500-699	137	23.5
700-899	63	10.8
900-1099	26	4.5
1100-1299	38	6.5
1300-1499	29	5.0
1500 and Above	57	9.8
Total	**583**	**100**

Source: Field data

Analysis in Table 4.8 confirms that over one fifth 23.5% of the consumers owned between 500 and 699 *Khat* trees while only 9.8% owned over 1,500 trees in the region. This presents the extent of inequalities in *Khat* ownership which accounts for the low socio-economic status for many *Khat* consumers who are also growers of *Khat* in the region, irrespective of the fact that *Khat* growing activities elicit billions of Kenya shillings to the economy. Plate 4.1, illustrates vast *Khat* growing in the study area as an important factor precipitating consumption.

Source: Field data 02/04/2013

Plate 4.1: Showing Young *Khat* Trees Intercropped with Arrowroots

The illustration in Plate 4.1 supports the observation that *Khat* consumption is heavily supported by the availability of *Khat* in the study area. In fact, growing of *Khat* has pervaded agricultural practices in the surveyed areas. More specifically, field observation showed that *Khat* plants were well-tendered, with very few arrowroot plants. This finding is in agreement with that of Thiringi, (2001), that, *Khat* growing has led to vast intercropping of *Khat* and food crops growing in the area. Consequently, this has affected nutrition of the population in the northern parts of Meru County (former Meru North Disrict) and has put pressure on other areas in the county for food supplies. These findings are in line with those of Ringera (2013) who reported that *Khat* farming has negatively affected food production and is an important factor for consumption. Further, it was observed that most of the *Khat* trees were well-tended and protected because of their socio-economic value by the area residents. An example of a well-tended tree is shown in Plate 4.2.

Source: Field data 02/04/2013

Plate 4.2: Showing a Well-Tended Large *Khat* Tree

According to the Meru North Development Plan (GoK, 2002; 2008), the acreage under *Khat* cultivation is ever expanding and was estimated to be 25,000 hectares. This is attributed to increased demand for *Khat* by the consumers. The easy accessibility of *Khat* by the family heads encourages its consumption, which may keep consumers away from home for longer hours. According to Alem, et al. (1999), it also keeps the user awake and interferes with the reception of well-coordinated information. The finding was supported by revelations by one FGD member who

was in agreement that availability is an important driver for *Khat* consumption which has negative effects on the consumers' social and physical health. In fact, one female *Khat* consumer had this to say;

"Khat consumption is encouraged by its availability because it is extensively grown by the area residents. This also encourages both men and a woman to squander money meant for families' upkeep and this has made the sub-counties to depend on the neighboring sub-counties such as North and South Imenti for food supplies". (FGD2/4/2013)

Confirming the effects associated with *Khat* consumption one women leader linked consumption of *Khat* with inability to provide for families thus;

"*Khat consumption makes families not to afford basic needs such as food, shelter and medical needs…*" (*FGD 5/4/2013)*

This shows that *Khat* chewing sessions enhance interaction and catching up with daily happenings supporting Ongeri (2008) who reported that, *Khat* chewing is entrenched in most families, where fathers share with their sons as they advise them on life matters. This indicates the significance of *Khat* chewing in the study area as it is utilized at the family level to provide an opportunity for the elderly to give counsel to the youth and enhances interaction that can promote family cohesion among the respondents' families. It was further established during the study that the respondents in this study consumed *Khat* by chewing the young twigs from *Khat* trees. This finding concurs with Haji (1985) who reported that *Khat* chewing was the main mode of consumption among the respondents. This finding is also

consistent with Muthui & Muchui (2012) who reported that most *Khat* users were munching mouthfuls of *Khat* twigs.

4.4.3 Availability of *Khat*

Having established ownership of *Khat* trees by consumers as one of the drivers for *Khat* consumption, the study probed further to find out where the consumers got the *Khat* they consumed. This attracted multiple responses. The *Khat* consumer is likely to be influenced to consume *Khat* depending on the sources. The easy availability of *Khat* acts as a driver for *Khat* consumption. The results are presented in Table: 4.9.

Table 4.9: Sources of *Khat*

Sources of *Khat*	**No. of Mentions**	**Percentage**
Family farm	577	**42.7**
Buying	462	**34.2**
Friends	312	**23.1**
Total mentions	**1351**	**100.0**

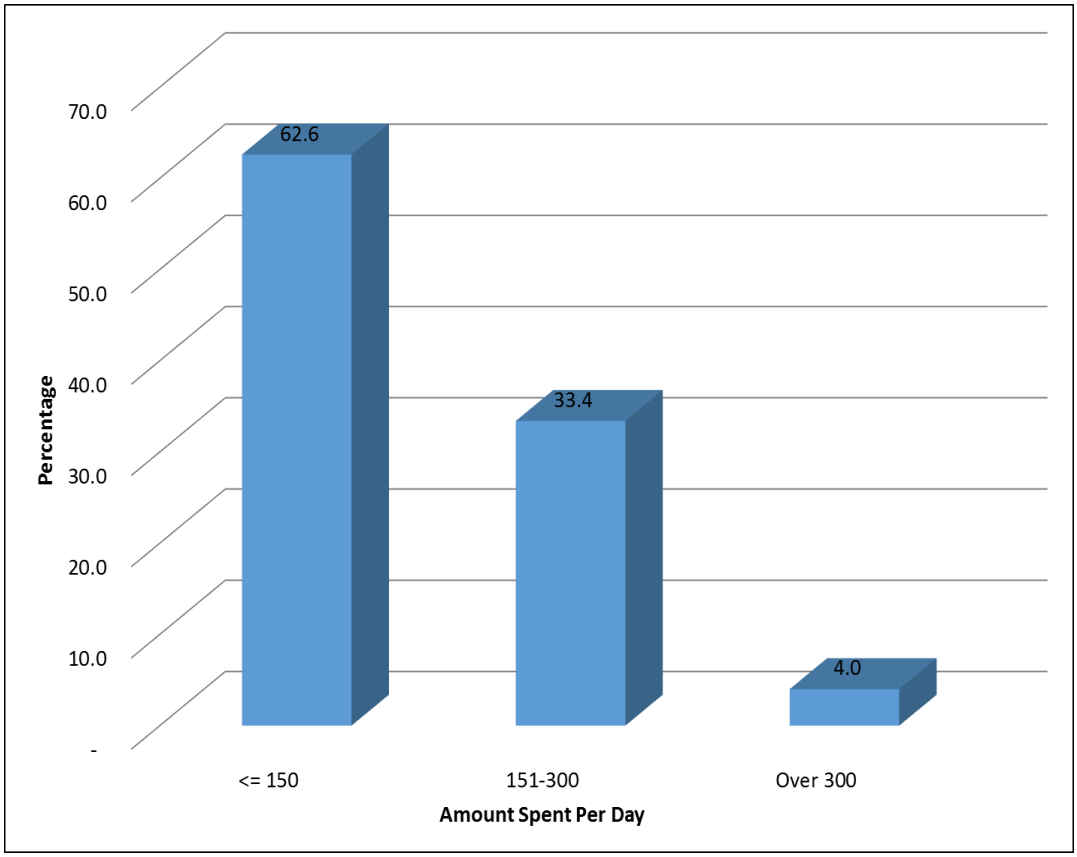
Source: Field data

From Table 4.9, it is clear that slightly over two fifths 42.7% of the total mentions by the *Khat* consumers sourced *Khat* from their family *Khat* farms, while 34.2% of them mentioned buying *Khat* for consumption. Additionally, slightly over one fifth 23.1% indicated that they got *Khat* from their friends. The diverse sources of *Khat* reported in this study acted as drivers for *Khat* consumption. Field observations indicated that *Khat* consumers intermingled with other people easily and there was no evident aversion or contempt shown towards them, as is usually the case for alcohol users who are greatly abhorred in their societies. This implies that *Khat* consumption is a generally accepted practice. These findings support Maitai (1996) and Thiringi (2001) who observed that *Khat* was readily available from farms,

markets in Meru and from *Khat* consuming friends. This also indicated that *Khat* consumption was an embraced habit in the area and the practice is widespread and sharing among the consumers encourage chewing. The market chain effect helps in ensuring constant supply of *Khat* to the consumers hence encouraging the habit. This finding is consistent with Alem & Shibre (1997) who explains that easy availability of *Khat* enhances consumption patterns.

4.4.4 Expenditure on *Khat* per Day

Having established that the respondents obtained *Khat* from their family farms, others got it from friends or by buying from *Khat* traders; it was prudent to establish the approximate amount spent on *Khat* per day by consumers in the study area. The approximate amount was sought because the consumers also chewed *Khat* from their own trees. Therefore, *Khat* consumers who got *Khat* from their *Khat* trees seem to have done it because they did not have to spend any money on it. Consequently, not spending money acted as a driver for *Khat* consumption. The respondents quantified the cost of *Khat* they chewed per day. Results indicated that over three fifths 62.6% of the consumers spent less than Kshs.150.00 per day on *Khat*. Findings of the study are presented in Figure 4.1.



Source: Field data

Figure 4.1: Income used on *Khat* per Day

Results from Figure 4.1 showed that 62.6% *Khat* consumers' spent 150 Kshs while 33.4% spent Kshs 150- 300 of their net income on *Khat.* The *Khat* consumers spent an average of 138.16 Kenya shillings (Kshs) on *Khat* per day. Consequently, family income is diverted to support *Khat* consumption habits. Furthermore, the consumers of *Khat* spend more than a dollar per day which negatively impacts on *Khat* consumers' wellbeing. The finding is consistent with Haji (1985); Kalix (1987); Muthui & Muchui, (2012) who found that family resources were diverted to *Khat* chewing habits at the expense of other family requirements. The women leaders and key informants from all the study areas were in agreement that:

"Money meant to meet some basic family requirements like buying food is used to support Khat-related habit, which causes disagreements in the families". FGD 3/5/2013

This means that the use of family income to support *Khat*-related habits has negative implication on the family socio-economic wellbeing. This could be a factor for low education levels in the respondents' families.

To test whether the observed differences in the amount spent on *Khat* per day can be implied for wider population; a Pearson Chi-square (χ^2) goodness of fit test was conducted and found to be significant (χ^2 Value = 154.222 df = 8 and significance =.000). This implied that the amount of money spent on *Khat* significantly impacts on the wellbeing of families.

Table 4.10: Level of Income by Cash Spent on *Khat* Per Day

Level of monthly income	Cash spent on *Khat* per day			Total
	Less than 150	151-300	Over 300	
0-4999	100	20	0	**120**
5000-9999	45	80	0	**125**
10000-14999	46	57	0	**103**
15000-19999	15	0	0	**15**
20000 and Above	159	38	23	**220**
Total	**365**	**195**	**23**	**583**

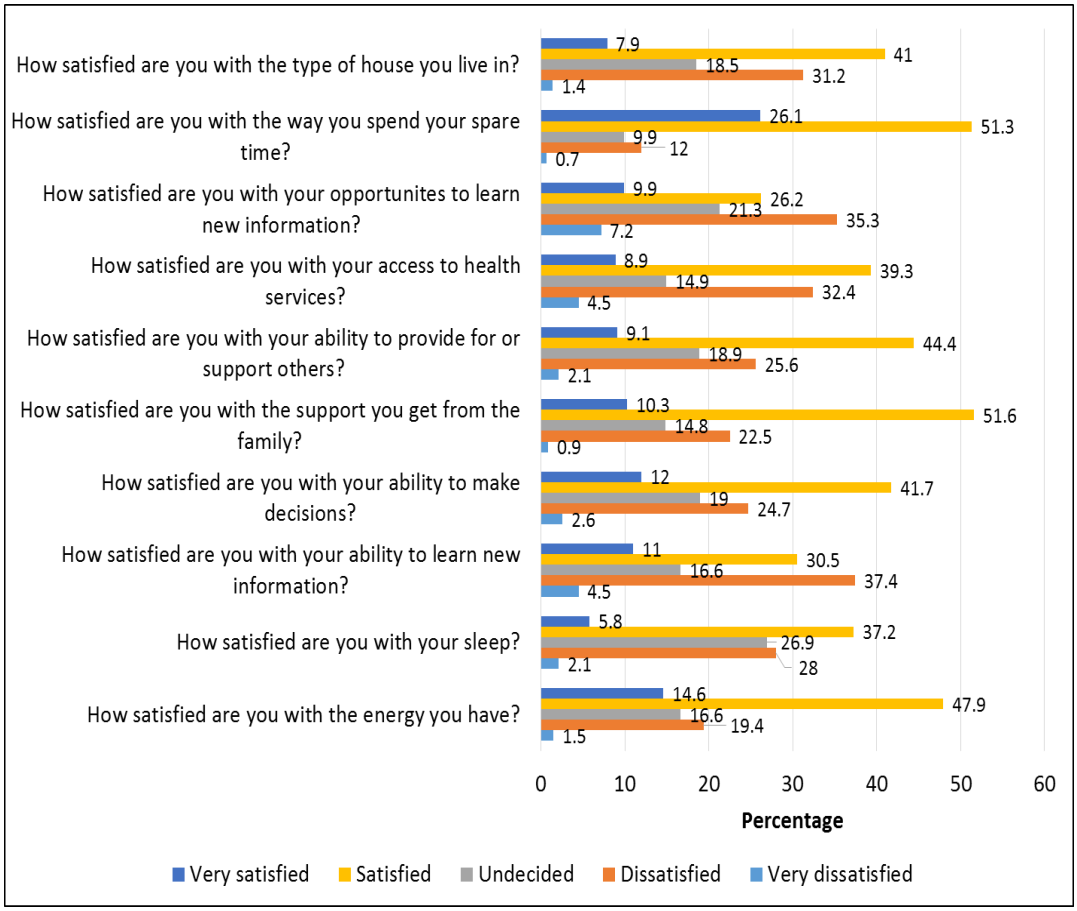
Source: Field data

A cross tabulation between the *Khat* consumers' income and the amount they spent on *Khat* revealed that, slightly more than three fifths 62.6% spent less than 150 Kenya shillings daily on *Khat* irrespective of their income. Additionally, 37.7% of the *Khat* consumers who earned over 20,000 Kenya shillings, 27.3 % of them spent

less than 150 while 6.5% spent 151-300 and 3.9% respectively. This implies that *Khat* chewing is part and parcel of their activities. Similarly the cash spent on *Khat* by the consumers is not dependent on their monthly incomes because they had other sources of *Khat* such as gift from friends and relatives.

4.5 Effects of *Khat* Consumption on the Physical Health of Consumers'

It was found prudent to find out the effects of *Khat* consumption on the wellbeing of families measured by physical health. Here the respondents were required to indicate their level of satisfaction on certain wellbeing aspects. The responses were based on a five-point Likert Scale. The respondents were required to indicate what best applied to them from the following options: Very dissatisfied (1), dissatisfied (2), undecided (3), satisfied (4) and very satisfied (5). The respondents based their responses on the level which best described themselves. The attributes are presented in question form and results were tabulated using percentages as presented on Figure 4.2.



Source: Field data

Figure 4.2: Effects of *Khat* Consumption on Physical Wellbeing of Families

Findings in Figure 4.2 reveal that slightly over two fifths 41% of the respondents were satisfied with the type of houses they lived in, while, slightly less than one fifth 18.5% were undecided about their satisfaction with the type of house they lived in. This implies that the ability to provide basic needs such as shelter for the family is an important aspect in explaining the wellbeing of families. This finding is inconsistent with Aden et al. (2006) who reported that 50% of the respondents were not satisfied with the type of houses they lived in, though they lived in traditional grass-thatched houses while others in polythene covered shelters in a nomadic pastoral setting.

Similarly, over half 51.3% of the respondents were satisfied with the way they spent their spare time, with only 12% reporting being very dissatisfied. This finding is not a surprise because the respondents had stated that they mainly consumed *Khat* to pass time and due to peer influence. This may mean that they felt satisfied, for they considered their spare time to be well spent in the company of other *Khat* consumers. This finding concurs with that of Alem et al. (1999) who reported that *Khat* use enhances leisure activities, hence facilitating interaction among family members. Accordingly, when *Khat* consumption takes place during the consumers' free time, especially after a hard day's work, it enhanced interaction as consumers relaxed, discussed the day's happenings and it enhanced their business practices. This findings also concurs with that George et al. (1995) in their study which reported that *Khat* chewing helped the consumers to relax , reduce boredom and be ready for the next day's work.

Further, Figure 4.2 shows that almost two fifths 39.3% of the respondents were satisfied with their ability to access health services, while 32.4% were dissatisfied with their ability to access health services. This indicated that access to health services was limited in *Khat* consuming families due to use of resources to sustain *Khat* consumption. This can be explained by diversion of income to *Khat*-related habits which has negative effects on the wellbeing of families. This finding concurs with that of Numan (2004), who revealed that *Khat* chewing habits lead to diversion of income, which may make consumers neglect their family needs such as healthcare.

It emerges from the findings in Figure 4.2 that over two fifths 44.4% of the respondents were satisfied with their ability to provide support for others in their families while over one fifth 25.6% were dissatisfied with their ability to provide support for others. Similarly, over half 51.6% of the respondents were satisfied with the support they got from family members. This can be explained by the fact that *Khat* consumption and its related habits is supported by family income thus making the family heads unable to care for other people.

In Figure 4.2, it is shown that slightly over two fifths 41.7% were satisfied with their ability to make decisions, while over one fifth 25.6% were undecided on the level of satisfaction of their ability to make decisions. However, more than one quarter 30.5% of the respondents were satisfied with their ability to learn new information with almost two fifths 37.4% being dissatisfied. Further, slightly less than two fifths 37.2% were satisfied with their sleep pattern and almost half 47.9% were satisfied with their energy levels to carry out their day-to-day activities. These findings are consistent with those of Alem et al. (1999) who found that *Khat* chewing is associated with increased energy levels and ability to receive information when taken in moderation. The findings further concurs with George et al. (1995) who reported that chewing in small amounts produces subjective effects such as increased Energy levels and ability to communicate.

Hypotheses testing was deemed important to ascertain the relationships between independent and dependent study variables. Simple linear regression was ultilised because it is the most basic and commonly used for predictive analysis. The first null hypothesis was:

H_{01} There is no relationship between *Khat* consumption and consumers' lack of sleep.

The variable used to measure *Khat* consumption was hours spent chewing, while lack of sleep is one of the of physical wellbeing aspects. The model summary is presented next.

Table 4.11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.111	.012	.011	.965	.012	7.213	1	581	.007

Source: SPSS Regression Output

Table 4.11 shows the model summary and overall fit statistics. The adjusted R^2 model is =0 .011 with the R^2 =0.012 this means that the linear regression explains 1.2% of the variance in the data. The analysis of variance results are presented on Table 4.12.

Table 4.12: Analysis of Variance Results

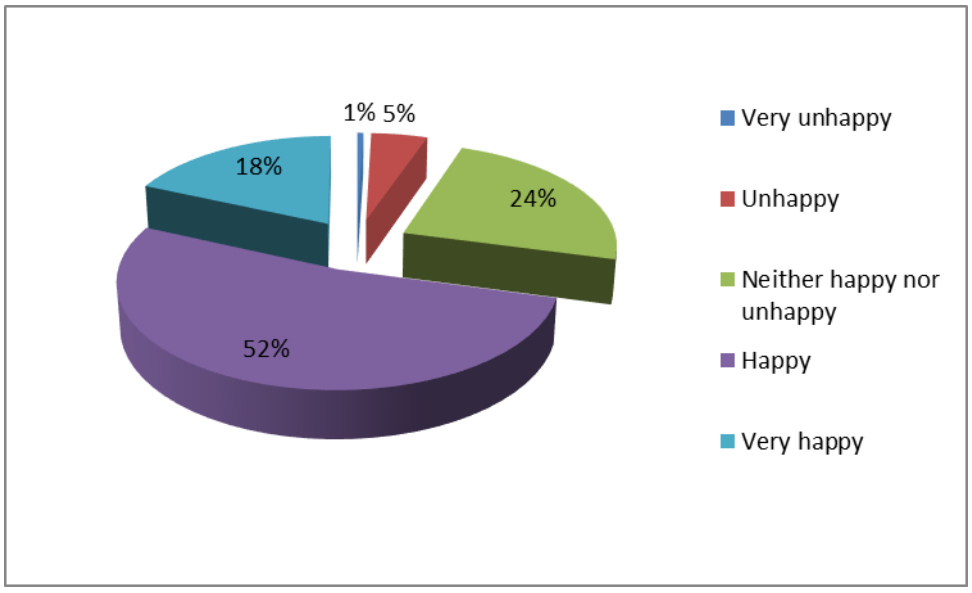
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	6.714	1	6.714	7.213	.007
	Residual	540.813	581	.931		
	Total	547.527	582			

Source: SPSS Regression Output

Regression analysis generates an equation to describe the relationship between one or more predictor variable. The P-value for each term tests the null hypothesis that the coefficient is equal to zero (no effect). A low P-value (< 0.005) indicates that the null hypothesis was rejected. The predictor that has a low p-value is likely to be a meaningful addition to the model because changes in the predictor's value are related to changes in the response variable. From the output in Table 4.12 the predictor variable is not significant because the p-value is 0.007, which is lesser than the common alpha level of 0.05. This means that the null hypothesis was accepted thus, there is no relationship between *Khat* consumption and consumer's' lack of sleep. The finding is inconsistent with the result reported by Doughlas, Boyler and Lintzeris (20011) who found that *Khat* consumption was associated with lack of sleep. This shows that *Khat* consumption is not associated with lack of sleep.

4.6 Influence of *Khat* Consumption on the Psychological Wellbeing of Consumers' Families

To establish the psychological wellbeing of the *Khat* consumers, the study found it necessary to determine the effects of *Khat* consumption on the Psychological health of the consumers' families. Happiness is an important aspect in determining the families wellbeing which is generally viewed as a description of people's life situation (McGillivray, 2006). Happiness is an important emotional determinant of families' wellbeing. The respondents were required to rate their level of happiness in their families on a five level Likert-Scale. Results are summarized in Figure 4.3.



Source: Field data

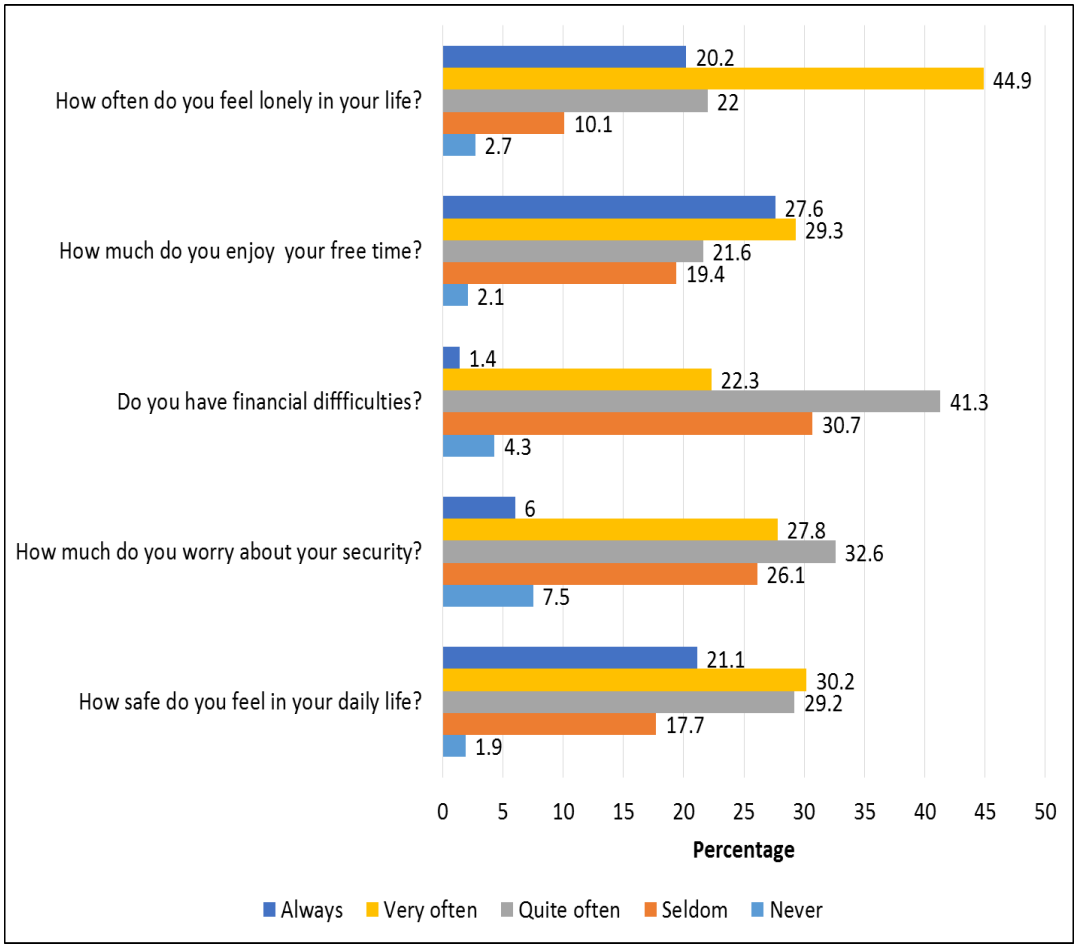
Figure 4.3: Respondents' Level of Happiness Derived from Consuming *Khat.*

Findings in Figure 4.3 revealed that slightly over half 52% of the respondents were happy with the relationship they had with family members while only 18 % reported to be very happy with the relationship they had with their family members. Additionally none of the *Khat* consumers interviewed reported being very unhappy

after consuming *Khat*. This could have been associated with the subjective feelings experienced after consuming *Khat* due to its stimulating effect. The happiness could have been due to the chemical effects of *Khat* or derived from the ability of the respondents to support their families socially through interaction as they indulge in *Khat* consumption. However, this finding supports that of Alem, et al. (1999) who reported enhanced communication in *Khat* chewing families as well as increased energy and excitement leading to a state of happiness. This is, however, applicable among moderate *Khat* consumers who chew *Khat* for recreational purposes and for social interaction (Klein, 2012). The happiness could also be due to the activation of the central nervous system giving rise to subjective wellbeing experiences of excitement, imaginative ability and improved self-esteem (Dhadhale, 1988; George, et al,. 1995).

4.6.1 Respondents' Experiences after Consuming *Khat*

This study incorporated the *Khat* consumers' experiences to help determine the psychological aspects associated with *Khat* consumption. Findings were rated on a five-point Likert scale indicated by: Always, Very often, and Quite often. Seldom and Never, as shown in Figure 4.4.



Source:Field data

Figure 4.4: Respondents' Experiences after Consuming *Khat*

Findings in Figure 4.4 indicate that over two fifths 44.9%, of the consumers felt lonely, very often after consuming *Khat*. This finding is consistent with what was reported by (Haji, 1985; Maitai, 1996) who found out that, loneliness symptoms were associated with *Khat* consumption. Consequently, slightly over two fifths 41.3% reported financial difficulties, while over one fifth 29.3% reported that they very often enjoyed their free time. Their enjoyment of free time could be because of the company they shared *Khat* with peers or family and the subjective effects of *Khat* chewing which could have made them to relax, get excited and feel a sense of improved self-esteem. However, these feelings are short-lived because after the

subjective feelings are over, the real life situation manifests on their day to day happenings. This finding concurs with (George et al., 1995) who reported that *Khat* chewing was associated with excitement and relaxation. The respondents accordingly, reported a wide range of experiences in Figure 4.4 and as captured in women leaders FGDs whose members were in agreement that;

"*...consumption has played a major role in increased separation and divorce in the area due to loneliness, as a result of continuous absence by our husbands. They chew in groups until wee hours of the night. It has created high levels of unfaithfulness. This has increased multiple relationships and weakened the marriage institution…*" (FGD 14/4/2013)

Further findings in Figure 4.4 show that *Khat* consumption affects the consumers' wellbeing as indicated by their worries about security 32.6%, and loneliness as reported by over two fifth 44.9% of the respondents. This is associated with prolonged *Khat* chewing sessions which have negative effects on the consumers' wellbeing. These findings concur with (Haji, 1985; Zeleke et al., 2013) in their studies in Garrisa and Ethiopia reported that *Khat* chewing lead to withdrawal syndromes, loneliness and general alienation due to environmental disorientation and marital issues. The findings further agree with those of Klein et al. (2012) who found *Khat* consumption cannot be a measure of social integration and inclusion but alienation when they carried out their study among Somali communities in Europe.

To establish whether there is a relationship between *Khat* consumption and the psychological wellbeing of families. The following null hypothesis was stated and tested.

H_{02} There is no relationship between *Khat* consumption and the happiness of consumers' families.

The variables used to measure *Khat* consumption was hours spent chewing by consumers, while psychological wellbeing aspects were measured using consumers' happiness with the relationships they shared with their families. The model summary is presented in Table 4.13.

Table 4.13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig. F Change
1	.075	.006	.004	.795	.006	3.326	1	581	.069

Source: SPSS Regression Output

Results in Table 4.13 indicates the model summary and overall fit statistics. The adjusted R^2 the model is 0 .004 with the R^2 =0.006 this means that the linear regression explains 0.6 % of the variance in the data. The analysis of variance results are presented on Table 4.14.

Table 4.14: Analysis of Variance Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.099	1	2.099	3.326	.069
	Residual	366.762	581	.631		
	Total	368.861	582			

Source: SPSS Regression Output

Results in Table 4.14 Indicate that the predictor variable is not significant because it has a p-value = 0.069 which is greater than the common alpha level of 0.05, which indicates that it is not statistically significant. This means that, there is no relationship between *Khat* consumption and consumers' happiness with the relationship they have with their family members. Thus, the null hypothesis was accepted.

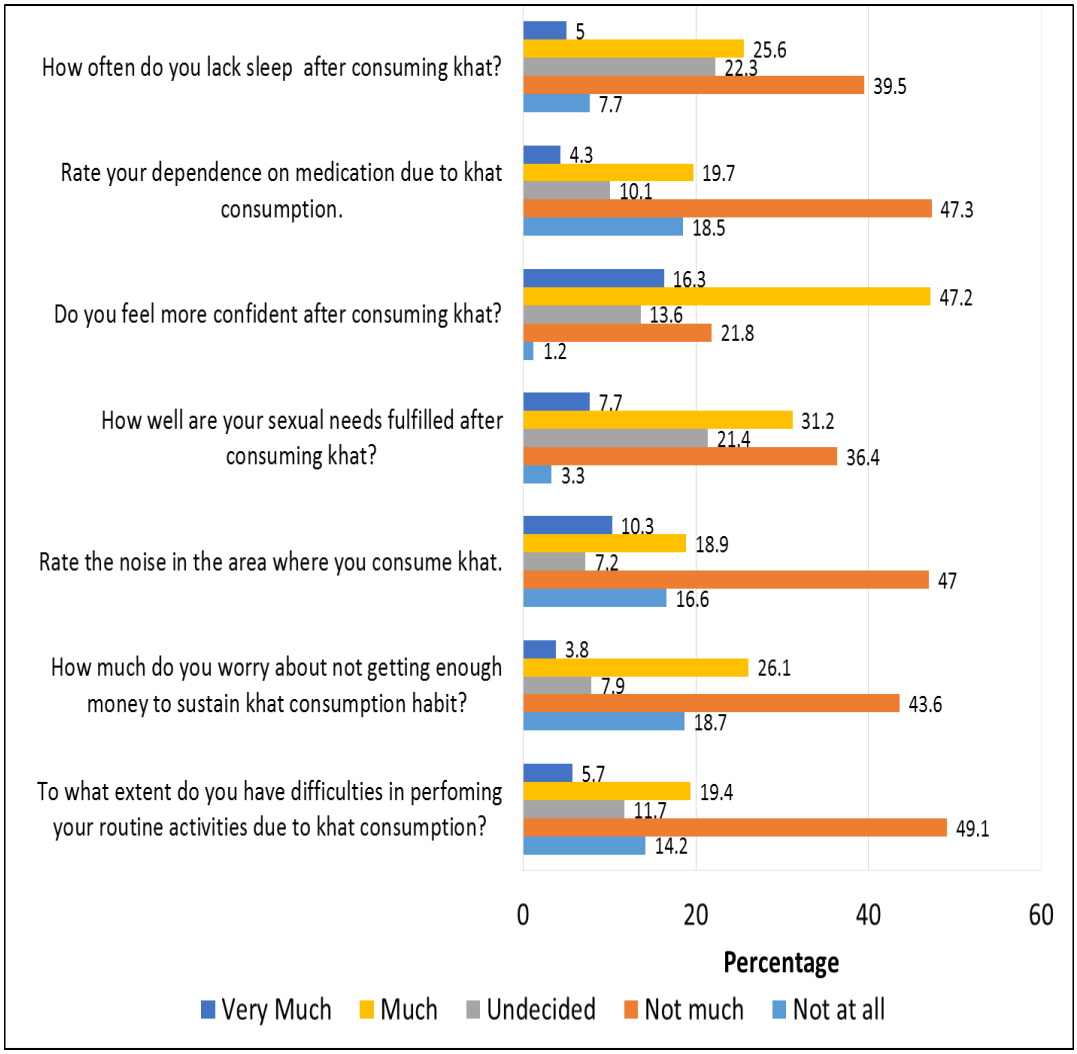
4.7 Influence of *Khat* Consumption on the Social Wellbeing of Consumers' Families

The purpose of this study was to assess the effects of *Khat* consumption on the wellbeing of families in Meru County. Social health aspects are important components of families' wellbeing, especially when associated with substance use. The literature related to *Khat* consumption has revealed that *Khat* has been used and accepted by consumers' as a recreational substance (Anderson, 2007). While this view still holds in some areas in Africa and elsewhere (Patel, 2005), the practice has been associated with considerable social harms such as family breakdown (Sundhedsstryelsen, 2009; Turning, 2004), violence and excessive spending (Milanovic, 2008), which has been reported as being problematic to the families' stability (Griffiths, 1998) and idleness (Pennings, 2008).

Findings of the study in Table 4.7 indicated that *Khat* consumption was mostly associated with peer influence and passing time. According to the social learning theory, behaviour is learnt in a social environment through observational modeling (Newman & Newman, 1999).

4.7.1 Recent Past Experience in Relation to *Khat* Consumption

The study probed to find out how much *Khat* consumers have experienced such things as lack of sleep, depended on medication, felt confident, had difficulties in performing their routine duties, worried about getting enough money to sustain *Khat* consumption, fulfillment of sexual needs after consuming *Khat*, noise in the area where they consumed *Khat* and whether they had difficulties performing their routine activities due to consumption of *Khat*. The findings are shown in Figure 4.5.



Source: Field data

Figure 4.5: Recent Past Experience in Relation to *Khat* Consumption

Findings in Figure 4.5 show that over one third 39.5% of the respondents did not lack sleep, much after consuming *Khat*. This finding is inconsistent with that of (Griffiths, 1998 and Kalix, 1984) who found that, *Khat* chewing banishes sleep and promotes communication, hence keeping the consumer awake. This contradiction is due to the difference in the amount of *Khat* consumed as indicated by the approximate amount of money spent by the *Khat* consumers. The finding is

inconsistent with the finding of the study done by Zeleke et al. (2013) who reported that *Khat* consumers had sleeping disorders and depressive symptoms.

Figure 4.5 shows that over two fifths 47.3% did not rely much on medication after consuming *Khat*. This finding is inconsistent with (Alem & Shibre, 1999; Asha, 2012) who reported adverse health-related effects associated with *Khat* chewing such as nutrition and unhygienic practices which negatively impacted on human health. The finding is consistent with Klein, (2008) and AMCD, (2013) who reported that *Khat* chewing is associated with ant-social behaviours such as noise and moderate smoking of cigarettes, which the study associated with little health-related issues. Similarly, Kabede (2000) reported a significant association of *Khat* chewing with physical illness (OR= 1.52) and mental distress (OR= 8.30) among habitual *Khat* consumers.

In addition, the study found in Figure 4.5 that, over two fifths 47.2% of the respondents felt much confident after consuming *Khat*. However, *Khat* is a stimulant, thus this finding is not a surprise, besides it concurs with Belew, Hoffman & Al Absi, (2010); Kassim, Islam, & Croucher (2010) who reported elevated self-esteem by *Khat* consumers. This finding explains why the respondents also participated in *Khat* related activities to enhance their economic status. Regarding their sexual needs fulfillment, less than two fifths 36.4% of the *Khat* consumers were not much fulfilled sexually. This finding is inconsistent with Hoffman & Al' Absi (2010) who reported increased libido among *Khat* consumers. Similarly, over two fifths 47% reported that they were not much affected by the noise in their consumption areas and over two fifths 43.6% did not worry much about getting enough money to sustain *Khat* consumption habits. This finding explains wide

spread availability of *Khat* for consumption. This view is shared by Kassim et al. (2006) who cited *Khat* as a recreational substance which was readily available in Yemeni.

Figure 4.5 further shows that over two fifths 49.1% of the respondents did not have much difficulties in performing their routine activities due to *Khat* consumption. This finding is inconsistent with Hussein & Areely (2008); Kalix (1987) who reported low productivity and loss of working hours respectively as a result of consumption of *Khat*. The following null hypothesis was stated and tested, to establish whether there was a relationship between *Khat* consumption and the social wellbeing of consumers' families.

H_{03} There is no relationship between *Khat* consumption and Consumers level of education.

The variable used to measure *Khat* consumption were hours spent chewing and the social wellbeing aspects was measured using consumer' level of education. The model summary is shown in Table 4.15.

Table 4.15: Model Summary

Mo-del	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.163	.027	.025	1.973	.027	15.950	1	581	.000

Source: SPSS Regression Output

Table 4.15 shows the model summary and overall fit statistics. The adjusted R^2 of our model is 0 .025 with the R^2 =0.027 this means that the linear regression explains 2.7% of the variance in the data. This indicates that the model accounts for 2.7% explanation as to the extent in which *Khat* consumption influences the social wellbeing aspects of families. The analysis of variance results are show on Table 4.16.

Table 4.16: Analysis of Variance Results

		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	62.064	1	62.064	15.950	.000
	Residual	2260.738	581	3.891		
	Total	2322.803	582			

Source: SPSS Regression Output

Results in Table 4.16 indicates that the predictor variable is significant because it has a p-value is 0.000 which is less than the common alpha level of 0.05.This indicates that it is statistically significant. Thus, there is a positive relationship

between *Khat* consumption and consumers' education status. Therefore, the null hypothesis was rejected. This finding is consistent with Aden, Dimba, Ndola and Chindia, (2006), who reported general low levels of education among *Khat* consumers' in North Eastern parts of Kenya. It was deemed important to have a model summary and analysis of variance with a wellbeing model shown below.

4.8 Analysis of the Effects of *Khat* Consumption on Consumers and their families

The model summary and analysis of the effects of *Khat* consumption on Individuals and families are shown in Table 4.17, Table 4.18 and Table 4.19. The following model provides R-Squared values which helped in predicting the effects of *Khat* consumption on the wellbeing of families. The model summary is indicated in Table 4.17.

Table 4.17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.375	.141	.123	1.007	.141	7.779	12	570	.000

Source: SPSS regression Output

Results of combined variables in Table 4.17 shows the model summary and overall fit statistics. The adjusted R^2 of our model is 0 .123 with the R^2 =0.141, this means that the linear regression explains 14.1% of the variance in the data. This means that, the model accounts for 14.1% explanation as to the extent in which *Khat* consumption influences the wellbeing of individuals and families. The analysis of variance results are presented in Table 4.18.

Table 4.18: Analysis of Variance Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	94.590	12	7.883	7.779	**.000**
	Residual	577.574	570	1.013		
	Total	672.165	582			

Source: SPSS Regression Output

Results in Table 4.18 indicates that the predictor variables are significant because they have a p-value is 0.000 which is less than the common alpha level of 0.05. This indicates that, there is a statistically significant relationship between *Khat* consumption and consumers' wellbeing. The analysis of variance model results are presented in Table 4.19.

Table 4.19: Analysis of Variance Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.452	.225		15.348	.000
	Violence	.077	.131	.032	.592	.554
	Low work output	-.209	.254	-.086	-.826	.409
	Low level of education	-.240	.294	-.090	-.816	.415
	Increased demand for health services	-.148	.141	-.066	-1.048	.295
	Poor role models	-.065	.141	-.027	-.457	.648
	Marital instability	.593	.159	.263	3.723	**.000**
	Poor family relationships	-.386	.131	-.165	-2.950	**.003**
	Addiction	-1.181	.392	-.460	-3.009	**.003**
	Diversion of family income	.168	.130	.072	1.296	.195
	Increased social interaction	.195	.127	.088	1.535	.125
	Decreased libido	-.078	.130	-.036	-.602	.547
	Low investment	.544	.150	.246	3.625	**.000**

Source: SPSS Regression Output

The results in Table 4.19 indicate that the regression model predicts the dependent variables significantly well. This shows the statistical significance of the regression model has a p-value of .000. The coefficients table indicates that there is a positive relationship between *Khat* consumption and marital instability, poor family relationships, addiction and low investment at p-values of 0.000, 0.003, 0.003 and 0.000 respectively. The results are consistent with Haji (1985), Turning, (2004) and Sykes et al, (2010) who reported that *Khat* chewing was associated with marital

instability, poor family relationships and addiction to *Khat* consumption. The next chapter presents summary, conclusions and recommendations made by the study.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter four included the process through which the variables identified in chapter three were operationalised into measurable indicators which were used for data analysis to meet the objectives of the study. The researcher in the last chapter has presented the general findings of the study which indicated that there was a positive relationship between *Khat* consumption and the wellbeing of families. In this chapter, detailed summary of the study findings, conclusions, and recommendations for practice, policy and those for areas for further research are presented next.

5.2 Summary of Key Findings

This section provides summary of findings of the study based on the objectives of the study. The first objective of this study was to establish the prevalence of *Khat* consumption in Meru County. The results indicated that over three quarters 78.2% of the *Khat* consumers started chewing *Khat* before their 21st birthday. From the study findings, *Khat* consumption was found to be positively associated with availability of *Khat*. Majority of the *Khat* consumers mentioned that they got *Khat* from their farms. It was also found that *Khat* consumption was a group activity and most of the consumers were males. This could have been due to the fact that most heads of families in the study area were males.

The study also revealed that the consumers of *Khat* were in marital relationships. Precisely, the findings revealed that over three quarters 76.2% of the consumers were married.

The study findings also showed that slightly over half 53.6% of the *Khat* consumers were self-employed. This is probably because of their flexibility compared to their counterparts in formal employment. However, from the findings of the survey, the most important reasons why the respondents consumed *Khat* was found to be peer pressure and for passing time. Further, low levels of education were reported among consumers' of *Khat.* Education was a significant predictor for *Khat* consumption both in the Chi-square and regression analysis.

The second objective of the study was to find out the socio-economic drivers of *Khat* consumption. The study established that slightly over one fifth 21.6% of the total mentions by the *Khat* consumers, consumed *Khat* due to peer pressure. The study also revealed that slightly over two fifths 42.7% consumers sourced *Khat* from the family farms. Additionally, 34.2% of the total mentions by the *Khat* consumers reported that they also bought *Khat* for consumption. The wellbeing of consumers was significantly determined by their education status and expenditure on *Khat*, which was found to have a p-value =0.000.

The third objective was to determine the effects of *Khat* consumption on the physical health of consumers' families. The study also showed that slightly more than two fifths 41.7% were satisfied with their ability to make decisions after consuming *Khat.* Further, over one third 37.2% of the respondents were satisfied with their sleep patterns and over two fifths 47.9% were satisfied with their energy levels to carry out their day-to-day activities. The results also indicated that slightly almost half 49.1% of the respondents did not have much difficulties in performing their routine activities due to *Khat* consumption. Simple linear regression analysis showed that

there was no significant relationship between *Khat* consumption and consumers' lack of sleep.

The fourth objective was to determine the influence of *Khat* consumption on the psychological aspects of *Khat* consumers' families. The study findings showed that slightly over half 52% of the respondents were happy with the relationship they had with family members after consuming *Khat*. The findings also indicated that over two fifths 44.9%, of the *Khat* consumers felt lonely after consuming *Khat*. Regression analysis showed that there is no positive relationship between *Khat* consumption and happiness of consumers' families.

The fifth objective was to establish the influence of *Khat* consumption on the social health of families. The study showed that almost two fifths 36.4% of the respondents stated that their sexual needs were not fully fulfilled after consuming *Khat*. The findings revealed that, the social health of consumers was significantly determined by variables such as, level of education and marital instability. Simple linear regression analysis indicated that there is a positive relationship between *Khat* consumption and consumers' level of education with a p-value of 0.000. The conclusions arrived at are presented next.

5.3 Conclusions of the Study

Drawing from the findings, the study concluded that availability of *Khat*, peer pressure and passing time were important drivers associated with consumption of *Khat* with ramifications for the wellbeing of families of *Khat* consumers. The mean age for *Khat* consumers was 43 years.

It was also concluded that *Khat* consumption is a male-dominated activity. The heads of families being *Khat* consumers encouraged other family members to indulge into the practice through interaction. They chewed *Khat* mostly with age mates and friends. Simple linear regression analysis showed that there was a positive relationship between *Khat* consumption and poor family relationship.

The mean hours spent chewing *Khat by* consumer was 7.67 per day. Simple Linear regression analysis indicated that there was no positive relationship between the hours spent chewing *Khat* and their satisfaction with their sleep and consumers' happiness. Simple Linear regression analysis also indicated that there was a positive relationship between hours spent chewing *Khat* and consumers' education status, marital instability, poor family relationships, Addiction and low investment.

5.4 Recommendations Arising from the Study

The study endeavoured to assess the effects of *Khat* consumption on the wellbeing of families in Meru County. The recommendations that have been made are related to practice, policy and those for areas of further research. The researcher has given the recommendations based on the findings of the study with a view to soliciting for viable intervention measure to minimise *Khat* consumption and its attendant negative consequences on the wellbeing of families. Accordingly, recommendations, touching on practice, policy and those on identified gaps for further research are made in the next section.

5.4.1 Recommendations for Practice

From the findings of this study, the following recommendations were suggested as the major areas of change in practice:

i. Families to adopt Alternative Economic practices

Availability of *Khat* encourages its consumption, thus the study recommends that, the government through the Ministry of Agriculture, the Field Extension Officers to engage with the individual and families to find alternative economic livelihood strategies which will cut the market supply chain for *Khat*. Imperatively, there is need for the law of demand and supply to call for demand and supply reduction to arrest the situation of *Khat* use and abuse. Indeed, supply reduction will eventually reduce *Khat* consumption and its effects on the individuals and families. It will also help the communities to embrace other ways of earning a living, thus paving way for further socio-economic development.

ii. Ministry of Education to conduct Sensitization Seminars

From the study findings, the family heads had relatively low levels of education. Therefore, the study recommends that the government through the Ministry of Education and County government to organise adult literacy classes where learning will take place and integration of awareness campaigns to sensitize the communities on the importance of formal education. This will enlighten them on the dangers of *Khat* consumption on the wellbeing of families in the area.

iii. NACADA to Develop Intervention Programmes

Information on the dangers associated with consumption of *Khat* and other related substances to be passed to the general public by NACADA and the County government through organised interactive forums. NACADA and the Ministry of Health should mount joint efforts through seminars to educate the families on social, physical and psychological wellbeing aspects related to *Khat* consumption. With awareness programmes, there is need for the communities' members to support NACADA in their bid to implement laws governing *Khat* consumption just like alcohol and other substances of abuse as witnessed recently following the presidential order on illicit brews, this can be extended to *Khat*.

iv. Financial Institutions to Provide Financial Support

The study recommends that, the Non-governmental organizations and financial institutions to provide the families with affordable loans to diversify their sources of income away from *Khat* farming. This will also keep them positively engaged and reduce time taken chewing *Khat*. This will eventually lead to meaningful community development.

v. To Develop Additional Sporting and Recreational Facilitates

From the findings, it was noted that majority of the respondents chewed *Khat* to pass time. The study therefore recommends that, the County government to partner with the Ministry of Sports, Culture and Arts to develop more sporting and recreational activities to occupy the individual members instead of consuming *Khat*. This would help communities to assist individuals' to

realise and develop their talents to put their free time in gainful activities other than chewing *Khat*. This may also contribute to development of communities, through Music and drama, athletics and ball games, which would help families' to enhance their physical psychological and social wellbeing.

5.4.2 Recommendation for Policy

i. Enforcement of School Enrolment by Ministry of Education.

The education policy should focus on the family heads being encouraged to enrol for adult literacy classes. This may help the family heads to understand the need for them to enrol their children in formal school at different levels. This may also help to improve the standards of education for the individuals and the community members to enhance the social wellbeing of families.

ii. Strengthen Policy Frameworks and Partnerships

The Ministry of Health to partner with NACADA to strengthen the policy frameworks related to consumption of *Khat* to facilitate its adoption and implementation. This may help the families to understand the health implications with an aim of reducing *Khat* consumption.

5.4.3 Suggested Areas for Further Research

i. This study was done in Meru County but there is need to conduct future studies in other counties where *Khat* is grown and consumed for comparative purposes. This study focused on household heads, future studies should incorporate gender analysis in *Khat* consumption and be done in either rural or urban areas where *Khat* is consumed and should involve sample

population of non-household heads. Whether the results established from the study would be consistent in other areas or not, can only be verified through further research. A follow-up study to shed more light on the current trend and future expectation of *Khat* consumption is necessary to provide a link between this study and the earlier ones.

ii. There is also need for a comparative study between the *Khat* consuming and non-*Khat* consuming households to determine their consumption habits and their implications on the socio-economic wellbeing of families.

iii. Similarly, a comparative study on the effects of *Khat* consumption and other substances such as bhang, heroine, and alcohol should be done to determine the effects of each of the substances on the wellbeing of families.

iv. Further studies need to be carried out to determine the social, economic and environmental factors associated with *Khat* chewing in other counties in Kenya.

v. A follow-up comparative study would be necessary to determine the upcoming trend in *Khat* consumption in Kenya, targeting where *Khat* is grown and areas where it is consumed to fill the gaps and verify contradicting findings, especially on the effects of *Khat* consumption on marital relationships.

vi. Finally, the study has demonstrated that more research need to be done on issues related to *Khat* consumption to enlighten Individuals, families, and communities, on the effects of *Khat* consumption. Also other studies need to be done using other methodologies such as longitudinal because this study was a cross-sectional descriptive survey.

REFERENCES

Abdi, A. (2008, June 10). *Miraa* threatens food security in Marsabit. *Tuesday Standard*, News feature, pp. 14. Nairobi, Kenya.

Abraham, D. (2000). The impact of long term consumption of *Khat* on public health: The Sidama concern. 2000:5(4):15–16. Retrieved April 12, 2009 from www.sidamaconcern.com.

Abraham, M.F. (1992). *Modern sociological theory: An introduction*. Oxford University Press. New Delhi, India.

Advisory Council on Misuse of Drugs (ACMD). (2013). *Khat: A review of its potential harms to the individual and the communities in the UK*. London: Home Office.

Adams, B., & Trost, J. (2005). *Handbook of world families*. London: Sage Publications.

Aden, A., Dimba, E.A., Ndola, U.M., & Chindia, M.L. (2006). Socio-economic effects of *Khat* chewing in North Eastern Kenya. *East African Medical Journal*, 83(3), 69-73. Retrieved June 20, 2010 from *http://www.ncbi.nlm.nih.gov/pmc/*articles/PMC3377054/.

Alem, A., Kebende, D., & Kullgren, G. (1999). The prevalence and Socio-demographic correlates of *Khat* chewing in Butajira, Ethiopia. *Alta psychiatric Scandinavia- Supplementum, 100,* 84-89. Retrieved April 15, 2010 from http://www.drugs.com/npp/*Khat*.html.

Alem, A., & Shibire, T. (1997). *Khat* induced psychosis and its medico-legal implication. *Ethiopian Medical journal,* 35(2), 137-139.

Al-Habori, M. (2005). The potential adverse effect as of habitual use of Catha Edulis (*Khat). Expert opinion on Drug safety, 4*(6), 1145-1154.

Al-Hebshi, N. N., & Skaug, N. (2005). '*Khat* (Catha edulis): An updated review', Addiction Biology, *10,* 299–307. Retrieved June 20, 2010 from onlinelibrary.wiley.com/…1080/13556210500353020/.

Anastas, J.W. (1999). R*esearch Design for Social Work and the Human Services.* 2nd Ed. New York: Columbia University Press.

Andersen, M.N., & Taylor, H.F. (2004). *Sociology: Understanding a Diverse Society.* 3rd ed. Wadsworth, Canada.

Anderson, D.M., & Carrier, N.C.M. (2006). '*Flowers of paradise, or polluting the nation? Contested narratives of Khat consumption' in consuming cultures,* Global.

Anderson, D.M., Becker leg, S., Hailu, D., & Klein, A. (2007). *The Khat Controversy: Stimulating the drugs debate*. Oxford, Berg.

Anderson, D.M., & Carrier, N.C.M. (2011). *Khat*: *social harms and legislation: a literature review*. The University of Oxford; Home Office, Oxford. Retrieved December 20, 2013 from http://www.academia.edu/9592430/*Khat*_Social_Harms_and_Legislation_a_Literature_Review.

Asha, D. (2012). An exploratory study into *Khat* market in East London: Unwrapping a *Khat* Bundle. Retrieved March 24, 2013 from http//www.prezi.com/npzsr6jb.

Baasher, T. A. (1980). The use of *Khat*: A stimulant with regional distribution. In Edwards, G. & Arif, A. *Drug Problems in the Socio-cultural Context* p. 86-93. World Health Organization: Geneva.

Baasher, T. A., & Sadoun, R. (1983). The epidemiology of *Khat.* In International Conference on *Khat*. The Health and Socio- economic Aspects of Use, p. 161-177. International Council on Alcohol and Addictions: Madagascar.

Becker leg, S. (2006). What harm? Kenyan and Ugandan perspectives on *Khat*. *African Affairs*: *the Journal of the Royal African Society, 105*(419), 219 - 241. Retrieved May 21, 2009 from http://afraf.oxfordjournals.org/content/105/419/219.

Berk, L.E. (1999). *Infants, children and adolescents*. 3rd ed. Alyn and Bacon.

Best, J.N. (1992). *Research in education*. New Jersey: Prentice Hall, USA

Bhui, K., & Warfaa, N. (2010) Trauma, *Khat* and common psychotic symptoms among Somali immigrants: A quantitative study. *Journal of Ethnopharmcology*, 132, 549-553. Retrieved March 20, 2012 from https://publicmentalhealthbybhui.wordpress.com/2015/07/19/cultural-psychiatry-epidemiology-biblio.

Birech, J. (2004). Alcohol abuse and Its Implications on family Life: A case Study of the Nandi Community of Kenya. (Unpublished Masters project Paper). University of Nairobi.

Bironga, S. M. (2014). Determinants of paternal involvement in pupils' education and academic achievement among primary school pupils in Nairobi County, Kenya. (Unpublished doctoral thesis). Kenyatta University, Nairobi.

Blaxter, L., Huges, C., & Tight, M. (2006). *How to Research*. 3rd ed. Berkshire Open University press.

Braun, V., & Clarke V. (2006). Using thematic analysis in psychology. *Qual Res. Psychol.* 3, 77-101. Retrieved March 2, 2009 from http://www.oalib.com/references/9097711.

Corkery, J. M., Schifano, F., & Oyefeso, A. (2011). Overview of literature and Information on *Khat* related mortality: A call for recognition of the issue and further research. *Annali dell'istituto supperiore di sanita'* 47, 445-464.

Cox, G., & Rampes, H. (2003). Adverse effects of *Khat*: A review: *Advances in Psychochiatric Treatment, British Journal of Psychiatry*, 9 (6) 456-463. Retrieved August 21, 2008 from http://apt.rcpsych.org/content/9/6/456.

Critchlow, S., & Seifert, R. (1987). *Khat*- induced paranoid psychosis, *British Journal of Psychiatry*, 50, 247 – 249. Retrieved July 3, 2007 http://search5.fvpimageviewer.com/search/web?fcoid=417&q.

Debus, M., & Novelli, P. (2007). Handbook for Excellence in Focus Group Research. *Washington.* Oxford Press.

Dhadphale, M., & Omolo, O.E. (1988). Psychiatric Morbidity among *Khat* chewers. *East African Medical Journal*, 65, 355-359. Retrieved September 20, 2008 from http://www.researchgate.net/publication/19975351_Psychiatric_morbidity_among_*Khat*_chewers.

Diener, E., Oishi, S., & Lucas, R.E. (2009). *Subjective wellbeing: The science of Happiness and Satisfaction.* New York: Oxford University Press.

Diener, E., & Suh, E. (1997). *Measuring Quality of Life: Economic, Social, and Subjective Indicators. Social Research Indicators*. Retrieved April 12, 007 from ink.springer.com/article/10.1007/s11205-015-0989-3.

Donde, D.F.M (1984). *Changaa* Distillation and Drinking in Idakho Location, Ikolomani Division, Kakamega: Impact of the closure of Bazaar clubs. (Unpublished Master's thesis). University of Nairobi.

Doughlas, H., Boylers, M. & Lintzeris, N. (2011). The health impacts of *Khat*: A qualitative study among Somali- Australians. *Medical Journal*, 195(1), 666-669.

Douglas, H., Pedder, M., & Lintzeris, N. (2012). Law Enforcement and *Khat*: An analysis of current issues. Monograph Series No. 40. National Drug Law Enforcement Research Fund. Retrieved August 13, 2013 from http://www.law.uq.edu.au/academic-staff/staff.php?nm=heatherdouglas&tab=publicationslink.

Elmi, A. S. (1983). The chewing of *Khat* in Somalia. *Journal of Ethno pharmacology*, 8, 163-176. Retrieved May 4, 2008 from http://apt.rcpsych.org/content/9/6/456.

Eshlemon, J. R., Cashion, B. G., & Basirico, L. A. (1993). *Sociology: An introduction.* 4th ed. Harper Collins College Publishers Incl.

European Monitoring Centre on Drugs and Drug Addiction (EMCDDA). (1999). "Extended Annual Report in the State of the Drug problem in the European Union", Lisbon. Retrieved March, 14, 2008 from http://www.drugwarfacts.org/cms/Portugal#sthash.sBMLRHYX.dpbs.

Feyissa, T.H., & Aune, J.B. (2003). *Khat* expansion in the Ethiopian Highlands: effects on the farming systems in Habro Sub-county. *Mountain Research and Development*, 23(2), 185-187. Retrieved January 20, 2012 from http://www.ceh.org.au/downloads/*Khat* report fnal.pdf.

Garissa, E. *(2010). Khat: Is it more like coffee or cocaine? Criminalizing a commodity, targeting a community. Sociology Mind, 2, 20 - 212.* Retrieved March 10, 2012 from *http://www.scirp.org/journal/PaperInformation.aspx?paperID=18443.*

George, D. & Mallery, p. (2003). SPSS for Windows Step by Step: A simple guide and reference. 11.0 Update 4th Edition, Alyn & Bacon. Boston.

George, Y., Zahid, H., & Tim, L. (1995). *Khat* chewing as a cause of psychosis. *British Journal of Hospital Medicine* 54, 322-326. Retrieved June10, 2009 from www.researchgatenet/...ton/14644737_*Khat*_chewing.

Guanine, A.J., Burge, H., & Shaheed, J.M. (1986). *Khat*: Another Drug of Abuse? *Journal of Psychoactive Drugs*, 18, 155-158. Retrieved June 16, 2008 from cho1:10.1080/02791072.1986.10471395.

Giddens, A. (2001). *Sociology*. 4th ed. Buck well Publishers Ltd. New York. USA.

Giddens, A., Dungier, M., & Appelbaum R. (2005). *Introduction to Sociology.* 5th ed. Buck well Publishers Ltd. New York, USA.

Githuthu, F.W. (2005). *Alcohol Abuse by Young Women and its Influence on the Family' Institution: A Case Study of Amani Counselling Centre and Training Institute.* (Unpublished Masters project paper). University of Nairobi, Kenya.

Gondar, K.Y. (2002). Cigarette smoking and *Khat* use among University College Instructors' in Ethiopia. *East African medical journal*, 79(5), 274 - 278. Retrieved April 23, 2011 from http://www.ncbi.nlm.nih.gov/pubmed/12638815R.

Griffiths, p. (1998). *Qat use in London: A Study of use among a sample of Somalia living in London*. (Home office paper 26). London: stationary Office.

Guantai, A.N. (1982). *Catha Edulis (Vah) Forsk-(Miraa), Occurrence, Active Constituents, and Pharmacological Constituents*. (Unpublished Master's thesis). University of Nairobi, Kenya.

Haji, A. (1985). *The socio-economic Factors Related to use and Abuse of Khat in Garissa.* (Unpublished Master's thesis). University of Nairobi, Kenya.

.Hassan, N.A., Gunaid A.A., El-Khally, F.M., & Murray-Lyon I.M. (2002). The effect of chewing *Khat* leaves on human mood. *Saudi Medical Journal*, 23, 850–53. Retrieved June 23, 2008 from http://link.springer.com/article/10.1007%2Fs10995-007-0231-2.

Hansen, P. (2010). The ambiguity of *Khat* in Somali land. *Journal of Ethno pharmacology*, 32, 590- 5999. Retrieved May 7, 2012 from http://www.cabdirect.org/abstracts/20113006445.html;jsessionid=3B71F09105B962F83B8F12B76AF3155A.

Harper, B., Ralph, W., & Stanley, S. (1997). *Marketing research text & cases.* Homeword: Richard Irwin.

Herbert, H., & Singers, E. (1968). *Reading in Reference Group Theory and research.* New York: Free Press.

Hoffman, R., & Al' Absi, M. (2010). *Khat* use and neurobehavioral functions: Suggestions for future Studies. *Journal of Ethnopharmocolog,* 132(3), 554-563. Retrieved March 21, 2012 from http://www.researchgate.net/publication/44678726_*Khat*_use_and_neurobehavioral_functions_Suggestions_for_future_studies.

Hussein, M.A., & Areely, M.D. (2008). Health and Socio-economic hazards associated with *Khat* consumption: literature review. *Ethiopia Community Medical Journal,* 15(1), 3-11. Retrieved January14, 2009 from www.ncbi.nlm.nih.gov/pubmed/16771102.

Kalix, P. (1984). *Khat* Habit and its Health effects. A natural Amphetamine. *Bio-med Papers*, 148(1), 11-15. Retrieved November 24, 2008 from http://www.biomedsearch.com/article/*Khat*-use-lifestyle-addiction/208534954.html.

Kalix, P. (1987). *Khat*: Scientific Knowledge and Policy issues. *British Journal of Addiction,* 82, 47-53. Retrieved July 5, /2008 from http://www.mbali.info/doc292.html.

Kassim, S., & Croucher R. (2006). *Khat* Chewing amongst UK residents male Yemeni adults: An exploratory study. *International dental Journal,* 56, 97 - 101. Retrieved October 12, 2011 from http://searches.vi-view.com/search/web?type=other&channel=unknown&q=+Kassim%2C+S+and+Croucher+R.+.

Kassim, S., Islam, S., & Croucher, R. (2010). Validity and reliability of Severity of Dependence Scale for *Khat*. *Journal of Ethno pharmacology*, 132, 570-577. Retrieved March 3, 2012 from http://www.sciencedirect.com/science/article/pii/S0378874110006471.

Kassim, S., Islam, S., & Croucher, R. (2011). Correlates of Nicotine Dependence in U.K. Residents Yemeni *Khat* Chewers: A cross-Sectional Study. *New England Journal of Medicine.* 12, 1240-1249. Retrieved January 14, 2012 from http://www.nejm.org/doi/full/10.1056/NEJMra0809890.

Kebede D., Belew, M., Kassaye, M., & Enquoselassie, F. (2010). The magnitude of *Khat* use and its association with health, nutrition and socio-economic status. *Ethiopian Medical Journal*, 38(1), 11-26. Retrieved August 11, 2012 from http://www.ncbi.nlm.nih.gov/pubmed/11144876.

Kebede, Y. (2002). Cigarettes smoking and *Khat* Chewing among University instructors in Ethiopia. *East African Medical journal*, 79(5), 274-278. Retrieved March 3, 2009 from http://searches.vi-view.com/search/web?type=other&channel=unknown&q=Kebede%2C+Y.+%282002%29.+Cigarettes+smoking+and+*Khat*+Chewing+among+University+instructors+in+Ethiopia.+East+African+Medical+journal+vol.+79%285%29%3Ap.+274-278.+.

Kenya National Bureau of Statistics (KNBS), (2010). The 2009 Population and Housing census. “Counting our people for the implementation of vision 2030” Government of Kenya (GOK).

Kennedy, J. K. (1987). The Flower of Paradise: The Institutionalized Use of the Drug Qat-in North Yemen. Boston: D-Redial Publishing Company.

Khamis, A.T. (2004). *Psychosocial Aspects of Khat use among the Youth in Eastleigh, Nairobi*. (MSc dissertation). University of Nairobi.

Kimathi, K. (2013, August 26). Plan to sue UK over *Miraa* ban opposed. *Monday Daily Nation*, County News, pp. 20. Nairobi, Kenya.

Klein, A. (2008). *Khat* in the neighbourhood-local government responses to *Khat* use in London community. *Substance, Use,* 43(16), 819-831 Retrieved May 14, 2011 from https://kar.kent.ac.uk/14686/.

Klein, A., Metaal, P., & Jelsma, M. (2012). Chewing over *Khat* Prohibition. The Globalisation of Control and Regulation of an Ancient Stimulant. Transnational institute Series on Legislative Reform of Drug Policies No. 17. Amsterdam: Transnational Institute.

Krikorian, A. D. (1984). *Khat* and its use: an historical perspective. *Journal of Ethnopharmacology*, 12, 115-178. Retrieved August 2, 2009 from http://www.sciencedirect.com/science/article/pii/0378874184900473.

Kumar, R. (2005). *Research Methodology: A Step by Step Guide for Beginner*s. London, Sage Publishers.

Kombo, S.D., & Tromp, L.A. (2006). *Proposal and Thesis Writing*: *An Introduction.* Paulines Publications Africa, Nairobi, Kenya.

Kothari, C. R. (2009). *Research Methodology: Methods and Techniques*. New Age International (p) Limited, Publisher, New Delhi, India.

Maitai, C.K. (1996). *Miraa*: *A detailed review focusing on its chemistry, Health implication, Economic, Legal, Social, Cultural, Religious, Moral aspects and cultivation of Khat.* Nairobi: National Council for Science and Technology.

McGillivray, M. (2000). *Understanding Human well-being: Concepts and measurement*. Tokyo, New York: United Nations University Press. Retrieved April 24, 2009 from www.worldcat.org/title/understanding-human-well-being/oc/c/71329799.

McGillivray, M. & Clarke, M. (2006). Understanding Human Well-being United Nations University Press, New York, USA.

Michelson, J., Thompson, S., & Marks, N. (2009). *National accounts of wellbeing: Bringing real wealth onto the balance sheet*. New Economics Foundation. London.

Michuki, G. (2013, August 26). Regulate *Miraa* to protect environment, health and the education of boy child. *Monday, Daily Nation*, opinion pp. 13. Nairobi, Kenya.

Milanovic, B. (2008). *Qat* expenditures in Yemen and Djibouti: An Empirical Analysis. *Journal of African Economies*, 17(5), 661-687. Retrieved July 12, 2010 from http://www.academia.edu/1914632/Psychopharmacosocial_Aspects_of_Catha_edulis_Forsk_Fam._Celastraceae.

Mohamed, J., & Yusuf, I. (2012). *Diverse effects of Khat on Somali families: Primary Research Study*. Undergraduate study, University College of Gavle.

Mugambi, R.K. (2005). *Effects of Khat growing and consumption on education of boys in Meru North Sub-county, Kenya*. (Unpublished Masters Project paper). University of Nairobi, Kenya.

Mugenda, O.M., & Mugenda, A.G. (1999). *Research Methods Quantitative and Qualitative Approaches*. Nairobi: ACTS Press.

Mutembei, P. (2007, June 3). Life in '*Miraa'* Country. *Sunday Standard*, Teens talk, pp. 1-2. Nairobi, Kenya.

Muthui, P., & Muchui, D. (2012, January 26). *Miraa* crop takes the blame for regions violence. *Thursday Standard*, Its Life, pp. 19. Nairobi, Kenya.

Muthui, p. (2013, July 23). *Miraa* farmers vow to protect the crop at all cost. *Tuesday Standard*, County news, pp. 26. Nairobi, Kenya.

Mwaura, S. (2013, July 22). Region tries to come to terms with UK's *miraa* ban: Farmers and traders prepare for economic meltdown in Eastern region as Britain becomes the latest country to ban import of 'Green Gold. *The Standard* Xtra, pp. 1-4. Nairobi, Kenya.

Mwenda, J.M., Arimi, M.M., & Kyama, M.C. (2003). Effects of *Khat* - Catha edulis. Consumption on reproductive functions: A review. *East African Medical Journal,* 80, 318-323.

Mwenesi, A.H. (1995). "*Rapid Assessment of Drug Abuse in Kenya; National Report." By the United Nations Drug Control Programme (UNDCP)*. (Unpublished Master's Thesis). University of Nairobi.

Nabuzoka, D., & Badhadhe, F.A. (2000). Use and perceptions of *Khat* among young Somalis in a UK city. *Addiction Research*, 8, 5-26. Retrieved April 20, 2010 from http://www.hindawi.com/journals/bmri/2015/472302/.

National Agency for the campaign Against Drug Abuse (NACADA). (2004). *Youth in peril: Alcohol and Drug Abuse in Kenya*. A NACADA publication, Nairobi, Kenya.

National Agency for the campaign Against Drug Abuse (NACADA). (2007). *A survey of alcohol and drug addiction treatment and rehabilitations facilities in Kenya, A NACADA report,* Nairobi, Kenya. Retrieved April 23, 2011 from http://www.nacada.go.ke/wp-content/uploads/2010/06/rapidassessment-web.pdf.

National Agency for the campaign Against Drug Abuse (NACADA). (2012). *Rapid Situation Assessment of Miraa and Muguka usage in central Province of Kenya.* A NACADA report, Nairobi, Kenya.

National Agency for the campaign Against Drug Abuse (NACADA). (2012). A Report of the NACADA Conference held at the Kenya Institute of Administration. 24th- 27th January, 2012.

Nagelkerke, N.J.D. (1991). A note on a general definition of the coefficient of Determination. *Biometrika*, 78, 691-692. Retrieved June 24, 2011 from https://en.wikipedia.org/wiki/Coefficient_of_determination.

Newman, B. R., & Newman, P. R. (1999). *Development through Life; and Approach.* 7th Ed. Belmont, USA: Wadsworth Publishing Company.

Ngechu, M. (2006). *Understanding the Research Process and Methods: An introduction*. Nairobi: Star bright services Ltd.

Njagi, M. (2011, November 10). Mine of good fortune puts education in backburners. *Thursday Standard*, pp. 18. Nairobi, Kenya.

Numan, N. (2004). Exploration of adverse psychological symptoms in Yemens *Khat* users by the (SCL= 90) checklist-90. *Addition*, vol.99 (1):p. 61-65. Retrieved June 24, 2009 from http://onlinelibrary.wiley.com/doi/10.1111/j.1360-0443.2004.00570.

Numan, N. (2012). The green leaf: *Khat. World Journal of Medical Sciences,* vol. 7(4), 210-223. Retrieved July 20, 2014 from www.sciencedirect.com/…rticle/pii/S0378874110004678.

Nyandemo, S.M. (2007). *Research Methodology, Methods and Approaches*. Richard designers and printers, Nairobi, Kenya.

Odenwald, M., Warfa, N., & Bhui, K. (2010). The stimulant *Khat*- another door in the wall? A call for overcoming the barriers. *Journal of Ethno pharmacology*, 132, 615 – 619. Retrieved June 20, 2012 from https://www.researchgate.net/profile/Michael_Odenwald/publications/2.

Office for Drug Control and Crime Prevention (ODCCP). (2000): *World Drug Report.* Oxford, New York.

Ogolla, G. (1993). "*An assessment of alcohol and drug use among different groups in Kenya*". A report by the African Network for protection & prevention of Child Abuse and Neglect (ANPPCAN), Nairobi.

Omar, A. & Besseling, R. (2008). *KHAT*-A drug of growing abuses. [E-book] Sweden: Bloms Tryckeri AB: p.11-12. Retrieved October 12, 2011 from *http*//www.uon.ac.ke.

Ongeri, B. (2008, May 5). Tug of war over *Miraa* as Muslim leaders propose ban. *Monday Standard*, Special Report, pp.11-12, Nairobi, Kenya.

Orodho, A.J. (2003). *Essentials of Educational and Social Science Research Methods*. Masola Publishers. Nairobi, Kenya.

Osman, F.A., & Soderback, M. (2011). Perceptions of the use of *Khat* among Somali immigrants living in Swedish society. *Scandinavian Journal of Public Health Journal*, 39(2), 212- 229. Retrieved December 8, 2012 http://www.emeraldinsight.com/doi/ref/10.1108/17459261311310817.

Patel, S.L., & Murray, R. (2005). *Khat* use among Somalis in four English cities. Retrieved March 12, 2011 from http://.homeoffice.gov.uk/rds/pdfso5/266.pdf.

Patel, S.L. (2008). Attitudes to *Khat* use within Somali community in England. *Drugs: education, Prevention and policy*, 15(1), 37-53. Retrieved April 12, 2011 from http://www.researchgate.net/publication/216005044_Is_it_possible_to_ethically_research_the_mental_health_needs.

Pennings, E. J. M., Opperhuizen, A. & Amsterdam, J.G.C. (2008). 'Risk assessment of *Khat* use in the Netherlands: a review based on adverse health effects, prevalence, criminal involvement and public order', Regulatory *Toxicology and Pharmacology*, 52(3), 199–207. Retrieved August 10, 2009 from http://www.researchgate.net/publication/23249389_Risk_assessment_of_*Khat*_use_in_the_Netherlands_A_review_base.

Pollard, E.L., & Lee, P.D. (2003). Child Wellbeing: A systematic review of the literature. *Social Indicators Research*, 61(1), 59-78. Retrieved May 23, 2010 from http://link.springer.com/article/10.1007/s12187-014-9285-z.

Republic of Kenya (20008). *Meru North Development Plan.* A Government of Kenya Report, 2008-2012. Nairobi, Kenya.

Ringera, H.G. (2013). *Prevalence and Risk factors of under- Nutrition among fewer than five's in Meru County: A comparative study of Khat and Non-Khat farming Households in Kenya*. (Unpublished Masters Dissertation). University of Nairobi.

Reuters. (2007, August 29). Narcotic *Khat* dominates Djibouti life. *Daily Nation*, pp. 29. Nation News Papers. Nairobi, Kenya.

Saunders, M., Lewis, P., & Thornhill, A. (2003). *Research Methods for Business Students.* Prentice Hall Pearsons. Education Ltd, UK.

Shauri, S.H. (2007). *Substance Abuse in Kenya: The Effectiveness of Heroine Rehabilitation Centres at the Coast Province*. (Unpublished doctoral thesis). Kenyatta University, Nairobi.

Singleton, R.A., & Straits, B.C. (1988). *Approaches to social research.* 2nd Ed. New York: Oxford University press.

Singleton, A.R., & Straits, B. C, (1998). *Approaches to social research*. 4th Ed. New York: Oxford University press.

Seligman, M.E.P. (2002). *Authentic happiness: using the new positive psychology to realize your potential for lasting fulfilment*. New York: Free press.

Sundhedsstyrelsen (2009). *Khat Use by Somalis in Denmark*. Department of Health. Retrieved October 2, 2011 from http://www.emcdda.europa.eu/html.cfm/index213319EN.html.

Sykes, W., Coleman, N., Desai, P., Groom, C., Gure, M., & Howarth, R. (2010). "*Perceptions of the social harms associated with Khat Use"*, Home Office Research Report 44, Home Office, London.

Terfera, T., Kristen, J., & Perret, S. (2004). Incentives, farmers' response and policy dilemma: a case study on expansion of *Khat* production as a cash crop in the eastern highlands of Ethiopia. *Journal of Ethiopian Development Studies*, 1(2), 206-220. Retrieved July 20, 2009 from http://www.nicesearches.com/?type=hp&ts=1459871312&from=58740405&uid=hitachixhts541612j9sa00_sb2e41h7g.

Thiongo, J. (2015, July 3). Motion to have *Miraa* market passed. Nairobi County News: *The standard*, pp.22. Standard Group Newspapers Publications. Nairobi, Kenya.

Thiringi, A.N. (2001). *Influence of Miraa Production on Household Food Security*. Unpublished M.Ed. Thesis, Kenyatta University.

Tulloch, A.D., Frayn, E., Craig T.K.J., & Bouras, N. (2012). *Khat* use among Somali Mental health service users in South London. *Social Psychiatry and psychiatric Epidemiology*, 47, 1649-1656. Retrieved September 10, 2013 from www.slam.nhs.uk/…-facilities/cris/cris-publications.

Turning, P. (2004). *Khat Use in Somali, Ethiopian and Yemeni communities in England: Issues and Solutions.* Home Office. London.

United Nations Control Programme (UNDCP). (1998). *Global Illicit Drugs Trends: ODCCP Studies on Drugs and Crime*. New York; United States of America.

United Nations Educational Scientific and Cultural Organization (UNESCO) (2013). *Effects of Miraa business on Schooling of primary school children: A case study of Embu County*. (Unpublished Master's thesis). Kenyatta University.

Wabe, N.T. (2011). Chemistry, Pharmacology, and Toxicology of *Khat*: Catha Edulis: A review. *Addition and Health*, 3(3), 137-149. Retrieved April 20, 2012 from http://www.researchgate.net/publication/260092106_Chemistry_Pharmacology_and_Toxicology_of_*Khat*_%28Catha_Edulis_Forsk%29_A_Review.

Wainaina, M. (1981). “A case study of causal factors for drug abuse, alcoholism and other related behaviour and the future consequences likely to arise”. A report of the Undugu Society of Kenya, Nairobi.

Wanjiru, F.M. (1979). *Alcoholism, the man and his integration in the society*. (Unpublished B.A Dissertation). University of Nairobi.

Warfa, N., Klein, A., Bhui, K., Leavey, G., Craign, T., and Stanfeld, A. (2007). “*Khat Use and Mental Illness*: A Critical Review*”. Social Science and Medicine Journal,* 65(2), 309-318. Retrieved March 12, 2009 from doi:10.101b/j.socscimed.2007.04.038.

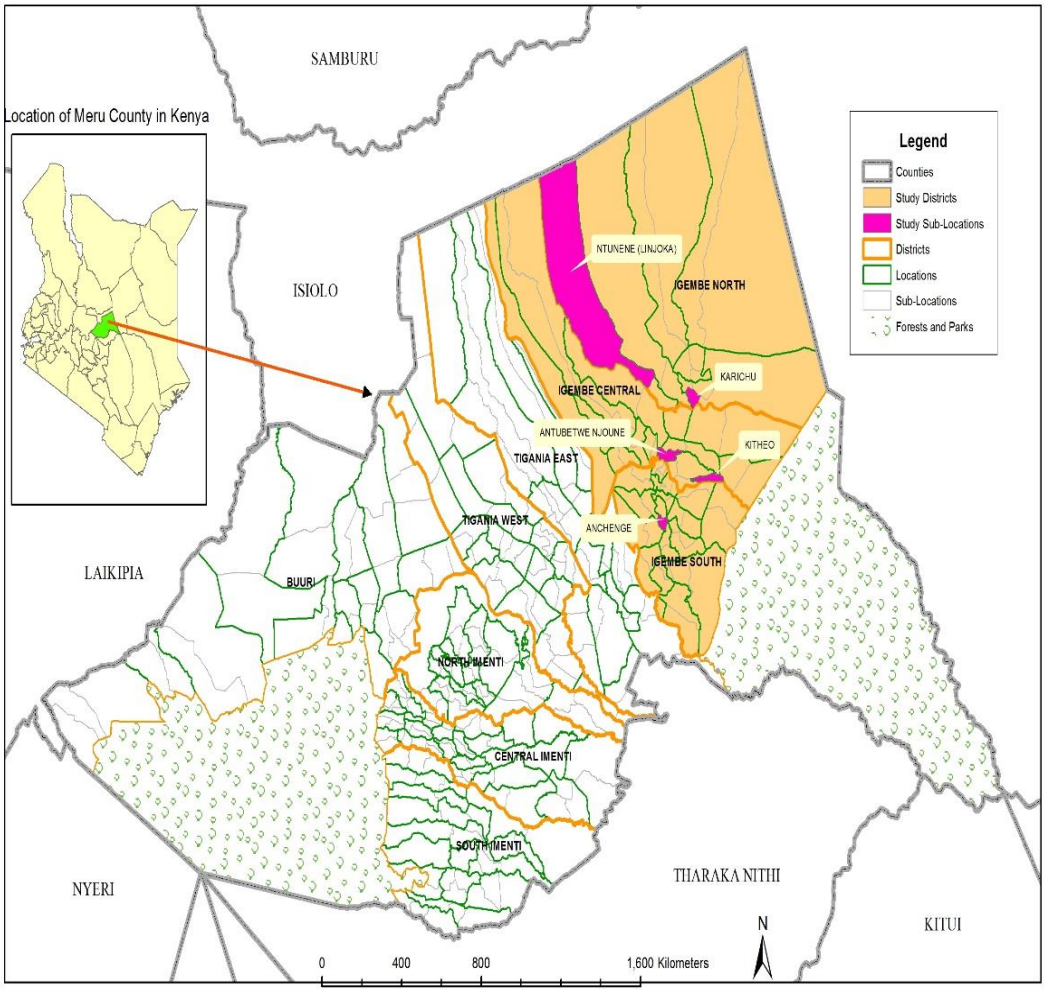
World Health Organisation (WHO). (1997). *Experts committee on drug dependence*. Geneva; Switzerland. Retrieved September 14, 2009 from http://www.who.int/topics/substance_abuse/en/.

Zeleke, A., Awoke, W., Gebeyehu, E., & Ambaw, F. (2013). *Khat* chewing practice and its perceived health effects among communities of Dera Woreda, Amhara region, Ethiopia. *Open Journal of Epidemiology*, 3, 160-168. Retrieved April 12, 2014 from http://file.scirp.org/Html/3-1890049_39836.html.

Appendix I

A Map of Meru County

(Inset Map of Kenya showing location of Meru County)



Source: Kenya National Bureau of Statistics (2013)

Appendix II

Interview Schedule for *Khat* Consumers.

My name is Ruth Kagwiria Mugambi; I am a PhD student, in the department of Sociology, at Kenyatta University. I am doing a research on the Assessment of the Effects of *Khat* consumption on the wellbeing of families. I want to understand the socio-economic drivers, social, physical, psychological effects of *Khat* chewing on the wellbeing of families. I have chosen you as one of respondents because you are a family head and a *Khat* consumer. I will ask you some questions concerning *Khat* consumption in relation to Family wellbeing. Please note that the information that you share with me will be treated with utmost confidentiality and will be used only for the purposes of this study. Kindly, note that, participation in this study is voluntary. You should therefore feel free to participate and if you feel that you would like to discontinue the interview at any time, you are free to do so and there will be no penalties. There will be no monetary compensation for participation in this interview.

Time started …….. **Serial Number:** ……..

A: Background Information:

1. Gender

1. Male ☐
2. Female ☐

2. Age of respondent in years ☐

3. Marital status

1. Married ☐ 2. Single ☐ 3. Separated ☐

4. Divorced ☐ 5.Widowed ☐ 6. Other, specify? ☐

4. Have you ever gone to school? 1. Yes ☐ 2. No ☐

5. Which is the highest level of education attained?

1	None	
2	Std. 1- 4	
3	Std. 5 - 8	
4	Form 1- 4	
5	A – level	
6	College/University level	
7	Other, Specify	

6. Are you employed?

1. Yes ☐ 2. No ☐

7. If yes, what is your occupation?

1	Teacher	
2	Secretary	
3	Banker	
4	Self employed	
5	Accountant	
6	Nurse	
7	Doctor	
8	Other, specify	

8. Indicate your level of monthly income

_____

B: Information on socio-economic drivers associated with *Khat* consumption

9. Indicate the size of your land in acreage.

_____

10. Approximately, how many *Khat* trees do you own? (**Probe for drivers associated to *Khat* consumption)**

_____

11. For what reasons did you start consuming *Khat*? **(Probe for drivers to *Khat* consumption)**

1	Peer pressure/ influence	
2	To pass time	
3	To relax (overcome tiredness)	
4	It is readily available	
5	For enjoyment	
6	To aid concentration	
7	Other, specify	

12. At what age did you start consuming *Khat*? _____

13. Approximately how many hours do you spend chewing *Khat* per day?

_____

14. How do you get the *Khat* you consume? (**Probe for availability of *Khat)***

1. Family farm ☐ 2. Buying ☐ 3. Friends ☐

4. Other, specify _____

15. How much do you spend on *Khat* per day? (**Probe for Expenditure on *Khat*)**

_____

16. With whom do you consume *Khat*?

1	Age mates/ Friends	
2	Family members	
3	Business associates	
4	Other, specify	

17. Do you consume other substances together with *Khat*?

1. Yes ☐ 2. No ☐

18. If yes, which of the following substances do you consume?

1.	Traditional brew	
2	Bhang	
3	Cigarettes	
4	Other, specify	

19. Which other beverages do you use when consuming *Khat*? ☐

D: Questions for assessing family wellbeing aspects for *Khat* consumers

In your view, in which way has consumption of *Khat* satisfied the following aspects of your families' wellbeing? **Probe for physical/ social health aspects**)

As a *Khat* consumer:		Circle one Number				
		Very dissatisfied	**Dissatisfied**	**Undecided**	**Satisfied**	**Very satisfied**
20.	How satisfied are you with your health?	**1**	**2**	**3**	**4**	**5**
21.	How satisfied are you with the energy that you have?	**1**	**2**	**3**	**4**	**5**
22.	How satisfied are you with your sleep?	**1**	**2**	**3**	**4**	**5**
23.	How satisfied are you with your ability to learn new information?	**1**	**2**	**3**	**4**	**5**
24.	How satisfied are you with your ability to make decisions?	**1**	**2**	**3**	**4**	**5**
25.	How satisfied are you with the support you get from your family?	**1**	**2**	**3**	**4**	**5**
26.	How satisfied are you with your ability to provide for or support others?	**1**	**2**	**3**	**4**	**5**
27.	How satisfied are you with your access to health services?	**1**	**2**	**3**	**4**	**5**
28.	How satisfied are you with your opportunities to learn new information?	**1**	**2**	**3**	**4**	**5**
29.	How satisfied are you with the way you spend your spare time?	**1**	**2**	**3**	**4**	**5**
30.	How satisfied are you with the type of house you live in?	**1**	**2**	**3**	**4**	**5**

	As a Consumer:	Very unhappy	Unhappy	Neither happy or unhappy	Happy	Very happy
31.	Rate your happiness on the relationship you have with your family members?	**1**	**2**	**3**	**4**	**5**

Rate your experiences based on the following aspects: (probe for psychological/ social health effects)

	As a *Khat* consumer:	Never	Seldom	Quite often	Very often	Always
32.	How safe do you feel in your daily life?	**1**	**2**	**3**	**4**	**5**
33.	How much do you worry about your security?	**1**	**2**	**3**	**4**	**5**
34.	Do you have financial difficulties?	**1**	**2**	**3**	**4**	**5**
35.	How much do you enjoy your free time?	**1**	**2**	**3**	**4**	**5**
36.	How often do you feel lonely in your life?	**1**	**2**	**3**	**4**	**5**

Information on *Khat* Consumption

The following questions ask about **how much** you have experienced certain things in the last few months; tick which of the following is **most suitable** for you as a ***Khat* consumer**. **(Probe for Social /psychological health effects**)

		Not at all	**Not much**	**Undecided**	**Much**	**Very Much**
37.	To what extent do you have difficulties in performing your routine activities due to *Khat* consumption?	**1**	**2**	**3**	**4**	**5**
38.	How much do you worry about not getting enough money to sustain *Khat* consumption habit?	**1**	**2**	**3**	**4**	**5**
39.	Rate the noise in the area where you consume *Khat*	**1**	**2**	**3**	**4**	**5**
40.	How well are your sexual needs fulfilled after consuming *Khat*?	**1**	**2**	**3**	**4**	**5**
41.	Rate your confidence after consuming *Khat*?	**1**	**2**	**3**	**4**	**5**
42.	Rate your dependence on Medication due to *Khat* consumption.	**1**	**2**	**3**	**4**	**5**
43.	How often do you lack sleep after consuming *Khat*?	**1**	**2**	**3**	**4**	**5**

44. State the effects of *Khat* consumption on consumers and families.

_____

_____

_____

_____

_____

_____

_____

_____

45. Make any other suggestions/comment which you consider important as far as *Khat* consumption is concerned.

_____

_____

_____

_____

_____

_____

_____

Time interview ended: ……

Thank you very much for your cooperation

Appendix III

Focus Group Discussion Guide for the *Khat* consumers, Women and Men Leaders.

I am Ruth Kagwiria Mugambi, a PhD student in the department of Sociology, Kenyatta University. You have been selected to participant in a FGD to help me to understand the effects of *Khat* consumption on the families' wellbeing. Feel free to discuss the issues honestly and seek clarifications whenever you are not sure of any of the issues. The responses will be used only for the purposes of this study. No monetary compensation will be given.

Time Started ……

A. Identification

Composition	**Position of Respondent**
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

1. Explain the relationship between *Khat* consumption and its availability in Meru County

_____

_____

_____

_____

_____

_____

2. Describe some of the Physical, social and psychological effects of Consuming *Khat.*

_____

_____

_____

_____

_____

_____

_____

_____

3. Which age group is more involved in *Khat* consumption? Please give three reasons your answer.

_____

_____

_____

_____

_____

_____

4. State some of the most common habits associated with *Khat* consumption.

_____

_____

_____

_____

_____

5. In your view please explain the reasons why residents consume *Khat* and give approximate time in hours which they use for the practice each day?

_____

_____

_____

_____

_____

6. In your view explain the effects of *Khat* chewing on the following:

i) Individual

_____

_____

_____

_____

ii) Family

_____

_____

_____

_____

_____

_____

7. Suggest three solutions to the challenges encountered by *Khat* consumers' families

_____

_____

_____

_____

8. In your position as a leader, what are interventions have put in place in regard to *Khat* chewing.

_____

_____

_____

_____

_____

_____

_____

9. Make any other comment on *Khat* consumption and consumers wellbeing.

_____

_____

_____

_____

_____

_____

_____

Time discussion ended: ……..

Thank you for your cooperation.

Appendix IV

Key Informants Interview Guide.

I am Ruth Kagwiria Mugambi, a PhD student at Kenyatta University. You have been chosen to participant as a Key informant to help me to understand the effects of *Khat* consumption on the families' wellbeing. You have been selected because of your position and for being conversant with *Khat* consumption issues in this area. Feel free to discuss the issues honestly. The responses will be used only for the purposes of this study. No monetary compensation will be given.

Interview identification no…… **Date** ……

Time started …… **Sub-county**……..…

Designation……. Sex…….……

***Khat* consumption information**

1 a). What factors do you associate with *Khat* consumption?

_____

_____

_____

_____

b) What is the general state of the areas where *Khat* is consumed? Please explain your answer.

_____

_____

_____

_____

2). Explain the effects of consuming *Khat* on the following:

i). Individuals

ii). Family

3. Give your views on gender participation in *Khat:*

i) Consumption

ii) Give reasons for your answer

_____

_____

_____

_____

4. What measures would you suggest to regulate *Khat* consumption?

_____

_____

_____

_____

5. Give any other comments on *Khat* consumption and effects on consumers' wellbeing.

_____

_____

_____

_____

Time interview ended _____

Thank for your cooperation

Appendix V

Observation Checklist

- **Nature of houses:**

No.	Type of houses	Area/s
1	Permanent houses	
2	Semi-permanent houses	
3	Grass-thatched houses	
4	Others, specify	

- **Consumption habits- gender participatory patterns**:

	Consumption habits	Area/s
1	In groups while relaxing	
2	In groups while working	
3	At the market areas discussing issues	
4	Individually	
5	Others, specify	

- **Other items consumed with *Khat***

	Habits	Area/s
1	Sugar	
2	Sodas	
3	Cigarettes smoking	
4	Sweets / Gum	
5	Others, specify	

Other activities done by *Khat* consumers in the Study area

	Activities done	**Area/s**
1	Trading in other commodities such as foodstuffs- maize, beans	
2	Tea growing	
3	Coffee growing	
4	Others, specify	

Other indicators of families' wellbeing aspects

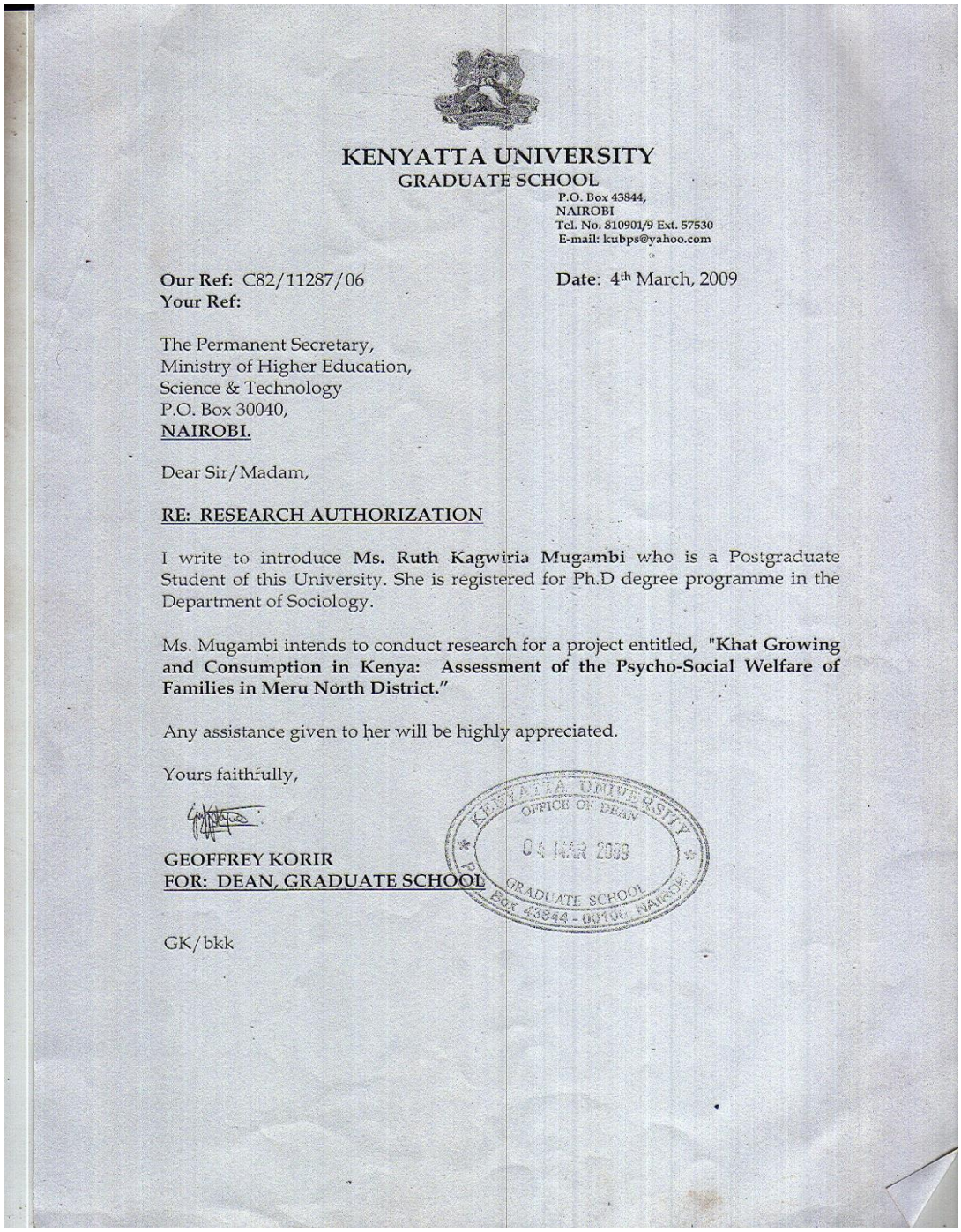
Specific issue	
• Presence of piped water	
• Electricity	
• Type of clothing	
• Road network	
• Mode of transport	
• Cleanliness of areas where *Khat* is consumed	
• Water supply	
• Presence of sanitation/ toilets	

Any other observations

-
-
-
-

Appendix VI

Research Authorization From Graduate School, Kenyatta University



KENYATTA UNIVERSITY
GRADUATE SCHOOL

P.O. Box 43844,
NAIROBI
Tel. No. 810901/9 Ext. 57530
E-mail: kubps@yahoo.com

Our Ref: C82/11287/06
Your Ref:

Date: 4th March, 2009

The Permanent Secretary,
Ministry of Higher Education,
Science & Technology
P.O. Box 30040,
NAIROBI.

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION

I write to introduce **Ms. Ruth Kagwiria Mugambi** who is a Postgraduate Student of this University. She is registered for Ph.D degree programme in the Department of Sociology.

Ms. Mugambi intends to conduct research for a project entitled, **"Khat Growing and Consumption in Kenya: Assessment of the Psycho-Social Welfare of Families in Meru North District."**

Any assistance given to her will be highly appreciated.

Yours faithfully,

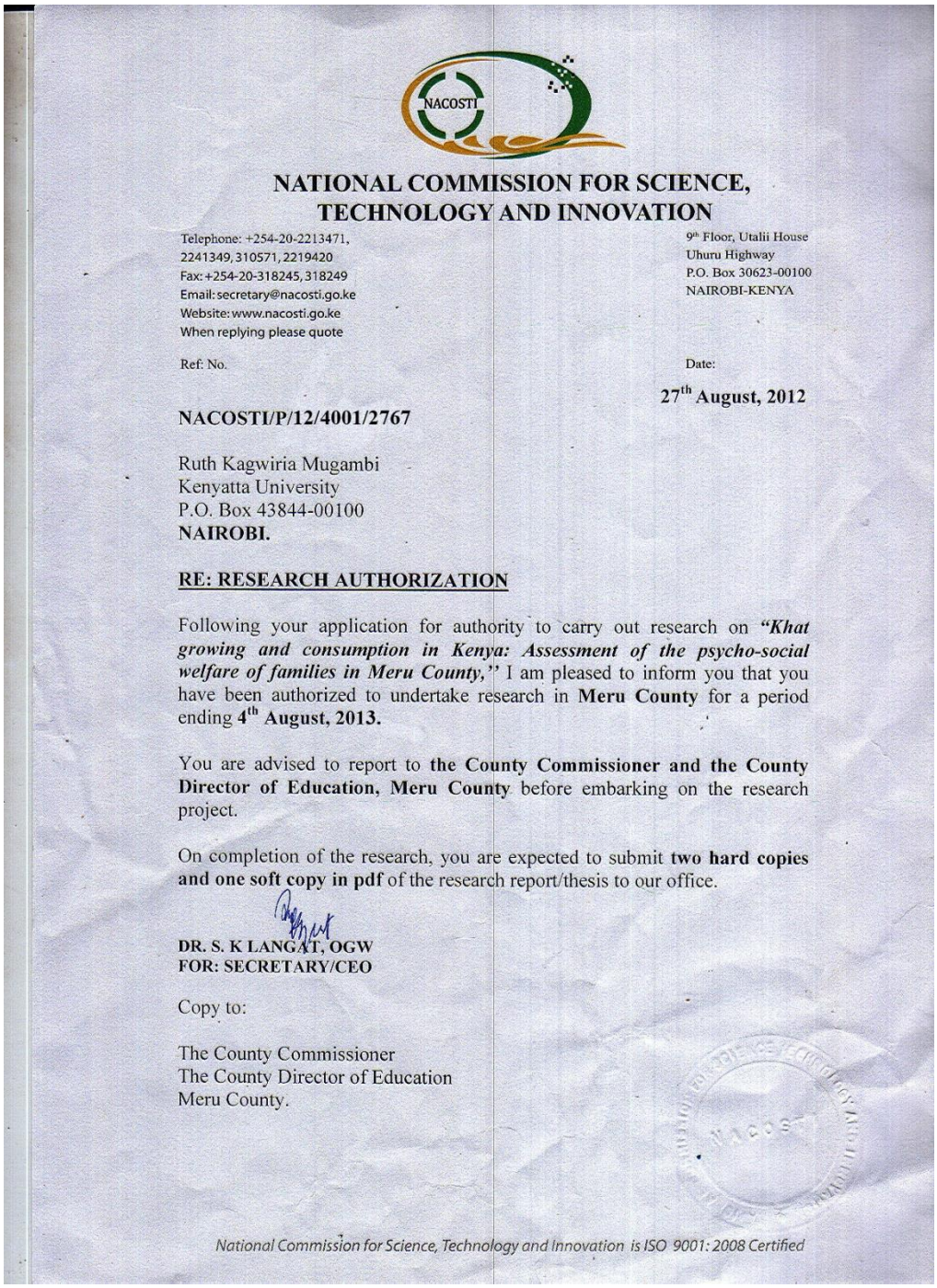
KENYATTA UNIVERSITY OFFICE OF DEAN 04 MAR 2009 GRADUATE SCHOOL BOX 43844 - 00100, NAIROBI

GEOFFREY KORIR
FOR: DEAN, GRADUATE SCHOOL

GK/bkk

Appendix VII

Research Authorization From NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

27th August, 2012

NACOSTI/P/12/4001/2767

Ruth Kagwiria Mugambi
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Khat growing and consumption in Kenya: Assessment of the psycho-social welfare of families in Meru County,"*** I am pleased to inform you that you have been authorized to undertake research in **Meru County** for a period ending **4th August, 2013.**

You are advised to report to **the County Commissioner and the County Director of Education, Meru County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. S. K LANGAT, OGW
FOR: SECRETARY/CEO

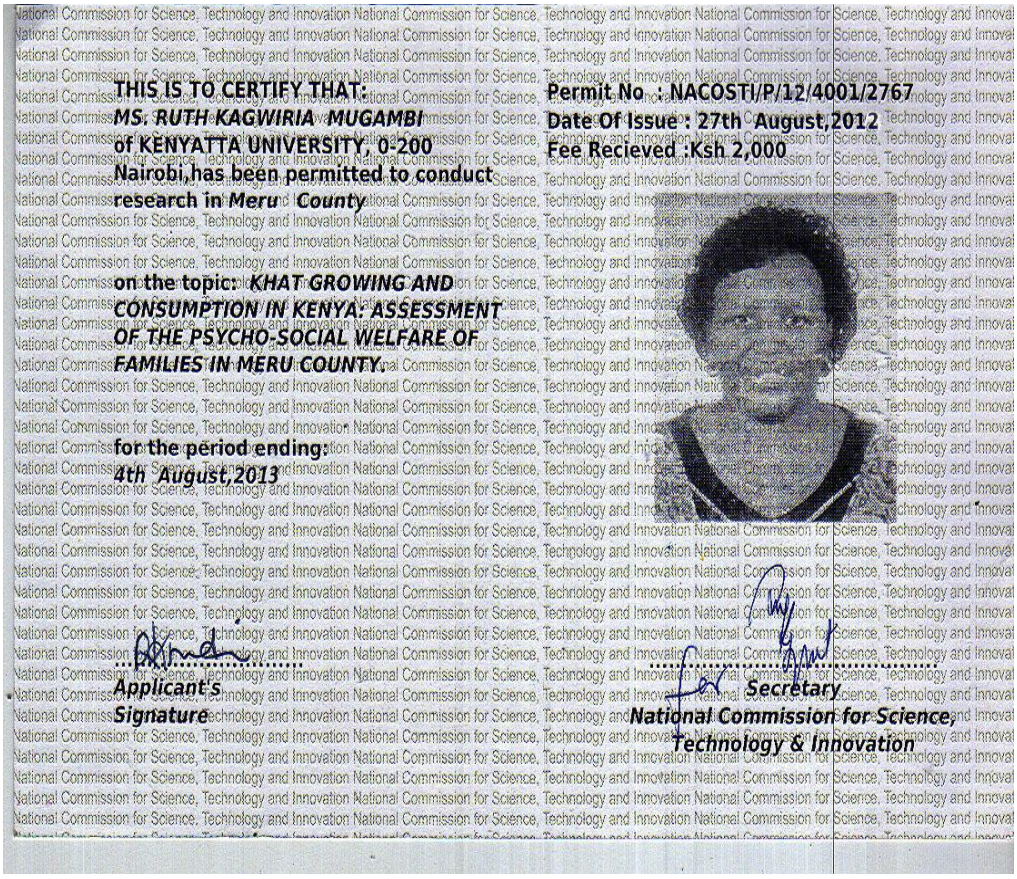
Copy to:

The County Commissioner
The County Director of Education
Meru County.

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

Appendix VIII

Research Permit From NACOSTI



Appendix IX

Consent Note For Julius Mwenda

CONSENT NOTE

RE: Consent for Picture Inclusion in the Study

This is to confirm that, I JULIUS MWENDA of Igembe Central, has authorized, Mugambi R. K. to use my Khat farm Photographs for the study. I therefore have no objection now or in the future.

Consenter ID No. 22127103 Signature ..... Date 02/04/2013

Appendix X

Khat wrapped with banana leaves to preserve potency

Source: Field Data

Appendix XI

Khat Leaves Ready for Chewing

Source: Field Data

Appendix XII

Reliability Analysis Results

Reliability

```
****** Method 1 (space saver) will be used for this analysis
******

_


R E L I A B I L I T Y   A N A L Y S I S  -  S C A L E   A L P H A)

  1.     Q47              How satisfied are you with your health
  2.     Q48              How satisfied are you with your energy
  3.     Q49              How satisfied are you with your sleep
  4.     Q50              How satisfied are you with your ability your
                          ability to lean new information
  5.     Q51              How satisfied are you with your ability to make
                          decisions
  6.     Q52              How satisfied are you with the support you get
                          from your family
  7.     Q53              How satisfied are you with your ability to
                          provide for or support others
  8.     Q54              How satisfied are you with your access to
                          health services
  9.     Q55              How satisfied are you with your opportunities
                          to learn new information
 10.     Q56              How satisfied are you with the way you spend
                          your spare time
 11.     Q57              How satisfied are you with the type of house
                          you live in
 12.     Q58              Rate your happiness on the relationship


Reliability Coefficients

N of Cases =    58.0                    N of Items = 12

Alpha =    .7873
```

Appendix XIII

Reliability Analysis Results

****** Method 1 (space saver) will be used for this analysis ******

_

R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

1.	Q78	To what extent do you have difficulties in performing your routine activities due to *Khat* consumption?
2.	Q79	How much do you worry about not getting enough money to sustain *Khat* consumption habit
3.	Q80	Rate the noise in the area where you consume *Khat*
4.	Q81	How well are your sexual needs fulfilled after consuming *Khat*
5.	Q82	Do you feel more confident after consuming *Khat*
6.	Q83	Rate your dependence on medication due to *Khat* consumption
7.	Q84	How often do you lack sleep after consuming *Khat*
8.	Q59	How safe do you feel in your daily life
9.	Q60	How much do you worry about your security
10.	Q61	Do you have financial difficulties
11.	Q62	How much do you enjoy your free time
12.	Q63	How often do you feel lonely in your life

Reliability Coefficients

N of Cases = 58.0 N of Items = 12

Alpha = .7203

Appendix XIV

Chi-Square Test Results

How many hours do you spend chewing *Khat* per day * How much do you spend on *Khat* per day Cross tabulation

Count

		How much do you spend on *Khat* per day			
		Less than 150	151-300	Over 300	Total
How many hours do you spend chewing *Khat* per day	1-3	46	17	2	65
	4-6	138	103	11	252
	7-9	93	55	3	151
	10-12	54	16	5	75
	Over 12	33	4	2	39
	7	1	0	0	1
Total		365	195	23	583

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.266(a)	10	.003
Likelihood Ratio	29.065	10	.001
Linear-by-Linear Association	4.729	1	.030
N of Valid Cases	583		

a 6 cells (33.3%) have expected count less than 5. The minimum expected count is .04.

Symmetric Measures

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Gamma	-.139	.062	-2.236	.025
	Spearman Correlation	-.091	.040	-2.192	.029(c)
Interval by Interval	Pearson's R	-.090	.041	-2.182	.030(c)
N of Valid Cases		583			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

Appendix XV

Chi-Square Test Results

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	154.222(a)	8	.000
Likelihood Ratio	163.983	8	.000
Linear-by-Linear Association	.244	1	.622
N of Valid Cases	583		

a 4 cells (26.7%) have expected count less than 5. The minimum expected count is .59.

Symmetric Measures

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Gamma	-.006	.059	-.097	.923
	Spearman Correlation	-.008	.041	-.185	.853(c)
Interval by Interval	Pearson's R	.020	.042	.493	.622(c)
N of Valid Cases		583			

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

c Based on normal approximation.

Appendix XVI

Crosstabs

Level of monthly income * How much do you spend on *Khat* per day Cross tabulation

Count

		How much do you spend on *Khat* per day			
		Less than 150	151-300	Over 300	Total
Level of monthly income	0-4999	100	20	0	120
	5000-9999	45	80	0	125
	10000-14999	46	57	0	103
	15000-19999	15	0	0	15
	20000 And Above	159	38	23	220
Total		365	195	23	583

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	154.222(a)	8	.000
Likelihood Ratio	163.983	8	.000
Linear-by-Linear Association	.244	1	.622
N of Valid Cases	583		

a 4 cells (26.7%) have expected count less than 5. The minimum expected count is .59.

Symmetric Measures

		Value	Asymp. Std. Error(a)	Approx. T(b)	Approx. Sig.
Ordinal by Ordinal	Gamma	-.006	.059	-.097	.923
	Spearman Correlation	-.008	.041	-.185	.853(c)
Interval by Interval	Pearson's R	.020	.042	.493	.622(c)
N of Valid Cases		583			

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.
c Based on normal approximation.

Appendix XVII

Physical wellbeing Aspects Related to *Khat* consumption

Model Summary

Mod-el	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.111(a)	.012	.011	.965	.012	7.213	1	581	.007

Predictors: (Constant), How many hours do you spend chewing *Khat* per day

ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.714	1	6.714	7.213	.007(a)
	Residual	540.813	581	.931		
	Total	547.527	582			

Predictors: (Constant), How many hours do you spend chewing *Khat* per day
Dependent Variable: How satisfied are you with your sleep

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.429	.105		32.609	.000			
	How many hours do you spend chewing *Khat* per day	-.100	.037	-.111	-2.686	.007	-.111	-.111	-.111

Appendix XVIII

Psychological Wellbeing Aspects related to *Khat* Consumption

Model Summary

Mod-el	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.075(a)	.006	.004	.795	.006	3.326	1	581	.069

a Predictors: (Constant), How many hours do you spend chewing *Khat* per day

ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.099	1	2.099	3.326	.069(a)
	Residual	366.762	581	.631		
	Total	368.861	582			

a Predictors: (Constant), How many hours do you spend chewing *Khat* per day
b Dependent Variable: Rate your happiness on the relationship you have with your family members

Coefficients (a)

Model		Unstandardized Coefficients		Standard-ized Coefficients	T	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.688	.087		42.579	.000			
	How many hours do you spend chewing *Khat* per day	.056	.031	.075	1.824	.069	.075	.075	.075

a Dependent Variable: Rate your happiness on the relationship you have with your family members

Appendix XIX

Social Wellbeing Attributes Related to *Khat* Consumption

Model Summary

Mo-del	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig. F Change
1	.163 (a)	.027	.025	1.973	.027	15.950	1	581	.000

a Predictors: (Constant), How many hours do you spend chewing *Khat* per day

ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	62.064	1	62.064	15.950	.000(a)
	Residual	2260.738	581	3.891		
	Total	2322.803	582			

a Predictors: (Constant), How many hours do you spend chewing *Khat* per day
b Dependent Variable: Highest level of education attained

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	3.971	.215		18.468	.000			
	How many hours do you spend chewing *Khat* per day	-.304	.076	-.163	-3.994	.000	-.163	-.163	-.163

a Dependent Variable: Highest level of education attained

Appendix XX

Families Wellbeing Attributes Related to *Khat* Consumption

Model Summary

Mod-el	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.375	.141	.123	1.007	.141	7.779	12	570	.000

Predictors: (Constant), *Khat* effect Low investment, *Khat* effect Increased social interaction, *Khat* effect Violence, *Khat* effect Diversion of family income, *Khat* effect Marital instability, *Khat* effect Poor family relationships, *Khat* effect Decreased libido, *Khat* effect Poor role models, *Khat* effect Increased demand for health services, *Khat* effect Low level of education, *Khat* effect Low work output, *Khat* effect Addiction

ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94.590	12	7.883	7.779	.000(a)
	Residual	577.574	570	1.013		
	Total	672.165	582			

a Predictors: (Constant), *Khat* effect Low investment, *Khat* effect Increased social interaction, *Khat* effect Violence, *Khat* effect Diversion of family income, *Khat* effect Marital instability, *Khat* effect Poor family relationships, *Khat* effect Decreased libido, *Khat* effect Poor role models, *Khat* effect Increased demand for health services, *Khat* effect Low level of education, *Khat* effect Low work output, *Khat* effect Addiction

b Dependent Variable: How many hours do you spend chewing *Khat* per day

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.452	.225		15.348	.000
	Khat effect Violence	.077	.131	.032	.592	.554
	Khat effect Low work output	-.209	.254	-.086	-.826	.409
	Khat effect Low level of education	-.240	.294	-.090	-.816	.415
	Khat effect Increased demand for health services	-.148	.141	-.066	-1.048	.295
	Khat effect Poor role models	-.065	.141	-.027	-.457	.648
	Khat effect Marital instability	.593	.159	.263	3.723	**.000**
	Khat effect Poor family relationships	-.386	.131	-.165	-2.950	.003
	Khat effect Addiction	-1.181	.392	-.460	-3.009	**.003**
	Khat effect Diversion of family income	.168	.130	.072	1.296	.195
	Khat effect Increased social interaction	.195	.127	.088	1.535	.125
	Khat effect Decreased libido	-.078	.130	-.036	-.602	.547
	Khat effect Low investment	.544	.150	.246	3.625	**.000**

Dependent Variable: How many hours do you spend chewing *Khat* per day