ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

INTENTION TO KHAT CHEWING AMONG YOUTHS IN RAYA AZEBO DISTRICT, SOUTHERN TIGRAY, ETHIOPIA

BY

ABADI HAILAY ATSBAHA (BSc.)

A THESIS REPORT SUMMITED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH (MPH) WITH SPECIALITY IN HEALTH EDUCATION AND HEALTH PROMOTION

OCTOBER 2019
ADDIS ABABA UNIVERSITY

.

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

INTENTION TO KHAT CHEWING AMONG YOUTHS IN RAYA AZEBO DISTRICT, SOUTHERN TIGRAY, ETHIOPIA

BY

ABADI HAILAY ATSBAHA (BSc.)

Advisors

1. Dr. Adugnaw Berhane (MPH, Ph.D. (Assistant Professor))
2. Mrs. Bezawit Ketema (MPH, Ph.D. candidate)

A THESIS REPORT SUMMITED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH (MPH) WITH SPECIALITY IN HEALTH EDUCATION AND HEALTH PROMOTION

OCTOBER 2019
ADDIS ABABA UNIVERSITY

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

INTENTION TO KHAT CHEWING AMONG YOUTHS IN RAYA AZEBO DISTRICT, SOUTHERN TIGRAY, ETHIOPIA

BY

ABADI HAILAY ATSBAHA (BSc.)

Approved by the Examining Board

Primary advisor: Dr. Adugnaw Berhane (MPH, Ph.D., Assistant Professor)

Date: October 23, 2019 Signature: _____

External Examiner: Dr. Solomon Worku (MD, MPH, Pharmacist)

Date: October 23, 2019 Signature: _____

Internal Examiner: Dr. Eshetu Girma (MPH, Ph.D., Associate Professor)

Date: October 23, 2019 Signature: _____

ACKNOWLEDGMENTS

There are a few persons and institution without whom this thesis might not have been written, and to whom I am greatly indebted.

I would like to give my deepest gratitude to my advisors Dr. Adugnaw Berhane and Mrs. Bezawit Ketema for their consecutive and constructive comments for the fulfillment of this thesis report. I would like to thank Addis Ababa University, School of Public Health, Health Promotion and Health Education unit for creating a conducive environment to do the whole process of research.

My deepest gratitude also extends to my instructor Dr. Eshetu Girma and the academic staff of Adigrat University, Ph.D. students of Addis University, School of Public health Mr. Alem Gebremariam and Mr. Berhe Desalegn. I am also very grateful for all my friends for their inspiration and being supportive of the process of this study.

The last but not the least, my appreciation goes to the supervisors, data collectors for their contribution in data collection and study participants who were voluntary and spent their golden time to give full information needed for the study.

TABLE OF CONTENTS

Contents **pages**

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXES

ABBREVIATIONS AND ACRONYMS

AB	Attitude towards Behavior
BI	Behavioral Intention
CSA	Central Statistics Agency
EDHS	Ethiopian Demographic and Health Survey
PBC	Perceived Behavioral Control
SN	Subjective Norm
TASH	Tikur Anbessa Specialized Hospital
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
WHO	World Health Organization
UK	United Kingdom
UNC	United Nation Conventions
ICDC	International Conventions Drug Control

ABSTRACT

Background: Recently, Khat chewing has become a common practice worldwide. It causes and predisposes a significant physical and mental health, and social-economic crisis. However, behavioral intention to khat chewing is not well studied yet in Ethiopia.

Objectives: To assess intention to khat chewing among youths in Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Methods: A community-based cross-sectional quantitative study among randomly selected 627 youths in Raya Azebo district, Northern Ethiopia was conducted in 2019. Data were collected using a pre-tested structured interviewer-administered questionnaire. Epi Data version 4.4.2 was used for data entry then exported to SPSS version 25 for data analysis. A multivariable linear regression model was used to predict the contribution of independent variables and identify variables strongly associated with intention to khat chewing among youths. The goodness of fit model was checked and P-value ≤ 0.05 was used to declare statistical significance.

Results: The response rate of the study was 97.82%. A considerable proportion, 192 (30.62%) of youths had an intention to chew khat in the next 6 months. The direct components of theory of planned behavior (TPB) were predicted by their respective indirect components. The component of TPB independently explained the variance in intention to khat chewing by 83.0%. TPB constructs and Socio-demographic, Knowledge, and past behavioral experience variables explained the variance in intention to khat chewing by 83.20%. The strongest predictors of intention to khat chewing were attitude ($\beta= 0.350$, $P<0.001$), subjective norm ($\beta= 0.297$, $P<0.001$), and perceived behavioural control (PBC) ($\beta= 0.150$, $P= 0.01$).

Conclusions: Behavioral intention to khat chewing was a function of attitude, subjective norm and perceived behavioral control towards khat chewing. The behavioral intention was primarily under attitudinal influences. Conducting prospective study and construct validity of the tool is better. Strategies to empower youths to change a positive attitude of khat chewing, programs targeted on resisting social pressures and increasing self-efficacy to combat chewing are needed.

Keywords: Khat; Khat chewing; Youths; Intention; TPB; Raya Azebo district; Ethiopia;

1. INTRODUCTION

1.1. Background

Khat (*Catha edulis* Forsk) is a flowering evergreen tree. It was found by a botanist called Forskal in 1762 in Yemen and he categorized the plant in group Spinosa. However, currently, it is classified under the family Celastraceae. Khat grows well and primarily cultivated at high altitudes of East Africa and the Arabian Peninsula (1). Ethiopia is the origin of khat and chewing was experienced in the 15th century, which is before the coffee use begun. Ethiopia is still the country that produces the largest khat in the world (1,2). In Ethiopia, khat is grown extensively in the middle altitudes between 1500 and 2100 meters above sea level and performs better in well-drained soil under diverse climatic conditions (3).

Catha edulis has various local names: khat, qat, chat or miraa, 'tea of the Arabs' or 'Abyssinian Tea' in which the dried leaves of khat were boiled and used as modern tea (4). Khat is called by different names in different countries: 'chat' in Ethiopia, 'qat' in Yemen, 'mirra' in Kenya and 'qaad' or 'jaad' in Somalia. While there are a number of names for this psychoactive substance small tree, in most of the literature it is largely known and called khat (3,5).

Khat is an exportable item in Ethiopia to different countries like Djibouti, Somalia, Kenya, Uganda, Tanzania, Zimbabwe, Zambia, South Africa, and Yemen (6). Khat is the third-largest exportable item next to the coffee and oilseed in Ethiopia. Therefore, khat is an important source of income. Khat has a big contribution to the national economy and a major source of income of farmers and merchants who depend on it whatever directly or indirectly (1).

Khat is a psychoactive substance that stimulates the central nervous system. Khat causes physical and mental health problems. It affects different organs and systems of the human being with different manifestations accordingly. This includes the cardiovascular, central nervous system, digestive system, genito-urinary system, and reproductive system. The sign and symptoms caused by khat chewing are loss of appetite, hyperactivity, euphoria, gum swelling and eruption, lethargy, psychosis, recurrent bad dreams, constipation, impotence, irritability, depression. finally, khat chewing leads to different disabilities and deaths (7,8).

There is no common consensus about the classification of khat among the international community. Where some don't classify khat as an addictive drug, like the World Health Organization (WHO) and those banned it with enforced law, like Saudi Arabia but some countries like the United Kingdom (UK), khat had classified as a drug, and they there is no legal prosecution (1). It is the same in Ethiopia. The Ethiopian government neither encourages nor any measure taken against its cultivation, trade, and use. This silence aggravated the extensive production of the crop. Khat covered the area of 262,071.88 hectares of the land nationwide which is equivalent to 36.1% of the area allocated coffee and the number of holders is 2,892,146 (9).

1.2. Statement of the problem

Khat chewing is largely social in nature that helps to build a relationship and maintain cultural identity (10). It is known that khat chewing practice is expanding to different places in the world. The worldwide prevalence of khat chewing is estimated 5-10 million peoples consume each day but the exact number is unknown. It is largely chewed in East Africa and Southwestern Arabia (6,8). Khat leaves chewed habitually in the southwestern part of the peninsula and in the East African countries between Sudan and Madagascar (Djibouti, Ethiopia, Somalia, Kenya, Tanzania, and Uganda). Khat consumption is common and deep-rooted in a Yemenite society where khat is highly consumed together in social gatherings with family and friends while holding conversations, smoking cigarettes and drinking tea and soft drinks (7).

In Ethiopia, khat chewing is becoming a habit of many people and its consumption is expanding to new areas where it is not cultivated. The younger segment of the population, high school, college and university students from the academic areas are more common users of khat in Ethiopia (11). According to the EDHS 2016 report, 12% of women and 27% of men reported having ever chewed khat. Khat consumption varies according to age, residence, availability of khat, culture, educational status, religion, employment status, marital status, occupation, sex, and income. Khat chewing increases as the age increase and peaks at 30-34 of both women (15%) and men (34%). It is a little higher in rural area when it is compared to the urban area (13% versus 9% among women and 27% versus 25% among men) and it is different across the Ethiopian regions with the lowest 1% among women and 5% among men in Tigray to the highest 32% among women and 74% among men in Harari (12). However, a study done at the community the peak prevalence of khat chewing is among the 15-24 years old (59.9%) (2).

Khat contains a psychoactive substance known as Cathinone which has an effect on an individual's consciousness, behavior, mood, and thinking processes. It has an effect on the cardiovascular, genitourinary, gastrointestinal, hepatobiliary, central and peripheral nervous system, obstetric, metabolic and endocrine, ocular, psychiatry and causes cancer (7,8). Khat chewing has not only health effects but also related to a variety of socio-economic problems (7). The socio-economic crises are; the average accounting cost to khat is 9-52 Ethiopian birr per day that rises from time to time and the consumers chew by debt from the sellers (2,3). The total time invested for chewing ranges from 3-9.23 hours per day. Khat chewing promoted excessive smoking and alcohol

drinking, unsafe sexual activities and cause food insecurity as most agricultural areas are covered by khat, working less and bad social relationships (1,13).

Researchers demonstrated that khat exposes human beings to death. Some deaths are caused by chewing unwashed khat chewing combined with the pesticides that cause cancer of the digestive system, poisoning from the pesticides, and kidney failure. Death related to drug control and law enforcement is market violence and homicide. Transportation is due to poorly-maintained vehicles and roads, overloaded, dangerous speed, robbery. Other causes of death related to the choking while chewing, and psychopathological (suicidal, killing others) (14).

Ethiopia signed and adopted different International Conventions Drug Control (ICDC) at different times; in 1971 and 1988 convention against illicit traffic of narcotic drugs and psychotropic substances. In 1993 and later the government formulated a more detailed policy for stringent control, and prevention the illicit production, trafficking, and use of narcotic drugs and psychotropic substances (15,16). Ethiopian authorities have recommended the banning of khat consumption from schools and workplaces but it is not easy to control khat consumption yet (7).

However; researchers demonstrated that there is an upsurge of substance abuse, dramatic increment of khat production and chewing overall parts of the country, and worsening of trans-boundary trafficking of drugs. The reasons why the rules and regulations failed from bringing the desired change are lack of community involvement, khat chewing is culturally acceptable, no similar consent on the substances control among countries, no multi-agency approach, lack of comprehensive campaign to educate community, and dilemma between the human right to health and the human right to adequate food (15,16).

1.3. The rationale of the study

Studies were done on khat chewing focused on the prevalence, reasons, and impact of khat chewing on health, psychology, social and economic at institutions and community. Knowing the prevalence, reasons and other associated factors for khat chewing among students and is important because of its serious physical and mental health, social and economic consequences. However; the attitude, subjective norm, perceived behavioral control and behavioral intention to khat chewing using theory of planned behavior to explicitly measure the link between these constructs and khat chewing is not well investigated. In addition, the majority of studies have done on khat chewing are at University and college students which may not represent the whole community. Therefore, this study is designed to assess the behavioral intention to khat chewing khat at a community with the current context set up using a representative sample from Raya Azebo district.

1.4. Significance of the study

While there is a written policy, law, rule, and regulation to control and deter substance abuse, trafficking, and production, these are not more advanced scientifically and behaviorally. Scientifically replicated evidence-based and behavior spiced policy, rule, law, and regulations are very crucial. Therefore, the importance of this study is to find out the behavioral factors that affect khat chewing intention. This study will provide a lens to see and understand the salient behaviors like belief, feeling, insight, and motives. It will also provide a piece of context-based information and an opportunity for policymakers to design and test new context-based policies, strategies, and programs of intervention. It will open also another chance to find better routes to navigate to the improved problem-solving ways to improve the health status of the community. In addition to this, it will serve as the baseline data and open other gate for further study.

2. LITERATURE REVIEW

Introduction

Khat is a perennial green small plant which grows at 1500-2500 meter above the sea level. Khat production, distribution, and consumption are increasing rapidly from time to time in the overall parts of Ethiopia and other countries. Khat chewing is one of the most common substance abuses next to alcohol drinking and some parts of Ethiopia khat chewing are culturally acceptable. The purpose of the literature review in this study is to construct and examine the conceptual framework to provide a further understanding of the attitude, subjective norm, perceived behavioral control and behavioral intention to khat chewing in Raya Azebo, Southern Tigray, Ethiopia. The overview of khat, prevalence of khat, the effect of khat chewing on human health, reasons for khat chewing, socio-economic and academic performance effect of khat chewing are the part of this literature review. The conceptual framework is also developed from this reading in addition to the theoretical framework.

Overview of khat

Khat is a small leafy evergreen plant common and native to Horn Africa. It grows widely in East Africa and the Middle East. The leaf of khat contains and releases a stimulant when chewed. The stimulant is cathinone which is an unstable form. The cultivation and production of khat in Ethiopia expanding fast. The area coverage by khat is now becoming huge unexpectedly. The land used to cultivate currently used is 44% of that is used to cultivate coffee.

The agricultural area used for khat cultivation is increased by 160 percent 2001/02 to 2014/15 and rapidly expanded to new regions of the country where it had not previously been grown. However; the other exportable items are increasing less than khat production. At the same time, Coffee production increased by 133 percent, from 243,834 to 568,740 hectares; oilseeds by 101 percent from 426,130 to 855,763 hectares; root crops by 96 percent from 110,628 to 216,971 hectares; vegetables by 86 percent from 74,986 to 139,717 hectares; pulses by 53 percent from 1,016,786 to 1,558,422 hectares; and cereals by 30 percent from 7,813,021 to 10,152,015 hectares (17,18).

Ethiopian farmers have also achieved significant gains in khat yields: from 796,520 units of 100 kg in 2001/02 to 2,758,345 units of 100 kg in 2014/ 2015, which amounts to a 33 percent increase

in production per hectare (19). Ethiopian farmers are involved in cultivating (producing and growing) stimulant crops such as coffee and khat are greater in number than those growing fruits. Due to the better economical profit from khat and coffee, Farmers are not only largely producing but also the area for the cultivation is larger than that of fruits. Khat and coffee have 1.8 percent and 4.9 percent of the area all 15 crops and 2,026,966.39 and 4,145,964.55 quintals of the product was gained from these crops respectively in the same agricultural year (20).

A high amount of khat is exported every year. Most places of export are neighbor countries like Somalia and Djibouti, but also to new consumer areas including China. 52,000 tons, approximately 20 % of the total khat were exported in 2013/2014. Currently, greater than 3,000,000 Ethiopian farmers are growing and producing khat and they are smallholder farmers. They sell their products and gain more and more high sale prices than other commodities (19).

Naturally, Khat has a stimulant chemical called cathinone is listed as a Schedule I substance in the United Nations Convention (UNC) on psychotropic substances. The incorporation of cathinone to schedule I substance in the United Nations (UN) was in the 1986 update. This type of scheduling could be understood that khat is not permanently controlled because it is a schedule-I controlled substance. However; khat is classified neither in the UNC nor on any other international list of controlled substances. Hence, the plant itself has no common sense internationally and varies from country to country in terms of its legality issue (19).

Different countries in the world are increasing in considering khat as controlled substances. UK, China, and the Netherlands are examples who classified khat as controlled substances. However; some countries are taken khat as legal not illegal like Djibouti, Somalia, South Africa, and Yemen. Some nearby countries to Ethiopia have stopped khat consumption and possession like Eritrea and Tanzania. But in Ethiopia, there is no law talking about khat and lack of discussion on this circumstance rather than maybe the government is single-minded by inaudible satisfaction over the increasing tax profits and the issues over the sensitivities of regulating a plant grown by millions of farmers and using up the khat by millions of citizens (19).

Prevalence and practices of khat chewing

Many studies were done in Ethiopia and abroad on khat chewing. These studies were conducted at institutions. A study conducted in the community at Nekemte town the prevalence of khat

chewing was 48.6% in the last one month preceding the survey. The khat chewing practice is more common among male (89.5%) than female, age group 15-24 (59.9%) than the other, Muslims (44.2%) than the other religion followers, secondary education (47.7%) than other level of education, daily labourer (22.1%) than other occupations and single (65.7%) than the other marital status groups (2). However, according to the EDHS 2016 report, the prevalence of khat chewing among women is 12 %, men 27% and peak at the age of 30-34. This difference may be the area of the study, and the culture of the area as EDHS is a national survey can be affected by different outliers (12).

A study conducted at Jimma University among students the lifetime and current prevalence of 26.3% and 23.9% respectively. The greater number of current khat consumers started at the age of 15 years old. The mean age of beginning khat chewing among the khat chewer students was 17.2 ± 3.2. The frequencies of khat chewing were different among the khat chewers (5). However; in another study done in college students in south-eastern, the lifetime and current prevalence of khat chewing among the participants was 19.2% and 16.8% respectively. Students started khat chewing at different educational level and the frequency of chewing was different among college students (11). This variation might be the contexts difference among the study populations.

The prevalence of khat chewing varies among the part of the community. A study conducted at Mana district, Khat sellers were the highest consumers of khat (97.1%), the second common chewers were producers (68.8%) and followed by the consumers (49.2%) (1). Nevertheless; a study conducted at Gondar University; the overall prevalence khat chewing was 9.6%. The prevalence rate of current khat chewers was 6.95%. The lifetime prevalence rate khat chewers were varied among departments, sex, religion, ethnic group, year of study, residence, marital status and age group. The prevalence was more common among males than females, Muslim than other religions, 18-20 age group than other age groups, water engineering department than other departments, Somalia ethnic group than other ethnic, single other than other marital status and urban than the rural residents (21).

However, Systematic and meta-analysis has done on the prevalence among the Ethiopian university students using the random effect model. The pooled prevalence of khat chewing among Ethiopia university students was 23.22%. In the subgroup analysis, khat chewing was common in Oromo (31.6%) and SNNP (24.7%). The other regions account for 21.6% (6). Another Systematic

and meta-analysis have done on the effect of khat on cardiovascular diseases using the random effect model, the prevalence of khat chewing among the subjects was 30.3% (22).

Reasons and factors associated with khat chewing

Many studies have found out many reasons to khat chewing. In the study conducted at Mana district, Jimma zone, Khat chewing is an important part of social and cultural constructs and for celebration, feeling of well-being, sense of euphoria, excitement, social participation, increased alertness, increased the ability to concentrate (1). Besides, a study conducted in the Harar region, Eastern Ethiopia, khat chewing is for social and psychological reasons. But generally, khat leaves consuming has negative effect on working ability and capacity of the consumers (3).

A study conducted at Gondar University the main reasons for starting of khat chewing were primarily to relieve stress, and followed by peer pressure. The other reasons were family members chew khat, and religious purpose (21). In addition, a study conducted at Nekemte town, the main reasons were friends or family members, to be relaxed, to keep alert and concentration on work, to spend extra time, for praying and being unemployed (2).

Another study conducted in East Ethiopia showed that there is no acceptable khat use but khat has been chewed for specific task performance improvement, to make wedding celebration colourful, to relief mourners from mourning and feel comfort, and socialization and social group formation to share a variety of life issues. In addition to this, khat chewing induces abortion and reduce pain (4). But in another study conducted in Jimma University, the main reason explained were for studying purpose and followed by socialization purposes. The rest reasons were easily available, peer pressure, believe it would make them feel happy, to get relief from stress, learned from family, to feel less hungry, for religious purposes (5). Khat chewing is also associated with alcohol drinking, cigarette and other forms of cigarette smoking, risky sexual behavior, coffee drinking, soft drinking and other criminal activities (1,6,11).

Effect of khat chewing on Human Health

Khat has different negative side effects on human health. It starts with simple signs and symptoms that observed immediately to the organ and system failure. Withdrawal symptoms were observed in the users like feeling depressed mood disturbance, craving, feeling fatigued, increased appetite,

irritability, restlessness, loss of motivation and concentration, hypersomnia, nightmares, insomnia, feeling hot all over, feeling hot in arms, slight tremor of the tongue, slight tremors of the hand, feeling hot in legs, slight tremor of the whole body, blurring of vision, dizziness and headache (2,4,5).

Khat chewing has both short term and long-term effects. The symptoms and signs are combinations of different organs and systems of our body. It causes relief fatigue, increased alertness, reduced sleepiness, mild euphoria and excitement, better communication skill. But it also causes increased heartbeat, hypertension/increased blood pressure, moderate hyperthermia, mydriasis, blurred vision, anorexia, dry mouth, constipation, psychotic reactions at high dose, irritability, depressive reactions, lethargy, and sleepy state. Cardiovascular system (myocardial infarction, haemorrhoids), gastrointestinal system (gastritis, gingivitis, dislocation of the tempo-mandibular joint), hepatobiliary (liver system), Genito-urinary system (spermatozoa malformations and reduced count, impotence), obstetric effects (low birth weight, stillbirth), metabolic and endocrine effects (Diabetics Mellitus), malignancy (oral keratosis, oral malignancy, head and neck malignancy), central nervous system (psychological dependency, lethargy, mild depression, slight trembling and recurrent bad dreams, psychosis) are the health impacts of khat chewing (7,8,22).

Socio-economic impact of khat chewing

Khat has various impacts on different aspects. A study done showed that khat has a negative effect on income. People spent more time chewing khat than other productive activities which lead to less income. The other way people are suffering from different khat chewing related health effects. Therefore, individuals spent their time seeking treatment and taking a rest rather than working daily activities that they depend on their living (1).

Khat has a negative health effect but a positive effect on income. This is only for the producer and traders and sellers but not for the consumers. The main reason for the expansions is due to socio-economic and agro-ecological. These reasons are provision of cash crop which provides assure income to the farmers throughout the year at regular intervals, increase in goat population which could be raised with the little inputs that brings in revenue through meat sales during festive periods, raising employment opportunities through domestic and international trade along with

increased transportation, easy availability of labor, negligible need for irregular and vital inputs, easy credit availability, and it enjoys a status of important foreign exchange earner (3).

A study conducted shows that khat consumers had no adequate relationship with their family and active involvement in vital social life like weddings and mourning with neighbors (2). However, another study conducted in East Ethiopia showed that khat has been chewed for specific task performance improvement, to make wedding celebration colourful, to relief mourners from mourning and feel comfort, and socialization and social group formation to share a variety of life issues. In addition to this, khat chewing induces abortion and reduce pain (4). People paid a cost for khat chewing. They lost many amounts of money. The expense for khat is more or less equivalent to a government salary for the lowest payable job as well as daily payment of private organizations in the country (2).

Academic effect of khat chewing

Students take some substances for studying purposes. Students explained the intake of the substances helps them to achieve good academic performance. These substances are khat, coffee, cigarette, and alcohol used as grade achievement. There were differences in the score of grades between students who take substances or not. Nevertheless, the grades scored by the students were high among these nonusers than users of substances like khat (23).

The psychological effect of khat chewing

As studies showed about khat chewing has different effects. One of the effects is psychological effects on individual users. These are the suicidal ideation, irritability, risky sexual behaviour like unprotected sex or multiple sexual partners, predisposing to use other substance like alcohol, cigarette smoking, cannabis, and others, unpleasant dreams, lethargy, dependences, anxiety, depression, loss of motivation and concentration, bad relationship with society and relatives, family and neighbours (2,4,11,24).

From the discussion did above, even though different literatures show that a variety of explanations about khat chewing and its consequence on health and socio-economical but still there is no significant investigation done on the intention to khat chewing. The behavioral intention is the attitude, subjective norm and perceived behavioral control of khat chewing of the society.

Reviewing the works of literature lead back to the question: what is the behavioral intention, attitude, subjective norm and perceived behavioral control of the community on khat chewing? This study proposes to fill the gap. The other dimensions studied by other kinds of literature are beneficial for developing a conceptual framework and policy and strategies to minimize the effect of khat chewing.

Theory of Planned Behaviour (TPB)

Theory of planned behavior (TPB) one of the theories we used in different aspects of health activities to intervene, assess, evaluate programs and projects. The theory of planned behavior (TPB) is the extension of the Theory of Reasoned Action (TRA). This theory was proposed by Icek Ajzen in 1985 through his article "From intention to action: A Theory of Planned Behaviour (25). The TPB started as a TRA to predict an individual's intention to engage in the behavior at a specific time and place. This was intended to explain all behaviors over which people have the ability to exert self-control.

An argument against the high relationship between behavioral intention and actual behavior has also proposed, as a result of some studies showed that behavioral intention doesn't always lead to actual behavior. Therefore, behavioral intention can't be the only determinant of behaviour where an individual's control over the behavior is incomplete. In order to complete incompleteness, Ajzen introduced the theory planned of behaviour by adding a new component called perceived behavioral control. Due to this, he extended the theory of reasoned action to cover non-volitional behaviors for predicting behavioral intention and actual behavior (26).

The TPB postulates three conceptually independent determinants of intention. The first is the attitude toward the behavior, the second predictor is a social factor termed subjective norm, and the third antecedent of intention is the degree of perceived behavioral control (PBC). The relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention are expected to vary across behaviors and situations. Therefore, attitude may have a significant impact on intention or attitude and subjective may have a significant impact on intention or other possible. TPB has three types of belief and it explains their difference among them. *Behavioral beliefs* are assumed to influence attitudes toward the behavior, *normative beliefs*

that constitute the underlying determinants of subjective norms, and *control beliefs* that provide the basis for perceptions of behavioral control (27).

Behavioral intention: - This refers to the motivational factors that influence a given behavior. As a general rule, the stronger the intention to perform the behavior the more likely the behavior will be performed. It is an indication of how hard people are willing or ready to try, of how much of an effort they are planning to exert, in order to perform the behavior. The intention is determined by the three determinants. These are attitude, subjective norm, and perceived behavioral control. As a general rule, the more favorable the attitude and subjective norm with respect to behavior, and the greater the perceived behavioral control, the stronger should be the individual's intention to perform the behavior under consideration (27).

Attitudes: - This refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior of interest. It entails a consideration of the outcomes of performing the behavior. Attitude consists of two parts and determined by these parts to have whether positive or negative attitude to behavior. These are behavioral beliefs and evaluation of outcomes. *Behavioral belief* is defined as the subjective probability that the behavior will produce a certain outcome. *Evaluation of outcome* is a person's subjective possibility appraisal that the behavior produces the outcome (28).

Subjective norms - This refers to the belief about whether most people approve or disapprove of the behavior. It relates to a person's beliefs about whether peers and people of importance to the person think he or she should engage in the behavior. It is it refers to the perceived social pressure to perform or not to perform the behavior. An individual's perception of the particular behavior, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers) (29). The subjective norm consists of two parts and determined by these parts to perform or not to perform the behavior. These are normative beliefs and motivations to comply. *Normative belief*: an individual's perception of social normative pressures, or relevant others' beliefs that he or she should or should not perform such behavior. *Motivational to comply* is a willingness to accomplish behavior by referents' interest or pressure.

Perceived behavioral control - This refers to a person's perception of the ease or difficulty of performing the behaviour of interest. Perceived behavioral control varies across situations and

actions, which results in a person having varying perceptions of behavioral control depending on the situation. This construct of the theory was added later and created the shift from the Theory of Reasoned Action to the Theory of Planned Behaviour. Perceived behavioral control is a mix of two dimensions: self-efficacy and controllability. *Self-efficacy* refers to the level of difficulty that is required to perform the behavior or one's belief in his/her own ability to succeed in performing the behavior. *Controllability* refers to the outside factors, and one's with that they personally have control over the performance of the behavior, or if it is controlled by externally, uncontrollable factors (27).

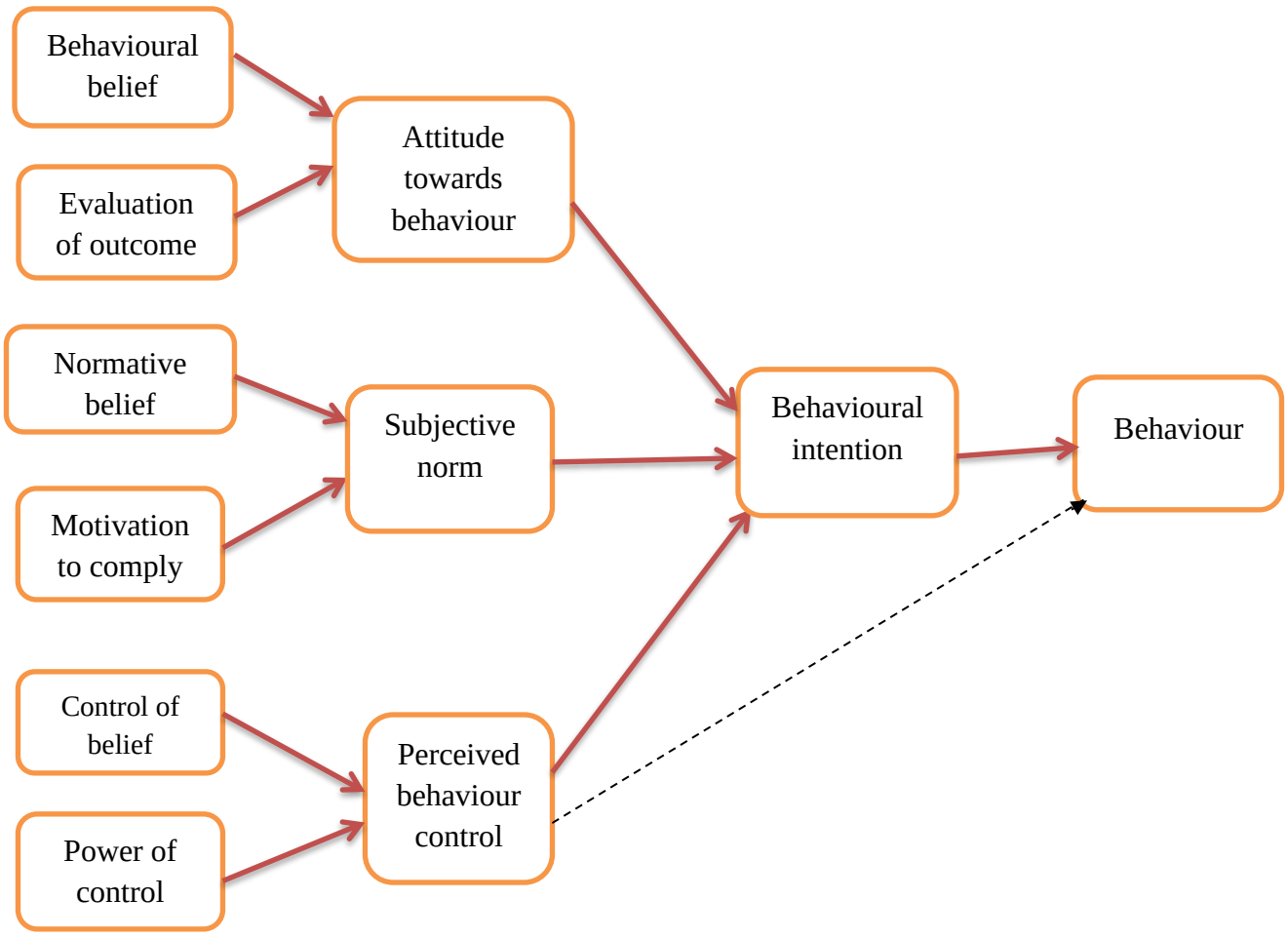


Figure 1: Theory planned behaviour (27)

A conceptual framework for khat chewing

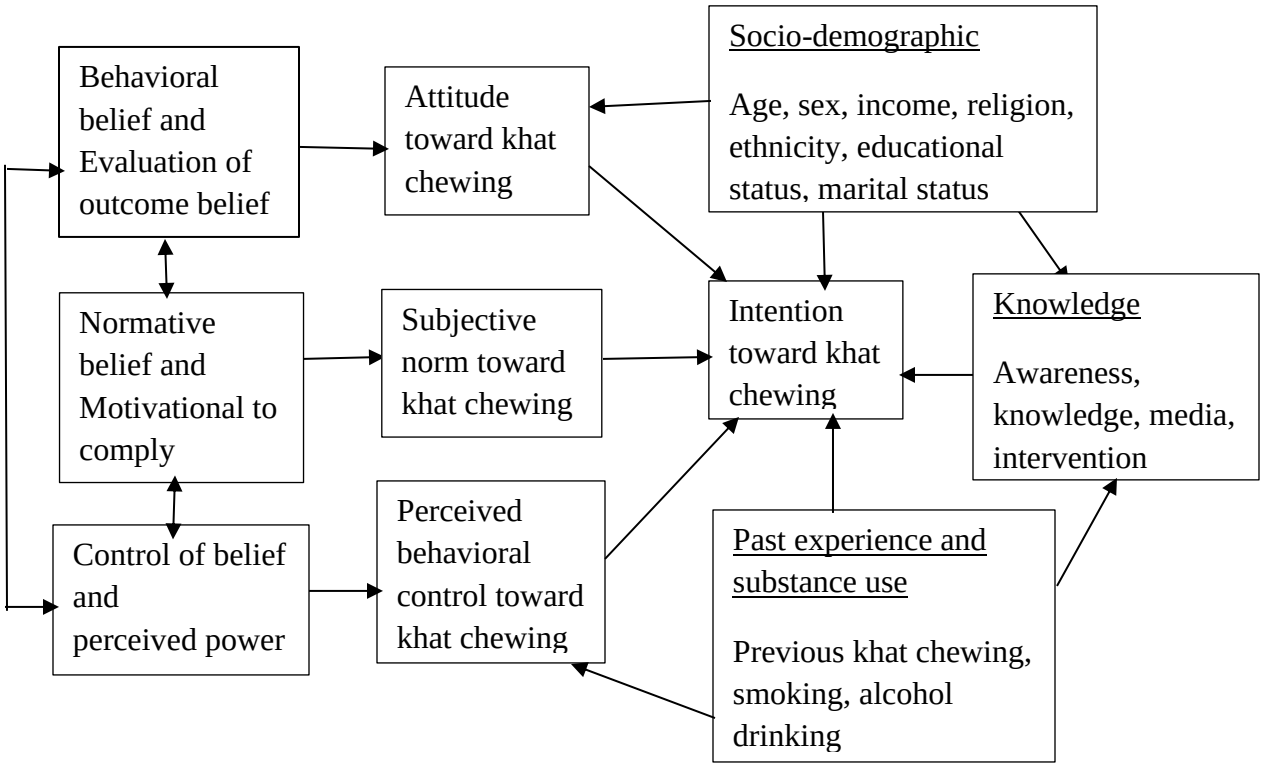


Figure 2: Conceptual framework for khat chewing of the study in Raya Azebo, Southern Tigray, Ethiopia, 2018/2019 (27)

This conceptual framework is adapted from the Icek Ajzen and modified after reading different works of literature.

3. OBJECTIVES

3.1. General objective

To assess intention to khat chewing among youths in Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

3.2. Specific objectives

1. To predict intention to khat chewing among youths in Raya Azebo district
2. To measure attitude towards khat chewing among youths in Raya Azebo district
3. To identify the subjective norms towards khat chewing among youths in Raya Azebo district
4. To identify perceived behavioral control of khat chewing among youths in Raya Azebo district

4. METHODS

4.1. Study area and period

Raya Azebo is one of the districts in Tigray region of Ethiopia. It is located in the south at the eastern edge of the Ethiopian highlands; Raya Azebo is part of the Southern Tigray region. The administrative center of this district is Mekoni. Another town in Raya Azebo includes Werya Wuha, Chercher, Adi Abdera, Kukufto, Bala, and Hade Alga. Based on the 2007 national census conducted by the Central Statistical Agency (CSA) of Ethiopia, this district has a total population of 135,870, of whom 67,687 are men and 68,183 women; 16,056 or 11.82% are urban inhabitants. A total of 32,360 households were counted at the time of the census, resulting in 4.20 persons to a household, and 31,468 housing units. 70.61% of them are Orthodox Christian, and 29.32% were Muslim. The four largest ethnic groups reported in Raya Azebo were the Tigrayans (87.21%), the Amhara (9.77%), the Afar (1.55%) and the Oromo (1.4%); all other ethnic groups made up of 0.07% of the population. Concerning education, 8.44% of the population was literate, which is less than the zone average of 15.71%; 14.64% of children aged 7-12 were in primary school; 0.9% of the children aged 13-14 were in junior secondary school; and 0.31% of the inhabitants aged 15-18 were in senior secondary school (30). The study period was held from February - April 2019.

4.2. Study design

A Community-based cross-sectional study was conducted.

4.3. Populations

4.3.1. Source population

All youths living in Raya Azebo district were considered as a source population.

4.3.2. Study population

All randomly selected youths living in Raya Azebo district were considered as a study population.

4.3.3. Study unit

A youth was considered as a study unit.

4.3.4. Sampling frame

Family folders of kebele from the Health Post

4.4. Exclusion and inclusion criteria

4.4.1. Inclusion criteria

Non-khat chewers were included in the study.

4.4.2. Exclusion criteria

Non-khat chewers were less than 6 months residential at the time of data collection were excluded from the study.

4.5. Sample size determination

The sample size was calculated using a single proportion formula by Epi-info version 7.2, considering the assumptions of prevalence of 50% (p = 0.5) because no study is found that intention for khat chewing from previous studies, 95% confidence interval (α=0.05), marginal of sampling error tolerated (d) 5% and 10% non-response rate. Accordingly, the final sample size becomes 641.

$$n = \left(Z\frac{a}{2}\right)2\ \frac{p(1-p)}{d2}$$

n= $(1.96)^2(0.5(1-0.5)/ (0.05)^2$

n= 384

10 percent was added as a contingency rate for the non-response rate. This adjusting for the non-response rate/lost or refused to participants during the data collection period is to prevent replacing the non-respondents because replacing is considered as inclusion bias. Let '$\mathcal{X}$' is the expected non-response rate and 'N' is the number of participants adjusted to prevent replacing the non-respondents because replacing could introduce selection bias.

N = $n/\ (1-x)$

N = 384/1-0.1,

N = 384/0.9 = 426.67 ≈ 427.

A design effect was used to maximize sample size in order to get a representative sample. 1.5 was used to determine the final sample.

427 x 1.5 = 640.5 ≈ 641. The final sample size was 641 participants.

4.6. Sampling technique

In Raya Azebo district, there are 21 kebeles. Therefore; two kebeles were selected using a simple random sampling in order to get a more representative sample with the highest precision. The sample size taken from each kebeles was allocated proportionally according to the number of youths. The sampling frame for each kebele was found from Health Post's family folders. The selection of the study units from the sampling frame was by simple random sampling by lottery method. The study unit was from the household. In those households having more than one eligible respondent, one was selected randomly by lottery method. If there was no one eligible participant form youths in the household, data were not collected from the youth and the household was considered as ineligible and non-response rate.

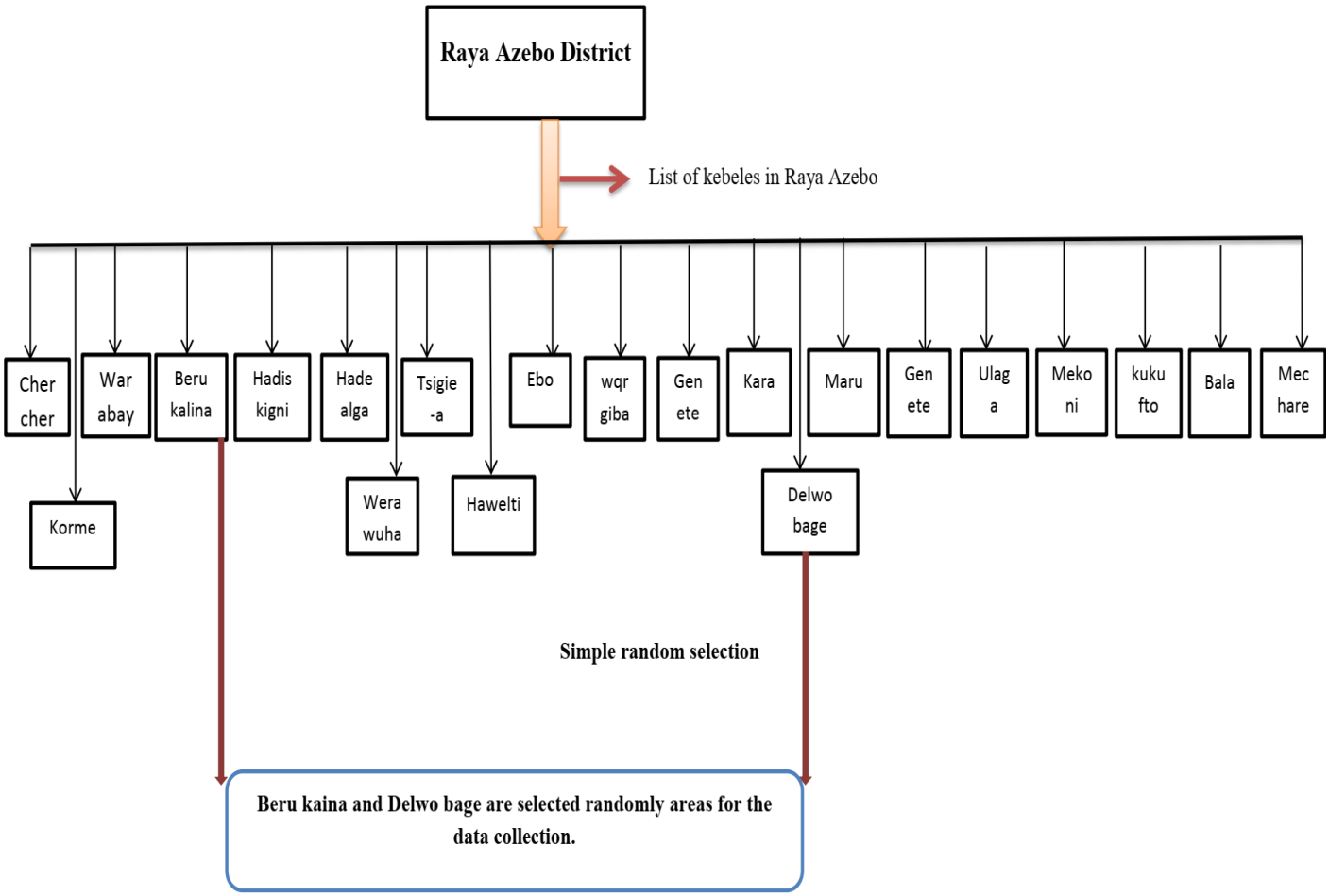


Figure 3: Schematic presentation of sampling technique of the study in Raya Azebo, Southern Tigray, Ethiopia, 2018/2019.

4.7. Data collection tools

A context-specific, pretested and structured interviewer-administered questionnaire was used to collect the needed data from the participants. The questionnaire was developed based on TPB questionnaire development guidelines, different related kinds of literature and after conducting elicitation study at the study area to elicit the commonly held salient beliefs, indirect measures of attitude, subjective norm, and PBC. A one-to-one interview on 13 persons was conducted to elicit the beliefs using open-ended questions. This collected data were analyzed using content analysis into themes. The analysis was done by two researchers independently to increase the validity of the analysis. Questionnaire items were constructed to assess the strength of beliefs. A pilot test of

items on five persons was done after constructing questionnaire items to check clarity, comprehension and modify wording of questions.

The final overall developed questionnaire was pretested on 5% of sample size 2 weeks before data collection at Raya Alamata. The questionnaire was prepared in English and translated to the local language Tigrigna to conduct data collection. After the data collected it was translated back to English for the data entry, analysis and maintain consistency. The questionnaire for the quantitative was structured and the elicitation was a semi-structured, open-ended in-depth interview guide for some salient behaviors. The questionnaire would have different parts. In the quantitative data collection tool, the questionnaire contains a scaled response question. The responses were scored on 7 points of Likert scale, i.e. 1= strongly disagree, 2= quite disagree, 3= slight disagree, 4=neutral/neither, 5= slight agree, 6= quite agree, 7= strongly agree or 1= extremely unlikely, 2= quite unlikely, 3= slight unlikely, 4= neutral/neither, 5= slight likely, 6= quite likely, 7= extremely likely and others response format of questions according to the constructs were measured. The same numbers of positively and negatively worded questions were formulated to determine the proportion of youths' intentions to khat chewing. The respondents who scored high composite were considered as they have an intention to chew khat (expressed in terms of individual items) and if it is low composite score were considered as they have no intention to chew khat (expressed in terms of individual items).

Elicitation study

Sample size determination and sampling technique for Elicitation study

For the elicitation study, participants were selected by purposive non-probability sampling technique. The type of data collection method was in-depth interviews. The participants for in-depth interviews were selected from youths of the study area. For the elicitation study, 13 participants were interviewed. The results from the elicitation study were used to develop a tool for the indirect measurements of TPB constructs (an indirect attitude, subjective norm, and PBC) by revealing the salient beliefs of each construct.

Data collection instrument for the Elicitation study

In the elicitation study, the qualitative data were collected using semi-structured in-depth interview guide. The interview guide was prepared based on the predictive constructs of the TPB model (attitude; subjective norm; and PBC). An in-depth interview was done in the study area.

Data collection methods for the Elicitation study

The qualitative data were collected using semi-structured in-depth guidelines designed by reviewing TPB guidelines and modified for the purpose of this study. The interview was in Tigrigna. The interview was tape-recorded with oral permission from the participants. The in-depth interview was done by the principal investigator and notes were taken during the interview.

Data Quality assurance for Elicitation study

The trustworthiness of the data of the qualitative study was assessed by the criterion of Credibility; dependability; conformability and transferability. Credibility was assured by triangulation by a person (use of multiple sources for the truth fullness of the findings like a selection of the participants from different age groups) and External check by advisors and peers. Dependability and Conformability were assured by inquiry audit, Transferability by a careful sampling of the participants to assure generalizability of the findings.

Elicitation study data processing and Analysis

The elicitation study was used to develop the indirect (beliefs based) measures for all the predictor constructs in the TPB model (attitude; subjective norm; and perceived behavioral control). Therefore, the content of the responses of the qualitative data was transcribed, and analyzed by labeling the themes. Listing themes in order of frequency for each of the predictors of the TPB model was done. This was done by using Open Code version 4.03 software. Finally, the tool from the themes was prepared for the quantitative study (Annex III).

4.8. Data collection procedure

The training was given to the data collectors and supervisors by the principal investigator. The training was focused on the aim of the study, privacy, and confidentiality of the information and

the contents of the questionnaires in detail. Additional training was also given to the supervisors on data quality management. The data collection was conducted by the data collectors and supervised by the supervisors to follow the data collection procedures and checking the data collected. After data collection, the data collectors submitted the questionnaire they collected to the supervisors on time. Then the supervisors next submitted to the principal investigator. The quantitative data was collected by interviewing with writing down the response to the questionnaire. During quantitative data collection, if two eligible respondents were avail at the household, one was selected by the lottery method.

4.9. Operational definition and measurements

Knowledge of khat chewing: An individual who answered for the questions, does khat chewing cause disease and addiction and the type of disease caused by khat chewing correctly considered as have knowledge about khat. It was measured by asking the participants whether they have ever heard about khat chewing, sources of information, type of information, the usefulness of information, does a khat chewing causes disease and addiction, and the type of disease caused by khat chewing.

Past experience of substance use: was considered as an individual who has experience of khat chewing before 1 month, and both previously and currently uses other substances like cigarettes, shisha, and alcohol. It was measured by asking the participants whether they have past experience of khat chewing, previous or current use of other substances and the type of substance they using/used.

Intention to khat chewing: How much individuals are willing to chew khat. Intention was measured by 4 items with seven Likert scales ranged from strongly disagree to strongly agree. It was calculated by adding the scores of items and the total score of items ranges from 4 to 28. The calculated intention composite score is a high composite score, they have an intention toward khat chewing. If the calculated intention composite score is a low composite score, they have no intention toward khat chewing (31).

Attitude towards khat chewing: The degree to which individuals feel and perceive about khat chewing based on a favorable or unfavorable assessment of chewing. Attitude was measured by 4

items with seven Likert scale ranges from extremely bad to extremely good. It was calculated by adding the scores of items and the total score of items ranges from 4 to 28. If the calculated attitude composite score is a high composite score, they have a positive attitude toward khat chewing. If the calculated attitude composite score is a low composite score, they have a negative attitude toward khat chewing (31).

Subjective norm towards khat chewing: How much the individuals are influenced by social pressure to chew khat or not to chew khat. Subjective norm was measured by 4 items with seven Likert scale range from strongly disagree to strongly agree or should to should not. It was calculated by adding the scores of items and the total score of items ranges from 4 to 28. If the calculated subjective norm composite score is a high composite score, the social pressure is in favor of khat chewing. If the calculated subjective norm composite score is a low composite score, the social pressure is against khat chewing (31).

Perceived behavioral control of khat chewing: is defined as the individuals' level of confidence about their ability to chew khat based on how easy or difficult they perceive its performance as khat chewing related to the inhibitors or facilitators. Perceived behavioral control was measured by 4 items with seven Likert scale ranges from strongly disagree to strongly agree or extremely difficult to extremely easy. It was calculated by adding the scores of items and the total score of items ranges from 4 to 28. If the calculated perceived behavioral control composite score is a high composite score, they have a strong perceived ability or less difficulty/easy to chew khat. If the calculated perceived behavioral control composite score is low composite score, they have a weak perceived ability or difficulty to chew khat (31).

Youth: a person aged 15-24 years old (32).

4.10. Study variables

4.10.1. Dependent variable

Intention to khat chewing

4.10.2. Independent variables

- Socio-Demographic like age, sex, income, marital status, educational status, ethnicity, religion,
- Knowledge of khat chewing
- Attitude toward khat chewing
- Subjective norm to khat chewing
- Perceived behavioral controls toward khat chewing
- Previous experience of substance use like smoking and alcohol drinking are independent variables.

4.11. Data processing, analysis and, interpretation

4.11.1. Data processing

Collected questionnaires were checked for completeness and consistency of data. Data were coded, entered, edited and checked for clarity, consistency, and completeness up to the end of the data collection period. Before analysis, the whole data were cleaned and 20% of the questionnaires were double entered randomly to the Epi data version 4.4.2 to check and minimize for data entry errors.

4.11.2. Data analysis

Prior to the use of the instrument, the test-retest reliability was done to determine the reliability of the indirect measure of the TBP model. Correlation coefficients for the TPB constructs were reported to be greater than .70 to assess the validity of the tool by administering the same questionnaire to the same group which consists of 10 participants for the pretest and retest with the gap of two weeks in between by the same interviewer. Internal consistency among the items of the TPB model was measured using Cronbach's alpha (ά). Internal consistency reliability was used to determine the reliability among the items of direct TPB model constructs (attitude, subjective norm, and perceived behavioral control) of the entire sample and was reported to be greater than 0.60 as a rough guide.

The data were coded and entered data to Epi data version 4.4.2 (Epi Data Association. Odense, Denmark) statistical package software then exported to SPSS 25.0 for analysis of descriptive statistics and statistical inferences. Descriptive statistics were presented in mean, median, standard

deviation and inter-quartile range (IQR) with the inter-quartile range for numerical variables and frequency percentage for the categorical variables. Multiple linear regression procedure was done to see the contribution of direct measures of TPB constructs (predictors) on the behavioral intention to chew khat. Bivariate analysis was done to check the existence of crude association. Multiple linear regression analysis was done if in bivariate analysis P-value is < 0.25 to show the standardized regression coefficient (β) and to control potential confounders. Confounding was checked using percentage change in the regression coefficient (β) less than 20% shows that the absence of confounders.

The summary measures of the estimated unstandardized and standardized regression coefficient (β) with 95% confidence interval were presented, P-value less than 0.05 was used to declare statistical significance, and goodness of fit of the model was assessed using R-square and adjusted R-square (Adj.R^2). Finally, the result was presented and summarized in texts, tables, numbers and figures. After analysis, results were interpreted and reported accordingly. Simple correlation analysis was conducted between the direct and the indirect measurements of TPB constructs in order to identify the direction and strength of the relationship between them. Correlation and reliability analysis were also done to confirm the validity of the direct measures and indirect measures of TPB by using internal consistency and test-retest reliability respectively.

Analysis of each construct of the TPB model

Analysis using the direct measures of the explanatory variables

Using the reverse item score approach (recode command) the negatively worded responses were recoded items related to the direct measure analyzed, to establish internal consistency. All items of direct measures with internal consistency co-efficient of > 0.60 were included in the composite variable. The composite variables for the direct measures were created using compute command. The new variables were defined clearly so that the variable labels were included in the output file. Using a multiple regression procedure, an intention was entered as the dependent variable, and the direct measures of attitude, subjective norm and perceived behavioral control as the predictor variables.

Analysis using the indirect measures

Each behavioral belief was multiplied (weighted) by the score for the relevant outcome evaluation to create a new variable that represents the weighted score for behavioral belief. Similarly, each normative belief was weighted by each score of motivational to comply and each control belief was weighted by the score representing the influence of the control belief. Then the weighted beliefs were summed to create a composite score for attitude, subjective norm and perceived behavioral control. Simple bivariate correlations between direct and indirect measures of the same construct were calculated to confirm the validity of the indirect measures.

Using the multiple regression procedure, the directly measured attitude score was entered as a dependent variable, and the summed of the weight behavioral belief as a predictor variable. A similar approach was used to predict directly measured subject norms and perceived behavioral control.

Attitude

Attitude toward khat chewing is referred to as the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in questions. It entails a consideration of the outcomes of performing the behavior. It is the degree to which the performance of behavior is positively or negatively valued. The expectancy-value model of attitudes is cognitive or information processing used by most contemporary social psychologists. According to this model, attitudes develop reasonably from the beliefs people hold about the object of the attitude. Attitude toward behavior, each belief links the behavior to a certain outcome, or to some other attributes. The attributes that come to be linked to the behavior are already valued positively or negatively. The strength of each salient behavioral belief (b) was combined in a multiplicative fashion with the subjective evaluation (e) of the belief's attribute, and the resulting products were summed as the following equation.

$$A \propto \sum b_i e_i$$

Subjective norm

Subjective norm toward khat chewing is referred to as the belief about whether most people approve or disapprove of the behavior or it is a perceived social pressure to perform or not to perform the behavior. Drawing an analogy to the expectancy-value model of attitude it was assumed that subjective norm is determined by the total set of accessible normative beliefs concerning the expectations of important referents. The strength of each normative belief (n) was

multiplied by the person's motivation to comply (m) with the referent in question and the calculated products were summed as the following equation.

$$SN \propto \sum n_i m_i$$

Perceived behavioral control

Perceived behavioral control is referred to the person's perceived ease or difficulty of performing the behavior i.e. people's perceptions of their ability to perform a given behavior.

Drawing an analogy to the expectancy-value model of attitude, it was assumed that perceived behavioral control is determined by the total set of accessible control beliefs, i.e., beliefs about the presence or absence of factors that may facilitate or impede the performance of the behavior. Each control belief (c) was multiplied by the perceived power (p) of the particular control factor to facilitate or inhibit the performance of the behavior, and the resulting products were summed as the following equation to produce a perceived behavioral control.

$$PBC \propto \sum c_i p_i$$

Intention

Intention toward khat chewing is referred to how hard people are willing to perform the behavior, of how much of an effort they are planning to exert, in order to perform the behavior. Intention is the most proximal and important determinant of behavior. The intention based on attitude toward the behavior, subjective norm, and perceived behavioral control, with each predictor weighted for its importance in relation to the behavior and population of interest.

4.12. Data quality control

To maintain the quality of data different activities were done. The questionnaire was well-designed, complete, easily understandable and clear. The questionnaire was pretested by data collectors in the peoples who do not participate in the study later. Training was given for the data collectors and supervisors for pretesting and data collection and with additional training for the supervisors for data quality management. Data collection was closely supervised by the supervisors for the clarity, completeness, proper procedure of data collection. The questionnaire after data collection will also be checked up by the principal investigator for its clarity,

completeness. The collected data were checked and edited for the completeness, coded, entered into Epi data 4.4.2 then exported to SPSS 25.0 for the statistical analysis for the quantitative data.

4.13. Ethical clearance/consideration

This study was reviewed and approved by the research ethics committee of the School of Public Health. A written and oral permission was asked for the district administrator of Raya Azebo and study participants respectively. Participants were individually briefed about the study and provided with an information sheet explaining the objectives, procedures, benefits, risks, rights of the participant, and incentive of the study. Participants were asked for oral informed consent prior to the interview. Participants were informed about their right to refuse, withdraw participation, and participate in the study and to ask anything about the study. The interview was held at the place comfortable to the participant and information obtained was kept for confidentiality. The names of the study participants and other potential identifiers were not written in order to keep their confidentiality.

The data gathered were used only for this purpose that was collected but not for other purposes. The data collected were stored in a file locked in the investigator cabinet without the participant's name but a code was assigned to it. The soft copy of the data was put in the form of a document and have a strong password to protect from leaking any information. There is no direct benefit and incentive to participants rather than saying "thank you". The study has no any risk to participants but they invested their golden time for the interview.

4.14. Dissemination of results

After the completing of the study, the final results of this study were presented to examiners, the comment received and corrected accordingly at the School of Public Health, College of Health Sciences, Addis Ababa University. The final corrected final report of the finding of the study was disseminated to the school of graduate studies of Addis Ababa University, principal advisor and co-advisor, Ethiopia Federal Ministry of Health, Tigray Regional Health Bureau, Raya Azebo district Administration, and Raya Azebo Health office. The result will be disseminated through workshops, seminars, and published in international, professional high impacts journals.

5. RESULTS

5.1. Socio-demographic characteristics of the participants

The study was conducted among youths of Raya-Azebo district. In this study total randomly selected participants were 627 with the response rate of 97.82%. The median age of the participants was 20 with IQR (18-23) years. Out of the study participants, 418 (66.7%) were males, 284 (45.30%) were Orthodox, 343 (54.70%) were Muslims, 410 (65.39%) were single and 162 (25.84%) were married. All the interviewed youths were Tigrayans. According to the occupational and educational status of the participants 197 (31.42%) were farmers, 194 (30.94%) were students, 160 (25.52%) were able to read and write, 116 (18.50%) were grade 5-8, and 181 (28.87%) were grade 9-10 as shown below (Table 1).

Table 1: Socio-demographic characteristics of study participants in Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Variables (*N = 627*)	Characteristics	Frequency (n)	Percentage (%)
Age (years)	15-19	232	37.00
	20-24	395	63.00
Sex	Male	418	66.67
	Female	209	33.33
Marital status	Single	410	65.39
	Married	162	25.84
	Divorced	55	8.80
Religion	Orthodox	284	45.30
	Muslim	343	54.70
Education	Unable to read and write	91	14.51
	Able to read and write but no formal education	160	25.52
	Grade 5-8	116	18.50
	Grade 9-10	181	28.87
	Grade 11-12	35	5.58
	Diploma	22	3.5

	Others	22	3.5
Occupational status	Farmer	197	31.42
	Spouse	56	8.93
	Private employee	29	4.63
	Student	194	30.94
	Daily laborer	11	1.75
	Government employee	30	4.78
	Others	110	17.54
Income (Ethiopian Birr)	≤ 100	19	3.0
	101-299	64	10.2
	300-499	19	3.0
	500-999	108	17.2
	≥1000	231	36.8
Source of income	Agriculture	235	37.5
	Parents	181	28.9
	Salary	58	9.3
	Khat selling	51	8.1
	Coffee/tea and shopping	39	6.2
	No source of income	35	5.6
	Others	28	4.5

5.2. Knowledge of youths toward khat chewing

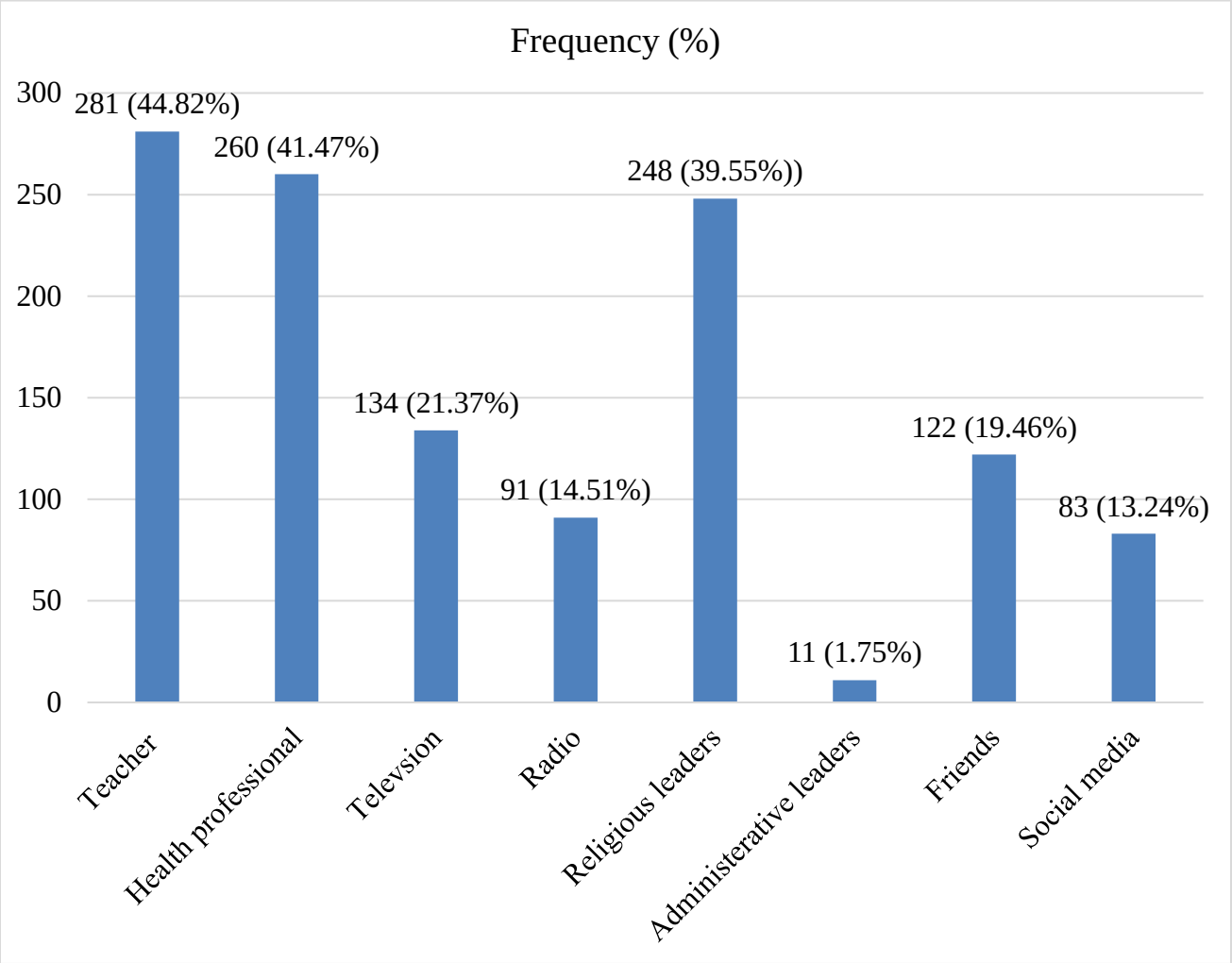


Figure 4: Sources of information on khat among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

All participants have ever heard about khat chewing and the information was found from different sources. The information concerning khat transmitted to the study participants was from teachers, health professionals, religious leaders, administrative leaders, friends, and social media as shown above (Figure 4).

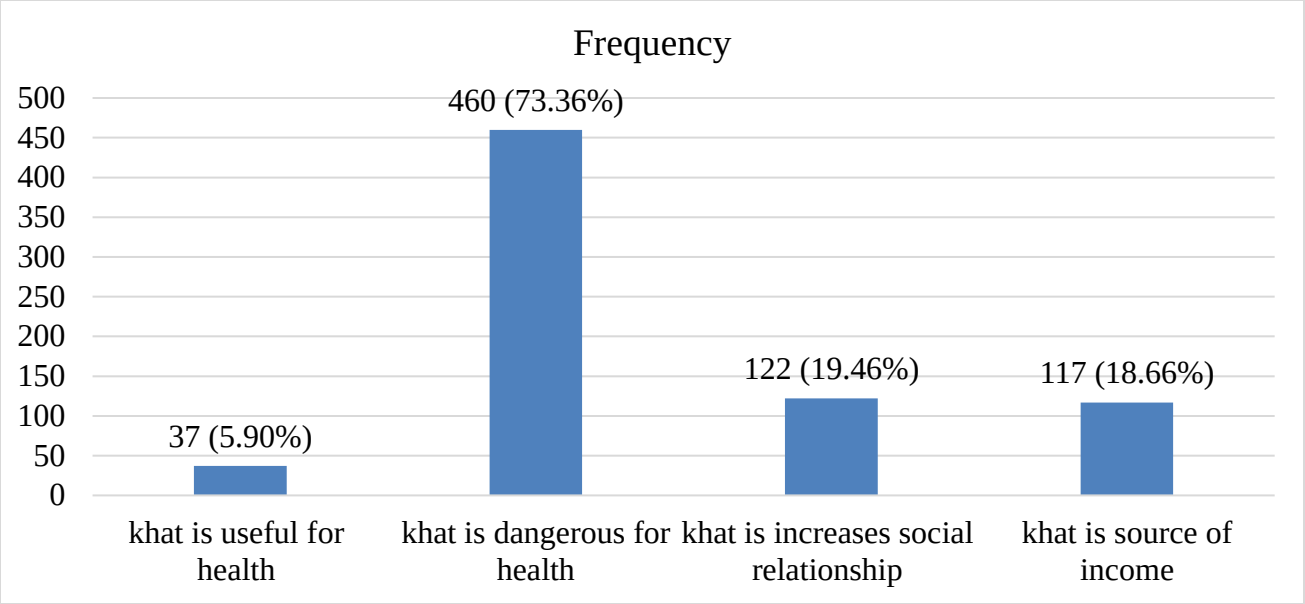


Figure 5: Type of information on khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

The transmitted information about khat to the youths about khat chewing were khat is dangerous for health, khat increases social relationship, khat is a source of income, and 24 (3.88%) khat is useful for health as shown above (Figure 5).

Participants who the received information was useful to them were 604 (96.33%). Out of participants, 500 (79.75%) agreed and 127 (20.25%) didn't agree that khat chewing causes addiction and diseases. Out of the participants agreed to khat chewing causes disease, 93 (18.6%) relied on khat chewing causes a physical health problem, 219 (48.80%) relied on khat chewing causes a mental health problem, and 188 (37.60%) relied on khat chewing causes both mental and physical health problems.

5.3. Past experiences of substance abuse

According to the previous khat chewing experiences, 263 (41.95%) participants had experience of khat chewing, 261 (41.63%) participants experienced other substances, and 202 (32.22%) of the participants were both. Out of the participants who were using other substances, 80 (31.01%) were cigarette smokers, 110 (38.70%) Shisha smokers, 130 (50.39%) alcohol drinkers, 27 (10.46%) were both cigarette and shisha smokers, 26 (10.08%) were both cigarette smokers and alcohol drinkers, and 15 (5.81%) were both shisha smokers and alcohol drinkers.

5.4. Theory of planned behavior model constructs/variables

5.4.1. Theory of planned behavior variables

This section describes the statistics of the observed variables associated with the latent variables of a theory of planned behavior attitude, subjective norm, perceived behavioral control and intention. Both direct and indirect measurement of constructs this theory were measured using their corresponding items. The items for each construct required participants is to indicate the level of agreement or disagreement to khat chewing practices.

5.4.1.1. Intention measurement items

According to the participants' responses toward the intention of khat chewing item questions, it shows that a significant number of participants had an intention to khat chewing, 192 (30.62%). Even though khat chewing is a negative behavior, the others whose responses were agreed to chew khat was not a small number rather it was significant. According to the descriptive analysis, 172 (27.4%) participants extremely disagreed to chew khat and 121 (19.3%) of the participants extremely agreed to chew khat based on their expectation toward khat chewing (Table 2).

Table 2: Frequency and Percentages of Responses of participants for measurement items of intention (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items (unlikely, likely)	**Extremely (%)**	**Quite (%)**	**Slight (%)**	**Neither (%)**	**Slight (%)**	**Quite (%)**	**Extremely (%)**	**Item mean**	**SD**
I expect to start khat chewing in the future	172 (27.4)	164 (26.2)	58 (9.3)	19 (3.0)	37 (5.9)	56 (8.9)	121 (19.3)	3.378	2.320
I want to start chew khat chewing in the future	204 (32.5)	150 (23.9)	56 (8.9)	31 (4.9)	32 (5.1)	43 (6.9)	111 (17.7)	3.175	2.285
I intend to start khat chewing in the future	245 (39.1)	118 (18.8)	50 (8.0)	24 (3.8)	33 (5.3)	49 (7.8%)	108 (17.2)	3.097	2.336
I will start khat chewing in the future	300 (47.8)	83 (13.2)	32 (5.1)	20 (3.2)	32 (5.1)	66 (10.5)	94 (15.0)	2.960	2.374

SD = standard deviation

5.4.1.2. Direct Attitude Measurement Items

There were 167 (26.64%) participants in favor of khat chewing. Based on participants' responses toward attitude of khat chewing using item questions, it indicates that 370 (59.0%) extremely agreed on khat chewing is harmful and 60 (9.6%) extremely agreed on khat chewing is beneficial, 343 (54.7%) extremely agreed on khat chewing is bad and 84 (13.4%) extremely agreed on khat chewing is good. Besides, 343 (54.7%) extremely agreed on khat chewing is unpleasant and 125 (19.9%) extremely agreed on khat chewing is pleasant, and 284 (45.3%) extremely agreed on khat chewing is worthless and 134 (21.4%) extremely agreed on khat chewing is worthy (Table 3).

Table 3: Frequency and percentages of responses of participants for measurement items of direct attitude (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items	**Extremely (%)**	**Quite (%)**	**Slight (%)**	**Neither (%)**	**Slight (%)**	**Quite (%)**	**Extremely (%)**	**Item mean**	**SD**
Chewing khat is (Harmful, Beneficial)	370 (59.0)	79 (12.6)	16 (2.6)	25 (4.0)	9 (1.4)	68 (10.8)	60 (9.6)	2.47	2.195
Chewing khat is (Bad, Good)	343 (54.7)	81 (12.9)	19 (3.0)	24 (3.8)	28 (4.5)	48 (7.7)	84 (13.4)	2.67	2.295
Chewing khat is (Unpleasant, Pleasant)	290 (46.3)	113 (18.3)	21 (3.3)	21 (3.3)	18 (2.9)	39 (6.2)	125 (19.9)	2.97	2.437
Chewing khat is (Worthless, Worthy)	284 (45.3)	106 (16.9)	32 (5.1)	18 (2.9)	17 (2.7)	36 (5.7)	134 (21.4)	3.04	2.462

SD = standard deviation

5.4.1.3. Direct Subjective Norm Measurement Items

There were 161 (25.68%) participants who experienced social pressure to chew khat. In investigating participants' responses for the measurement items on subjective norm related to khat chewing, 65 (10.4%) extremely agreed and 221 (35.2%) extremely disagreed that most peoples who are important to them think that they should start chewing. Among the response's of participants, 344 (46.6%) extremely disagreed and 84 (13.4%) quite disagreed that it is expected of them to start khat chewing while 141 (22.5%) extremely and 44 (7.0%) quite agreed that it is expected of them to start khat chewing. 292 (46.6%) of participants extremely disagreed that they

have a social pressure to chew khat and 87 (13.9%) quite disagreed with this statement. On the other hand, 141 (22.5%) extremely agreed that they have social pressure to chew khat and 44 (7.0%) quite agreed with this statement (Table 4).

Table 4: Frequency and percentages of responses of participants for measurement items of direct subjective norm (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items	**Extremely (%)**	**Quite (%)**	**Slight (%)**	**Neither (%)**	**Slight (%)**	**Quite (%)**	**Extremely (%)**	**Item mean**	**SD**
Most of people who are important to me think that (shouldn't, should) to start khat chewing	221 (35.2)	58 (9.3)	38 (6.1)	31 (4.9)	130 (20.7)	84 (13.4)	65 (10.4)	4.52	2.241
It is expected of me to start khat chewing (disagree, agree)	344 (46.6)	84 (13.4)	18 (2.9)	19 (3.0)	13 (2.1)	44 (7.0)	141 (22.5)	2.71	2.371
I feel under social pressure to start khat chewing (disagree, agree)	292 (46.6)	87 (13.9)	40 (6.4)	10 (1.6)	13 (2.1)	44 (7.0)	141 (22.5)	3.10	2.516
People who are very important to me want me to start khat chewing (disagree, agree)	350 (46.6%)	87 (13.9)	40 (6.4)	23 (3.7)	11 (1.8)	40 (6.4)	100 (15.9)	2.67	2.341

SD = standard deviation

5.4.1.4. Direct Perceived Behavioral Control Measurement Items

There were 239 (38.12%) participants felt in control of khat chewing. According to the participants' responses, it indicates that 306 (48.8%) extremely and 68 (10.8%) quite disagreed that they are confident that they could start khat chewing if they want to chew while 149 (23.8%) extremely and 56 (8.9%) quite agreed that they are confident that they could start khat chewing if they want to chew. 196 (31.3%) extremely agreed that it is easy to start chewing khat but 73 (11.6%) extremely agreed that it is difficult to start chewing khat. 343 (54.7%) extremely and 97

(15.5%) quite agreed that decision of starting khat chewing is on their controls while 77 (12.3%) extremely and 44 (7.0%) quite agreed that decision of starting khat chewing is beyond their controls as shown below (Table 5).

Table 5: Frequency and percentages of responses of participants for measurement items on direct perceived behavioral control (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items	Extremely (%)	Quite (%)	Slight (%)	Neither (%)	Slight (%)	Quite (%)	Extremely (%)	Item mean	SD
I am confident that I could start khat chewing if I wanted to (disagree, agree)	306 (48.8)	68 (10.8)	18 (2.9)	15 (2.4)	15 (2.4)	56 (8.9)	149 (23.8)	3.21	2.599
For me to start khat chewing is (difficult, easy)	73 (11.6)	25 (4.0)	27 (4.3)	19 (3.0)	85 (13.6)	202 (32.2)	196 (31.3)	2.75	1.986
The decision to start khat chewing is beyond my control (disagree, agree)	343 (54.7)	97 (15.5)	36 (5.7)	17 (2.7)	13 (2.1)	44 (7.0)	77 (12.3)	2.52	2.197
Whether I start khat chewing or not is entirely up to me (disagree, agree)	292 (46.6)	44 (7.0)	13 (2.1)	16 (2.6)	21 (3.3)	40 (6.4)	201 (32.1)	3.56	2.737

SD = standard deviation

5.4.1.5. Behavioral belief and evaluation of behavioral outcome measurement items

Indirect attitude towards khat chewing was measured using 12 measurement items with seven Likert scale responses format. Indirect attitude contains behavioral belief with 6 question items and evaluation of behavioral outcome with the corresponding 6 question items next to the behavioral belief question items. One behavioral belief measurement item is followed by a single measurement item of behavioral outcome evaluation.

Based on the participants' response, 217 (34.6%) of the participants extremely disagreed khat chewing is useful for physical health even though 291 (46.4%) participants extremely agreed on the desirability of doing something useful to physical health. 223 (35.6%) participants extremely

disagreed that khat chewing makes you pray more than other time but 238 (38.0%) of the participants extremely agreed that praying more than other times is desirable. Besides, 277 (44.2%) participants responded to the extreme agreement of khat chewing exposes to substance abuse and exposing to substance abuse is extremely undesirable was agreed by 451 (71.9%) participants. Based on the measurement item khat chewing causes mental illness, 256 (40.8%) participants extremely agreed with it and 407 (64.9%) responded that becoming mentally ill is extremely undesirable (Table 14).

5.4.1.6. Normative belief and motivational to comply measurement items

Indirect subjective norm toward khat chewing was measured by using eight measurement items with seven Likert scale responses format. Indirect subjective norm contains normative belief with four question items and motivational to comply with four question items corresponding to normative belief question items. Each question items of motivational to comply is placed next to a single question item of normative belief.

Different responses were given to questioning items based on the beliefs of the participants. 292 (46.6%) of the participants extremely agreed that their friends think they should not chew khat and 317 (50.6%) extremely agreed that what their friends think they should matter to them. Among the participants, 297 (47.4%) participants extremely agreed that their parents would approve them to chew khat and 321 (51.2%) participants extremely and 165 (26.3%) quite agreed that their parents' approval on khat chewing is important to them. Even though 273 (43.5%) of participants extremely agreed that religious leaders would disapprove them to chew khat, 131 (20.9%) extremely agreed that religious leaders would approve to chew khat. 355 (56.6%) participants extremely and 165 (26.3%) quite agreed that religious leaders' approval on khat chewing is important to them (Table 15).

5.4.1.7. Control belief and perceived power of control belief measurement items

Indirect perceived behavioral control toward khat chewing was measured using 18 measurement items with seven Likert scale response formats. Indirect perceived behavioral control contains control belief with nine question items and perceived power of control with nine question items with corresponding to the question items of control. Each questioning items of perceived power is placed next to a single question item of control belief. According to the participants'responses,

231 (36.8%) and 117 (18.7%) of the participants extremely and quite disagreed that they have the interest to chew khat respectively while 115 (18.3%) extremely agreed with this statement. 197 (31.4%) of the participants extremely agreed that having interest makes it easier to chew khat but 99 (15.8%) extremely and 90 (14.4%) slightly agreed that having interest makes it difficult to chew khat.

On the other hand, 197 (31.4%) participants of the study extremely agreed having interest makes it easier to chew khat, and in 177 (28.2%) it is more likely to chew khat when they feel anxiety/depression. Not getting khat easily makes it less likely to chew khat in 314 (50.1%), and when there is ceremony they are less likely to chew khat in 200 (31.9%) participants. Being young make it more difficult to start khat chewing, 440 (70.2%), and being happy makes it more difficult to start khat chewing in 191 (30.5%) participants. 211 (33.7%) participants replied that when they start khat chewing they are less likely to become less productive and 242 (38.6%) participants replied that being encouraged by religious leaders make it more difficult to start khat chewing. 134 (21.4%) participants replied that khat chewing is less likely to develop disease (Table 16).

5.4.2. Summary of theory of planned behavior (TPB) variables

The construct of theory of planned behavior model was measured using seven Likert scale response formats ranges from 4-9 measurement items. The mean and standard deviations for the components of the cognitive variables applied to 627 participants. The minimum, maximum, reliability (internal consistency and test-retest reliability), mean, the standard deviation of TPB variables are calculated in this study. The overall score of each variable of TPB was done. Intention (M = 12.611, SD = 9.007), direct attitude (M = 11.145, SD = 8.856), direct subjective norm (M = 11.963, SD = 7.704) and direct perceived behavioral control (M = 14.537, SD = 6.984) as shown below (Table 6).

Table 6: Summary of the TPB model variables' internal consistency, test-retest reliability, among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Variables	**N** (sample)	**Items**	**Possible min-max**	**Observed min-max**	**Mean**	**SD**	**$\dot{\alpha}$ & r**
Intention	627	4	4-28	4-28	12.611	9.007	0.977¶

Direct Attitude	627	4	4-28	4-28	11.145	8.856	0.958¶
Direct SN	627	4	4-28	4-28	11.963	7.704	0.829¶
Direct PBC	627	4	4-28	4-28	14.537	6.984	0.704¶
Indirect attitude	627	12	-126-(+126)	-126-(+126)	-18.423	45.861	0.976¶¶
Indirect SN	627	8	-84-(+84)	-84-(+84)	-26. 362	52.334	0.970¶¶
Indirect PBC	627	18	-189-(+189)	-140-(+163)	-10.499	71.462	0.960¶¶

SD = standard deviation, ¶ = ά = Cronbach's alpha for the direct measures' internal consistency, ¶¶ = r = average item-total correlation for the indirect measures' temporal stability, SN = subjective norm, PBC = Perceived behavioral control, Min-max = minimum and maximum values

5.5. Analyzing the mean difference between predictor variables with intention

5.5.1. Socio-demographic variables and intention to khat chewing

The mean difference of each socio-demographic variables was calculated according to their nature of variables, distribution of the variable since the variables are normally distributed the type of test used is a parametric test. An independent T-test was conducted to determine if there is a difference existed between the mean of the two groups of independent variables to the intention of khat chewing. In addition to this One-way ANOVA was done to check the existence of and calculate the difference among the mean of the three and above groups of independent variables to the intention of khat chewing.

From the independent T-test analysis done, there was a statistically significant difference between Orthodox followers and Muslims mean in the intention scores of khat chewing (t (625) = -10.898, P < 0.01, 95% CI = -8.52682, -5.92304). The mean values indicate that Muslims had more intention toward khat chewing (n = 343, M = 15.8834) than orthodox followers (n = 284, M = 8.6585) (Table 7).

Table 7: Summary of Independent T-test of socio-demographic characters/variables with intention among the youth of Raya-Azebo, Southern Tigray, Ethiopia, 2019.

Variables	**Values**	**N**	**Mean**	**SD**	**T**	**P-value**	**95% CI**		**Effect size**
							Lower	**Upper**	
Sex	Male	418	13.06	9.11	1.778	0.041	-0.142	2.85	0.005
	Female	209	11.71	8.75					

Religion	Orthodox	284	8.66	6.27	-	<0.001	-8.53	-5.92	0.160
	Muslim	343	15.88	9.61	10.898				
Age	15-19	232	10.595	8.69	-4.356	<0.001	-4.643	-1.757	0.029
(year)	20-24	395	13.795	8.99					

SD = standard deviation, T = T-test

One-way ANOVA was done for the socio-demographic characters that have more than two levels of groups. From the results of the analysis indicate that the marital status participant had a significant effect on the intention toward khat chewing (F (3, 623) = 8.506, mean square = 666.10, P < 0.001). The mean values indicate that divorced had more intention toward khat chewing (n = 53, M = 18.39) than single (n = 410, M = 12.09) and married (n = 162, M = 11.97). A post hoc comparison was used to show the location of the difference between marital status. The results of post hoc comparison analysis indicate that the divorced marital status had significantly different from both the single and married marital status. The results show that the overall difference in intention of khat chewing among the marital status is because of the significantly greater amount of intention towards khat chewing by the participants in the divorced marital status (Table 8**). Detail description one-way ANOVA and Post hoc analysis is annexed (**

Annex II).

Table 8: Summary of one-way ANOVA for socio-demographic variables with intention among the youth of Raya-Azebo, Southern Tigray, Ethiopia, 2019.

Variables	**M - square**	**F**	**P – value**	**Effect size**
Marital status	666.10	8.506	<0.001	0.039
Educational level	899.64	12.52	<0.001	0.124
Occupation	1238.77	17.72	<0.001	0.146

Source of income	1464.21	21.70	<0.001	0.174
Income	1033.51	13.84	<0.001	0.109

5.5.2. Knowledge and intention toward khat chewing

There was a significant mean difference between the participant who responded the transmitted information the is useful and not useful (t (df = 623) = 1.067, P < 0.01, 95% CI = -1.79, 6.05). from the result of the test, the mean values reveal that participant who said transmitted information is important (n = 604, M = 12.66) had more intention mean score toward khat chewing than those who said the transmitted information is not useful from the corresponding sources (n = 21, M = 10.52). In addition, between participants who said khat causes addiction and disease and khat does not cause addiction and disease had a significant mean difference (t (df = 625) = -26.02, P < 0.001, 95% CI = -17.37, -14.93). The mean values indicate that participants who responded to, khat does not cause addiction and disease (n = 127, M = 25.48) had more mean intention score toward khat chewing than participants who responded to khat causes addiction and disease (n = 500, M = 9.34) as indicated in (Table 17).

One-way ANOVA was done on the type of disease is caused by khat chewing among the participants who responded khat causes disease to determine if there is existed a mean difference among and where is the location of the difference among them. There was a significant effect on the intention of khat chewing (f (2, 497) = 10.88, mean square = 456.07, P < 0.001). There was a mean value difference within the types of diseases. This show that both (physical and mental) (n = 188, M = 11.07, 95% CI = 9.94, 12.21) had more intention of khat chewing than the mental (n = 219, M = 8.38, 95% CI = 7.02, 9.15) and physical (n = 93, M = 8.08, 95% CI = 7.64, 9.13) alone.

5.5.3. Past experiences of substance abuse and intention toward khat hewing

Using independent T-test there was a significant mean difference between the participants who had past experience and had no experience khat chewing (t (df = 625) = 10.58, P <0.001, 95% CI = 5.79, 8.43). The mean values show that participants who had past experience of khat chewing (n = 263, M= 16.74) had mean score of intention toward khat chewing more than those had no past experience of khat chewing (n = 364, M = 9.63). Besides, there was a significant mean difference between the participants who had past experience of other substance use and had no experience

other substance use (t (df = 625) = 7.09, P <0.001, 95% CI = 3.61, 6.37). The mean values show that participants who had past experience of other substance use (n = 260, M= 15.53) had mean score of intention toward khat chewing more than those who had no past experience of other substance (n = 367, M = 10.54) as shown in (Table 18).

5.5.4. Theory of planned behavior model constructs and intention to khat chewing

A bivariate correlation analysis was done among the direct measure constructs of TPB model and the outcome variable using Karl Pearson ('r') correlation to show the strength of relationship each construct with other constructs. Karl Pearson's coefficients show that there is only a positive relationship among the constructs of TPB whereas the strongest relationship was observed between intention and attitude (r = 0.885). The less strong relationship was observed between subjective norm towards khat chewing and perceived behavioral control of khat chewing (r = 0.796). However, according to the degree of strength of association between variables all the are from very good to excellent relationships (Table 9).

Table 9: Correlations (Karl Pearson's "r") of direct measures of TPB model constructs and intention to chew khat among youths of Raya-Azebo, Southern Tigray, Ethiopia, 2019.

Variables (N=627)	Intention	Attitude	Subjective norm	PBC
Intention	1			
Attitude	0.885**	1		
Subjective norm	0.847**	0.843**	1	
PBC	0.804**	0.788**	0.796**	1

** = Correlation is significant at P < 0.01 level (2-tailed), PBC = Perceived behavioral control

A series of simple bivariate correlation was also calculated for the indirect and direct measures of the same constructs TPB model to confirm the validity of indirect measures. Karl Pearson's coefficients show that there is a positive relationship between indirect attitude and direct attitude (r = 0.823). Since the relationship between the direct and indirect measures is strongly positive (r > 0.70), the indirect measures were valid, well-constructed and adequately covered the breadth of measured constructs (Table 10).

Table 10: Correlations (Karl Pearson's "r") of indirect and direct measures of TPB constructs among youths of Raya-Azebo, Southern Tigray, Ethiopia, 2019.

Variables (N=627)	Attitude	SN	PBC	Indirect attitude	Indirect SN	Indirect PBC
Attitude	1					
SN	0.843**	1				
PBC	0.788**	0.796**	1			
Indirect attitude	0.823**	0.773**	0.725**	1		
Indirect SN	0.833**	0.812**	0.711**	0.830**	1	
Indirect PBC	0.804**	0.758**	0.784**	0.805**	0.797	1

** = Correlation is significant at P < 0.01 level (2-tailed), SN = Subjective norm, PBC = Perceived behavioral control

5.6. Linear Regression Analysis

5.6.1. Simple linear regression

Before proceeding to run the regression analysis the assumptions of linear regression were checked using different methods to determine its fitness for this analysis. The assumption was assessed using a histogram, for the distribution of dependent and independent variables (multivariate normality by histogram), linearity by probability plot, autocorrelation by Durbin-Watson, and the presence of relationship by scatter plot. Since the assumptions fulfilled, bivariate linear regression analysis was done.

5.6.1.1. Socio-demographic variables

The bivariate analysis was done to show the significance of each socio-demographic variable in predicting intention to khat chewing. From the socio-demographic variables, age, marital status, religion, educational status, occupation, income and source of income were significant at different degree of P < 0.05 but sex was not significant (ß = 1.354, P = 0.076, 95% CI = -0.142, 2.850) in prediction of intention of youths toward khat chewing (Table 19).

5.6.1.2. Knowledge and intention toward khat chewing

To know the significance of the knowledge of participants in the prediction of intention towards khat chewing was assessed using bivariate regression analysis. This indicates that most sources of information were significant in the prediction of intention to khat chewing. Teacher (ß= 5.757, P<0.001, 95% CI = 4.409, 7.104), health professional (ß= 3.343, P<0.001, 95% CI = 1.933, 4.754), radio (ß = 2.603, P =0.009, 95% CI = 0.651, 4.556), religious leaders (ß= -4.259, P<0.001, 95% CI = -5.666, -2.853), and friends (ß= 2.0, P=0.028, 95% CI = 0.221, 3.779) were significant in predicting of intention of youths toward khat chewing (Table 20).

5.6.1.3. Past behavioral experience and intention toward khat chewing

The significance of past behavioral experience in the prediction of intention to khat chewing was assessed by bivariate regression analysis. Bivariate regression analysis shows that having past experience of khat chewing (ß= -7.109, P<0.001, 95% CI = -8.428, -5.789), and use of other substances (ß= -4.989, P<0.001, 95% CI = -6.369, -3.608) were statistically significant in prediction of intention towards khat chewing. According the type of substance use, cigarette smoking (ß= -2.842, P=0.020, 95% CI = -5.236, -0.449), shisha smoking (-8.561, P<0.001, 95% CI = -10.563, -6.559), and alcohol drinking (ß= 9.560, P<0.001, 95% CI = 7.657, 11.464) were statistically significant in prediction of intention towards khat chewing (Table 21).

5.6.1.4. TPB model predictor variables with intention toward khat chewing

A bivariate regression analysis was done for the TPB model explanatory variable to determine the statistical significance of the variable in the prediction of intention toward khat chewing. The bivariate analysis indicates that attitude (ß=0.900, P<0.001, 95% CI = 0.863, 0.937), subjective norm (ß= 0.990, P<0.001, 95% CI = 0.941, 1.039), and perceived behavioral control (ß= 1.038, P<0.001, 95% CI = 0.977, 1.098) were highly statistical significant in the predicting of intention of youths toward khat chewing. 78.3% of the variation in the prediction of intention toward khat chewing was explained by attitude (R^2 = 0.78.3) (Table 11).

Table 11: Bivariate analysis of TPB model explanatory variables in predicting intention toward khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Model	**Variables (N = 627**	**ß**	**P-value**	**95% CI**		**R^2 (R-square)**	**Adj. R^2**
				Lower	**upper**		
TPB predictor variables	Attitude	0.900	<0.001	0.863	0.937	0.783	0.782
	Subjective norm	0.990	<0.001	0.941	1.039	0.717	0.717
	Perceived behavioral control	1.038	<0.001	0.977	1.098	0.647	0.647

Adj. R^2 = Adjusted R-square, ß = Unstandardized regression coefficient

5.6.1.5. Indirect measures of TPB model with direct TPB model constructs

A bivariate analysis was done between the indirect measure of the TPB model and the corresponding construct of TPB model. There was a positive correlation between the indirect and

respective direct components of TPB. Each indirect measure was a predictor variable for the respective direct measure of TPB. Indirect attitude was high statistically significant in predicting of direct attitude (ß= 0.159, P<0.001, 95% CI= 0.150, 0.167). An indirect measure of the TPB model accounted for at least 61.5% of variation on their respective direct measures of TPB model. Therefore, the predictive power of the constructs to intention, capturing the dimension of the population interest salient beliefs and validity of the data collection tool was high (Table 12).

Table 12: Bivariate analysis of indirect TPB model explanatory variables in predicting of their corresponding direct measure of TPB toward khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Model	**Variables (N = 627**	**ß**	**P-value**	**95% CI**		**R^2 (R-square)**	**Adj. R^2**
				Lower	**upper**		
Indirect TPB predictor variables	Indirect Attitude	0.159	<0.001	0.150	0.167	0.677	0.676
	Indirect Subjective norm	0.119	<0.001	0.113	0.126	0.659	0.658
	Indirect Perceived behavioral control	0.077	<0.001	0.072	0.081	0.615	0.615

Adj. R^2= Adjusted R-square, ß = Unstandardized regression coefficient

5.6.2. Multiple linear regression analysis

Forced enter multiple linear regression analysis was done to see the effect of the independent variables on behavioral intention towards khat chewing. All components of TPB, socio-demographic, knowledge, past behavioral experience variables and intention were included in the multivariable analysis. The independent variables with P-value <0.25 and non-collinear variables were entered into the final regression model analysis (Occupation status were found to have collinearity with sources of income then it was excluded from the final multivariable regression model analysis). The majority of the socio-demographic and knowledge variables were significantly associated with intention to khat chewing but this was no longer sustained in multiple regression analysis. All past behavioral experience variables were significantly correlated to intention to khat chewing in the bivariate analysis but lost their relationship in multiple linear regression analysis.

In the final regression model, 83.2% of the variability of intention to khat chewing was explained by the independent variables (R^2=0.832, Adj.R^2=0.787, P<0.001). Socio-demographic, knowledge and past behavioral experience variables without TPB constructs explained the model by 62.4%. When the TPB direct measures added to the final model the variance of the dependent variable was explained by 83.2%. So, an explanation of the variance of intention to chew khat increased by 20.8%. However, the components of TPB independently were accounted for 83% of the variability of intention to chew khat. Therefore, the variance of intention to chew khat was exclusively explained by direct measures of TPB. Because the addition of the socio-demographic, knowledge, and past behavioral experience variables to the final regression model did not increase the predictive power of TPB (the change was observed only by 0.20%, from R^2 0.830 to 0.832).

The only statistically significant predictors of intention to khat chewing in the final model were attitude (β= 0.350, P<0.001, 95% CI= 0.196, 0.490), subjective norms (β= 0.297, P<0.001, 95% CI= 0.166, 0.490) and PBC (β= 0.150, P= 0.01, 95% CI= 0.055, 0.404). This means, a unit positive change attitude towards advantage associated with the chewing of khat, will change the intention to chew khat by 0.350 while keeping other variables constant. At the same time, for a unit positive change in the individual's perception about very important persons thought them to chew khat as a normative action, will change the intention to chew khat by 0.297 when the other factors remained unvaried. In addition to this, a unit positive change in the perceived control about facilitators associated with the chewing of khat as a perceived action will change the intention to chew khat by 0.150 by keeping the other variables unchanged (Table 13).

To be confident in the representation of the model of the sample to the entire population in the prediction of intention to khat chewing was assessed using cross-validation. Cross-validation was done using Stein's formula of adjusted R-square and data splitting. Even though adjusted R-square in SPSS is calculated by Wherry's equation, it is criticized because it tells us nothing about how well the regression model would predict an entirely different set data. However, Stein's adjusted R-square value tells us how much variance in intention to khat chewing would be accounted for if the model had been derived from the population from which the sample was taken. The stein's adjusted R-square of this final regression model was 0.8244 meaning that 82.44% of variation in intention to khat chewing was explained by predictors. The difference (shrinkage) between the R-square (0.832) and stein's adjusted R-square is 0.0076 (0.76%). Therefore, almost nothing is lost

in predictive power of the model then model was exactly representative. It is similar happened in the data splitting cross-validation that the difference of R-square between the split data was about 2%.

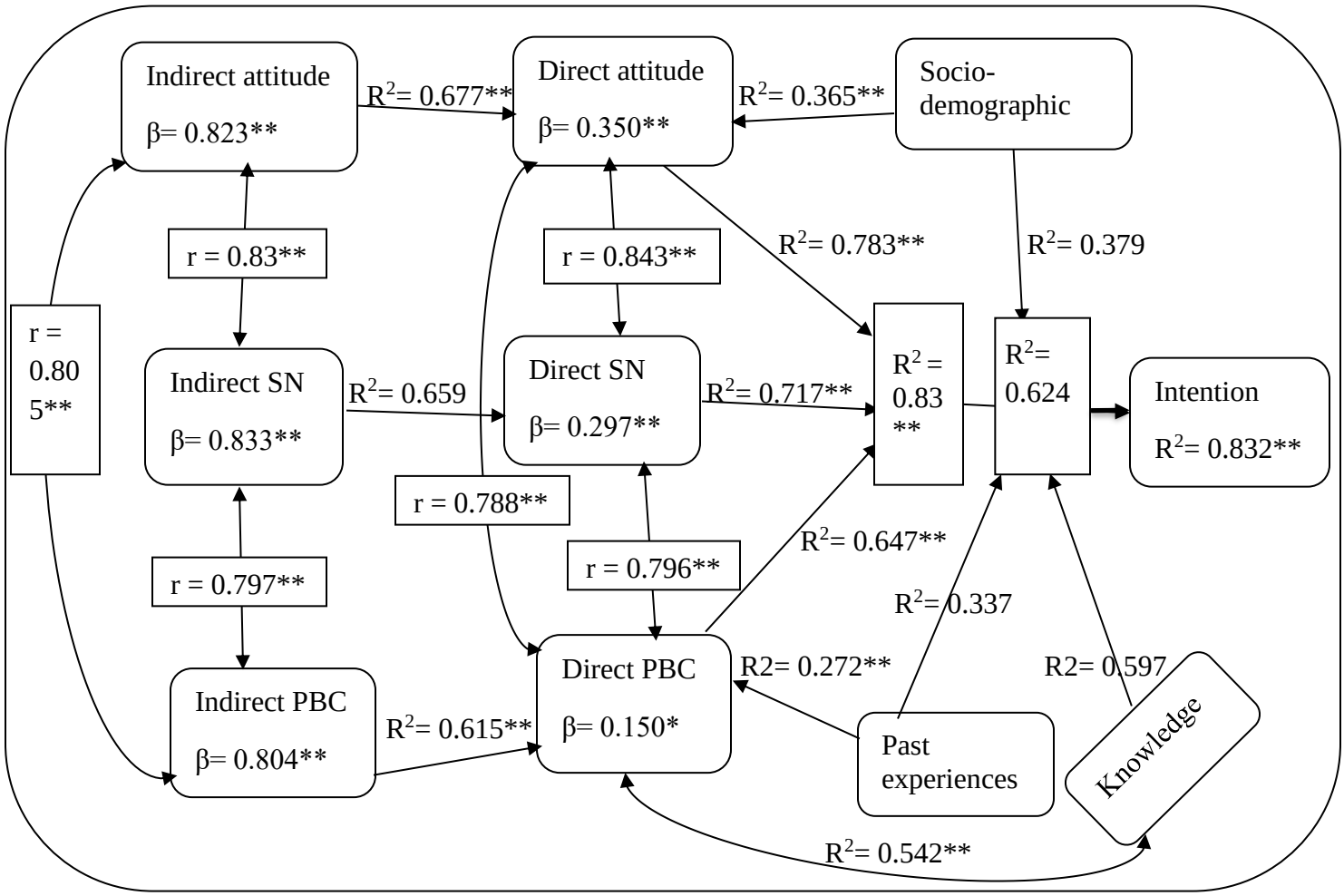
Table 13: Multivariable regression analysis of intention toward khat chewing as a dependent variable predicted by independent variables among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Variables	**Values**	**ß**	**β**	**P-value**	**95% CI**	
					Lower	**Upper**
Age	15-24	0.305	0.068	0.133	-0.094	0.704
Sex	Female (ref)					
	Male	-1.111	-0.052	0.264	-3.069	0.848
Marital status	Married (ref)					
	Single	0.781	0.043	0.379	-0.967	2.529
	Divorced	-0.661	-0.026	0.573	-2.745	1.523
Religion	Orthodox (ref)					
	Muslim	0.767	0.043	0.378	-0.843	2.378
Educational status	11-12 (ref)					
	Unable to read & write	3.210	0.147	0.107	-0.706	7.127
	Able to read & write (no class)	1.770	0.092	0.364	-2.075	5.615
	5-8	1.351	0.044	0.520	-2.784	5.485
	9-10	2.693	0.134	0.158	-1.057	6.443
	Diploma	2.116	0.053	0.393	-2.763	6.995
	Others	-0.886	-0.017	0.737	-6.098	4.325
Income	0-9000	0.000	0.034	0.575	0.000	0.001
Sources of income	Agriculture (ref)					
	Parents	1.794	0.032	0.423	-2.619	6.208
	Salary	0.256	0.010	0.836	-2.186	2.699
	Khat selling	0.346	0.015	0.753	-1.821	2.512
	Coffee/tea & shopping	-0.206	-0.008	0.868	-2.635	2.224
	No source	1.416	0.037	0.375	-1.725	4.556
	Other sources	0.565	0.019	0.642	-1.835	2.966
Sources of information	Teacher	0.343	0.019	0.691	-1.358	2.043
	Health professional	0.826	0.046	0.323	-0.821	2.474
	Television	-0.016	-0.001	0.985	-1.705	1.672

	Radio	-0.510	-0.024	0.578	-2.316	1.297
	Religious leaders	0.776	0.041	0.398	-1.032	2.584
	Administrative leaders	-0.386	-0.005	0.888	-5.796	5.024
	Friends	0.926	0.037	0.338	-0.978	2.829
	Social media	1.203	0.057	0.161	-0.483	2.888
Types of information	Khat is useful for health	-1.027	-0.036	0.416	-3.517	1.462
	Khat is not useful for health	-0.735	-0.038	0.561	-3.228	1.758
	Khat increases social relation	-1.635	-0.080	0.082	-3.481	0.210
	Khat is source of income	-0.578	-0.029	0.529	-2.390	1.233
Khat cause disease	No (ref)					
	Yes	2.556	0.130	0.089	-0.393	5.504
Type of disease caused	Physical (ref)					
	Mental	-0.904	-0.039	0.525	-3.706	1.898
	Both	1.526	0.085	0.258	-1.129	4.180
Past experience	No (ref)					
	Yes	0.321	0.014	0.748	-1.646	2.287
Type of other substances	Cigarette smoke	-0.165	-0.009	0.835	-1.732	1.401
	Shisha smoking	-0.294	-0.017	0.750	-2.118	1.529
	Alcohol	1.434	0.080	0.128	-0.415	3.283
Direct TPB model variables	Attitude	0.343	0.350	<0.001*	0.196	0.490
	SN	0.328	0.297	<0.001*	0.166	0.490
	PBC	0.229	0.150	0.010*	0.055	0.404

ß = Unstandardized regression coefficient, β = Standardized regression coefficient

R2= 0.832, Adjusted R2= 0.787, F change = 18.591, P = <0.001



**= Statistically significant at P < 0.001, *= Statistically significant at P < 0.05, r = correlation between variables, R^2 (R-squared) = coefficient of determination, β = standardized regression coefficient, SN = Subjective Norm, PBC = Perceived Behavioral Control

Figure 6: Summary of correlation and regression result of predictive model TPB, socio-demographic, knowledge and past behavioral experiences to predict of intention to khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

This figure shows that the path of how the variety of external independent variables and indirect and direct components of theory planned behavior predicted the intention to khat chewing among youths.

6. DISCUSSIONS

The purpose of the study was to determine the extent of Theory Planned Behavior constructs account for the variability intention to khat chewing behavior among youths. It is critical to appreciate the youths' intention, attitude, subjective norm, and perceived behavioral control of khat chewing and TPB can explain that. Therefore, TPB constructs which include behavioral intention, attitude, subjective norm, and perceived behavioral control toward khat chewing were operationalized in this study. This study shows that there was a low intention not to chew khat (M = 12.611, SD = 9.007).

There was no significant association between socio-demographic characters of the participants and the intention to khat chewing. This finding is in line with the study conducted at Jimma university that age, marital status, family's sources of income were not significantly associated with khat chewing (5). This implies that the prediction of attitude, subjective norm, and perceived behavioral control is not different among the various categories of socio-demographic characteristics of participants. However, the present finding is in contrast with the studies done in Mana district, Nekemete town, and the systematic and meta-analysis was done among Ethiopian University students; sex, religion, marital status, and educational status were significantly associated and predictors of khat chewing (1,2,6). The difference could be due to the studies were done at different settings (community or institution and rural or urban) and socio-demographic characteristics of like age, educational status, and marital status so different among the studies' participants.

In this study the past behavioral experiences of khat chewing, other substances use like a cigarette, shisha smoking and alcohol drinking were not statistically significant with the intention to khat chewing. However, this study contradicts a study conducted and systematic reviews and meta-analysis done in Ethiopia which show that cigarette smoking and alcohol drinking were

significantly associated and predictor of khat chewing (5, 6). This has an implication of that youths experienced khat chewing previously and other substances might have learned lessons from the psychological dependence, wasting time, psychological and socio-economical harms, overall impact of health, and the catalyst nature (its tendency to push to do other negative behaviors) of khat chewing, smoking (cigarette and shisha) and alcohol drinking.

The present study demonstrates the applicability of the TPB model in predicting youth's intention to khat chewing. Intention to khat chewing was mainly due to attitude, subjective norm, and perceived behavioral control while the other external to TPB variables were insignificantly predictors. The simultaneous predictive power of attitude (R^2=0.783), subjective norm (R^2=0.717), and perceived behavioral control (R^2=0.647) in terms of adjusted R-squared was 82.9% (R^2=0.830, adj. R^2=0.829, P<0.001). The theory of planned behavior components and external to TPB variables on intention in terms of R square and adjusted R squared were 0.832 and 0.787 respectively (R^2=0.832, adj. R^2=0.787, P<0.001). Meaning that the model explained 78.7% variance of intention to khat chewing. This finding is near to the perfect relationship and cause-effect level of determination. This predictive power is higher than the other different systematic reviews and meta-analysis was done using TPB to predict the behavioral intention of smoking and alcohol consumption (33,34). The implication is that the internal consistency among items is higher and the correlation between direct measure of theory of planned behavior and intention to khat chewing is stronger.

The final model demonstrates that the behavioral intention of khat chewing was primarily under the attitudinal influence. Subjective norm weighted implication toward khat chewing was next to attitudinal influence toward khat chewing. Perceived behavioral control, however, was the least predictor of intention to khat chewing. This implies youths' favorable attitude toward khat chewing will lead them to chew khat. Previous study conducted in prediction of cigarette smoking, attitude was the strongest predictor of intention to cigarette smoking and systematic review and meta-analysis done using theory of planned behavior in predicting alcohol consumption, attitude was highly correlated to behavioral intention than subjective norm then subjective norm was also highly correlated with behavioral intention than perceived behavioral control (33,35). However, other previous studies show that attitude was the second and third predictor of behavioral intention to cigarette smoking and second predictor of intention to alcohol drinking (34,36,37). The possible

reason for this difference is might be the variation in behavior, the population in which the study generalizes results, situations, and circumstances under which the behavior is occurring, according to the theory of planned behavior perspective (27,38).

As the multivariable analysis depicts, the standardized regression coefficient of the subjective norm was secondly predicting the intention to khat chewing. This indicates that youths' social pressures, family, peer and significant others pressure towards khat chewing have a great role in leading them to chew it. Previous studies conducted in Ethiopia settings focused on factors initiating khat chewing were peer pressure, social and psychological reasons, socialization issue, khat is considered as a social and cultural construct of community, and having family members and friends who chew khat (1–6,39). This has an implication that individuals who matter and approve their important persons' approval to them and socio-cultural conditions are influenced to perform the behavior.

Inline to the study conducted and meta-analysis done in prediction of cigarette smoking using theory of planned behavior, subjective norm was the second strongest predictor of intention to cigarette smoking (34,35) and systematic review and meta-analysis done on theory of planned behavior in predicting alcohol consumption, subjective norm was the second highly correlated to behavioral intention to alcohol drinking (33). In contrast to this, another study conducted in predicting intention to alcohol consumption reveals that subjective norm was the strongest predictor of behavioral intention to alcohol consumption (36). This implies that behavior is attributable to the target population, type of actions, contexts, time and other circumstances in which it occurs.

In line with the systematic review and meta-analysis done on predicting alcohol consumption using the TPB model (33), the present study depicts that perceived behavioral control was the third important and statistically significant predictor of intention to khat chewing. This indicates that youths with high confidence to chew khat are high with an intention to khat chewing. However, other a previous study and meta-analysis done show that perceived behavioral control was the primary predictor of intention to cigarette smoking (34,37) and in opposition to this, perceived behavioral control was an insignificant predictor of intention to alcohol drinking (36). It has an

implication that predictors could be similar and vary at different behaviors, circumstances, contexts, and population groups.

According to the correlational analysis, there was a positive relationship between indirect and respective direct measurements of theory of planned behavior. From this, the commonly held salient beliefs extracted regarding attitude, subjective norm, and perceived behavioral control toward khat chewing were well explained and explored through indirect constructs of theory of planned behavior. This is in parallel with the suggestion of the theory of planned behavior principles in which there is a positive relationship between indirect measurements and their corresponding direct measurements of theory planned behavior (27,38). This implies that intervention can be designed on the salient beliefs identified during the elicitation study; so that by influencing the direct measures of the TPB, intention to khat chewing can be decreased.

On regression analysis, indirect components of theory planned behavior explained the variation of their respective direct components of theory planned behavior. Indirect attitude, subjective norm, and perceived behavioral control toward khat chewing accounted for 67.7 %, 65.9%, and 61.5% variation respective direct component of theory planned behavior attitude, subjective norm, and perceived behavioral control of khat chewing. This predictive power of indirect component to their respective direct component of theory planned behavior is higher than previous studies conducted using TPB supported by elicitation study (40,41). The possible explanation related to this might be that there was a variation of the temporal stability of salient beliefs commonly held in the community and correlation between indirect and corresponding direct measures of theory of planned behavior.

Regarding the present study, the finding demonstrates the fact that all indirect measures of theory of planned behavior had significant positive indirect influences on intention to khat chewing through their corresponding direct measures theory of planned behavior. This finding is supported by the suggestion of theory planned behavior principles (27,38). This finding implies that the commonly held beliefs of behavior of khat chewing well explored. Other possible reasons could be a strong correlation between indirect and respective direct components of the theory of planned behavior and direct component of theory planned behavior with intention to khat chewing as well.

7. STRENGTHS AND LIMITATIONS

Strengths: The researcher did an elicitation study for exploring salient beliefs to design a culturally appropriate survey instrument to measure TPB constructs. These salient beliefs are not observable characters and difficult to find the belief with other methods. The study included different variables except for the constructs of theory of planned behavior. This made the study more comprehensive than the theory's constructs. The researcher also did cross-validation the final predictive model using steins formula and data splitting at random.

Limitations: Even though the study used the interviewer-administered questionnaire and there was a chance validating what the participants responded; it has the potential of introducing social desirability bias. The participants were asked to recollect their past experience of substance abuse and the intention to chew khat which is negative behavior. In this study, face validity was done to check the validity of the data collection instrument which is affected by individual subjectivity. The relation between constructs of TPB was done at a time not in prospective at time intervals. This may provide a poor predictive and understanding of previous behavior because time order of motivations and behavior cannot be discerned.

Theory of planned behavior assumes that behavior is the result of a linear decision, doesn't consider it can change over time. Another limitation of the study is the actual measure of perceived behavioral control. The perceived behavioral control measures the perceived control not the actual control of behavior. Theory of planned behavior assumed that behavior can happen without behavioral intention when a person has acquired opportunities and resources.

8. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study demonstrated that TPB model is useful and applicable tool in predicting and explaining intention to khat chewing. This study reveals that a considerable proportion of youths had an intention to chew khat in the next six months. Behavioral intention to khat chewing was a function of attitude, subjective norm and perceived behavioral control of khat chewing. Behavioral intention to khat chewing was primarily under the attitudinal influence. The indirect measures of TPB had influences on direct measures of TPB, so that intention to khat chewing will be increased. Socio-demographic, knowledge and past behavioral experience determinants were not influencing intention to chew khat.

Recommendations

Regional Health Bureau and Woreda Health office: Increase health literacy by transferring health messages in media outlets on khat as a harmful for health and give particular emphasis on risk perceptions of khat chewing. Preparing an educative communication forum with the engagement of religious leaders, community leaders, health extension workers, youths, adults, and concerned health planners.

Researchers: Prospective study design is recommended to determine the relationships between constructs; measuring behavior at time interval as a human behavior can't be always stable. It is better if construct validity is done for the data collection tool. Large scale qualitative study is suggested by involving religious leaders, community leaders, farmers, agriculture personnel and health professional.

Policymakers: To design culturally appropriate, evidence-based policy, strategical interventions, and programs to break the precursors of intention and intention to khat chewing before changing into action. Strategies to empower youths to change the positive attitude toward khat chewing,

programs targeted on resisting social pressures and increasing self-efficacy to combat the facilitating factors.

9. REFERENCES

1. Megerssa B, Esayas A, Mohamed A. Socio-Economic Impact of Khat in Mana District, Jimma Zone, South Western Ethiopia. Agric Sci. 2013;1(4):44–59.

2. Wondemagegn AT, Cheme MC, Kibret KT. Perceived Psychological, Economic, and Social Impact of Khat Chewing among Adolescents and Adults in Nekemte Town, East Welega Zone, West Ethiopia. BioMed Res Int. 2017;2017(1):7427892.

3. Kandari LS, Yadav HR, Thakur AK, Kandari T. Khat (Catha edulis): a socio economic crop in Harar Region, Eastern Ethiopia. SpringerPlus. 2014 Oct 3;3(1):579.

4. Mihretu A, Teferra S, Fekadu A. What constitutes problematic khat use? An exploratory mixed methods study in Ethiopia. Subst Abuse Treat Prev Policy. 2017 21;12(1):17.

5. Abdeta T, Tolessa D, Adorjan K, Abera M. Prevalence, withdrawal symptoms and associated factors of khat chewing among students at Jimma University in Ethiopia. BMC Psychiatry. 2017 17;17(1):142.

6. Gebrie A, Alebel A, Zegeye A, Tesfaye B. Prevalence and predictors of khat chewing among Ethiopian university students: A systematic review and meta-analysis. PloS One. 2018;13(4):e0195718.

7. ECDD. Assessment of khat (Catha edulis Forsk) [Internet]. Geneva: WHO; 2006 [cited 2018 Nov 17] p. 1–25. Report No.: 34th. Available from: www.who.int/medicines/areas/quality_safety/

8. Al-Juhaishi T, Al-Kindi S, Gehani A. Khat: A widely used drug of abuse in the Horn of Africa and the Arabian Peninsula: Review of literature. Qatar Med J. 2013 Nov 1;2012(2):1–6.

9. Central Statistical Agency. Agricultural Sample Survey. Addis Ababa: Central Statistical Agency; 2017 2018 p. 1–57. Report No.: 1.

10. Griffiths P, Gossop M, Wickenden S, Dunworth J, Harris K, Lloyd C. A transcultural pattern of drug use: qat (khat) in the UK. Br J Psychiatry J Ment Sci. 1997 Mar;170(03):281–4.

11. Ware E, Tura G, Alemu T, Andarge E. Disparities in risky sexual behavior among khat chewer and non- chewer college students in Southern Ethiopia: a comparative cross-sectional study. BMC Public Health. 2018 Apr 27;18(1):558.

12. Central Statistical Agency and ICF. Ethiopia Demographic and Health Survey 2016 [Internet]. Addis Ababa, Ethiopia: ICF Rockville, Maryland, USA; 2017 [cited 2018 Nov 17] p. 1–551. Report No.: 1. Available from: https://dhsprogram.com/publications/publication-fr328-dhs-final-reports.cfm

13. Kassim S, Rogers N, Leach K. The likelihood of khat chewing serving as a neglected and reverse 'gateway' to tobacco use among UK adult male khat chewers: a cross sectional study. BMC Public Health. 2014 May 13;14(1):448.

14. Corkery J, Schifano F, Oyefeso A, Hamid Ghodse A, Tonia T, Naidoo V, et al. Overview of literature and information on "khat-related" mortality: A call for recognition of the issue and further research. Ann Ist Super Sanità. 2011 Dec 1;47(4):445–64.

15. Fekadu A, Alem A, Hanlon C. Alcohol and drug abuse in Ethiopia: past, present and future. Afr J Drugs Alcohol Stud. 2007;6(1):40–53.

16. Ethiopian Public Health Association. Legal Aspects of Substance and Alcohol Abuse in Ethiopia. Addis Ababa, Ethiopia: Ethiopian Public Health Association; 2011 31-11/03 p. 1–17. Report No.: 22nd.

17. Central Statistical Authority. Agricultural Sample Survey. Addis Ababa, Ethiopia: Central Statistical Authority; 2003 2004 p. 1–106. Report No.: 1.

18. Central Statistical Agency, Ministry of Finance and Economic Development. Agricultural Sample Survey. Addis Ababa, Ethiopia: Central Statistical Agency; 2014 2015 p. 1–78. Report No.: 1.

19. Cochrane L, O'Regan D. Legal harvest and illegal trade: Trends, challenges, and options in khat production in Ethiopia. Int J Drug Policy. 2016 Apr;30(1):27–34.

20. Central Statistical Agency. Agricultural Sample Survey [Internet]. Addis Ababa, Ethiopia: Central Statistical Agency; 2015 2016 [cited 2018 Nov 18] p. 1–121. Report No.: 1. Available from: file://chs-vdi-fs

21. Sinshaw A, Messele A, Kssa H. Prevalence and Associated Factors of Khat Chewing Among Atse Fasil Campus Students, University of Gondar, North West Ethiopia June 2013. J Psychol Clin Psychiatry. 2014 Nov 13;1(6):1–0.

22. Mega TA, Dabe NE. Khat (Catha Edulis) as a Risk Factor for Cardiovascular Disorders: Systematic Review and Meta-Analysis. Open Cardiovasc Med J. 2017 Dec 19;11(1):146–55.

23. Meressa K, Mossie A, Gelaw Y. Effect of Substance Use on Academic Achievement of Health Officer and Medical Students of Jimma University, Southwest Ethiopia. Ethiop J Health Sci. 2009 Jan 1;19(3):155–63.

24. Dires E, Soboka M. Factors Associated with Khat Chewing among High School Students in Jimma Town Southwest Ethiopia. J Psychiatry. 2016;19(4):1–5.

25. Ajzen I. From Intentions to Actions: A Theory of Planned Behavior. In: Kuhl J, Beckmann J, editors. Action Control: From Cognition to Behavior [Internet]. Berlin, Heidelberg: Springer Berlin Heidelberg; 1985 [cited 2018 Nov 18]. p. 11–39. (SSSP Springer Series in Social Psychology; vol. 1). Available from: https://doi.org/10.1007/978-3-642-69746-3_2

26. Norberg PA, Horne DR, Horne DA. The Privacy Paradox: Personal Information Disclosure Intentions versus Behaviors. J Consum Aff. 2007 Jun 1;41(1):100–26.

27. Ajzen I. The theory of planned behavior. Organ Behav Hum Decis Process. 1991 Dec 1;50(2):179–211.

28. Ajzen I, Fishbein M. A Bayesian analysis of attribution processes. Psychol Bull. 1975;82(2):261–77.

29. Amjad N, Wood AM. Identifying and changing the normative beliefs about aggression which lead young Muslim adults to join extremist anti-Semitic groups in Pakistan. Aggress Behav. 2009 Dec;35(6):514–9.

30. Central Statistical Agency. Statistical tables for the 2007 population and housing census of Ethiopia. Addis Ababa: Ethiopia. Office of the Population Census Commission; 2012 p. 1–113.

31. Francis JJ, Eccles MP, Johnston M, Walker A, Grimshaw J, Foy R, et al. Constructing Questionnaires Based on the Theory of Planned Behaviour: A Manual for Health Services Researchers [Internet]. University of London, United Kingdom: University of Newcastle; 2004 [cited 2018 Nov 18]. Available from: https://discovery.dundee.ac.uk/en/publications/constructing-questionnaires-based-on-the-theory-of-planned-behavi

32. Khan, Shane, and Vinod Mishra. Youth Reproductive and Sexual Health [Internet]. Calverton, Maryland, USA: Macro International Inc.; 2008 [cited 2018 Dec 6] p. 1–107. Report No.: DHS Comparative Reports No. 19. Available from: https://dhsprogram.com/pubs/pdf/cr19/cr19

33. Cooke R, Dahdah M, Norman P, French DP. How well does the theory of planned behaviour predict alcohol consumption? A systematic review and meta-analysis. Health Psychol Rev. 2016 Apr 2;10(2):148–67.

34. Topa G, Moriano JA. Theory of planned behavior and smoking: meta-analysis and SEM model. Subst Abuse Rehabil. 2010 Dec 6;1(1):23–33.

35. Ganley BJ, Rosario DI. The smoking attitudes, knowledge, intent, and behaviors of adolescents and young adults: Implications for nursing practice. J Nurs Educ Pract. 2013 Jan 1;3(1):40–50.

36. Huchting K, Lac A, LaBrie JW. An Application of the Theory of Planned Behavior to Sorority Alcohol Consumption. Addict Behav. 2008 Apr;33(4):538–51.

37. Alanazi NH, Lee JW, Dos Santos H, Job JS, Bahjri K. The use of planned behavior theory in predicting cigarette smoking among Waterpipe smokers. Tob Induc Dis. 2017 Jul 3;15(1):29.

38. Glanz K, Rimer BK, Viswanath K, Orleans CT. Health behavior and health education: theory, research, and practice [Internet]. 4th ed. 989 Market Street, San Francisco, CA 94103-1741: Jossey-Bass; 2008 [cited 2019 Aug 23]. 590 p. Available from: https://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=353367

39. Yahya A, Rajeshwar Y, Eticha T, Kahsay G, Ali D, Gebretsadik H, et al. Socio-Economic and Health Effects of Khat Chewing in Mekelle, Tigray Region, Ethiopia. Int J Pharm Pharm Res. 2016 Dec 25;8(1):11–22.

40. Wiedyaningsih C, Hakimi M, Soenarto Y, Suryawati S. The use of the theory of planned behavior to predict factors influencing physicians' decision to prescribe extemporaneous compounding dosage form for pediatric outpatients. Asian J Pharm Clin Res. 2016 Jul 1;9(4):288–91.

41. Lee J, A. Cerreto F, Lee J. Theory of Planned Behavior and Teachers' Decisions Regarding Use of Educational Technology. Educ Technol Soc. 2010 Jan 1;13(1):152–64.

10. ANNEXES

Annex I: Tabulated presentation of descriptive and bivariate analysis

Table 14: Frequency and percentages of responses of participants for measurement items on behavioral belief and behavioral outcome evaluation (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items	Extremely (%)	Quite (%)	Slight (%)	Neither (%)	Slight (%)	Quite (%)	Extremely (%)	Item mean	SD
If I chew khat, I will feel that I am doing something useful to physical health (unlikely, likely).	217 (34.6)	120 (19.1)	20 (3.2)	16 (2.6)	13 (2.1)	84 (13.4)	157 (25.0)	3.59	2.562
Doing something useful to health is (undesirable, desirable).	55 (8.8)	37 (5.9)	38 (6.1)	10 (1.6)	123 (19.6)	73 (11.6)	291 (46.4)	1.38	2.007
If I chew khat, I will pray more than other time (unlikely, likely).	223 (35.6)	99 (15.8)	41 (6.5)	19 (3.0)	13 (2.1)	56 (8.9)	176 (28.1)	3.59	2.578
Praying more than other time is (undesirable, desirable).	120 (19.1)	40 (6.4)	59 (9.4)	19 (3.0)	100 (15.9)	51 (8.1)	238 (38.0)	0.67	2.354
If I chew khat, I will relax and relieve from anxiety/depression (unlikely, likely).	191 (30.5)	72 (11.5)	49 (7.8)	25 (4.0)	32 (5.1)	92 (14.7)	166 (26.5)	3.92	2.511
Relaxing and relieve from anxiety/depression is (undesirable, desirable).	54 (8.6)	22 (3.5)	50 (8.0)	32 (5.1)	88 (14.0)	96 (15.3)	285 (45.5)	1.40	1.970
If I chew khat, I will expose to substance abuses (unlikely, likely).	118 (18.8)	37 (5.9)	23 (3.7)	9 (1.4)	26 (4.1)	137 (21.9)	277 (44.2)	5.08	2.386

Exposing to substance abuse is (undesirable, desirable).	451 (71.9)	70 (11.2)	51 (8.1)	1 (0.2)	11 (1.8)	11 (1.8)	32 (5.1)	-2.26	1.568
If I chew khat, I will become mentally ill (unlikely, likely).	120 (19.1)	38 (6.1)	23 (3.7)	15 (2.4)	39 (6.2)	136 (21.7)	256 (40.8)	4.99	2.374
Becoming mentally ill is (undesirable, desirable).	407 (64.9)	81 (12.9)	83 (13.2)	5 (0.8)	15 (2.4)	12 (1.9)	24 (3.8)	-2.16	1.506
If I chew khat, I will have weight loss and teeth decay (unlikely, likely).	104 (16.6)	48 (7.7)	15 (2.4)	15 (2.4)	23 (3.7)	110 (17.5)	312 (49.8)	5.21	2.365
Having weight loss and teeth decay is (undesirable, desirable).	405 (64.6)	92 (14.7)	61 (9.7)	7 (1.1)	24 (3.8)	6 (1.0)	32 (5.1)	-2.12	1.597

SD = standard deviation

Table 15: Frequency and percentages of responses of participants for measurement items on normative belief and motivational to comply (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items	**Extremely (%)**	**Quite (%)**	**Slight (%)**	**Neither (%)**	**Slight (%)**	**Quite (%)**	**Extremely (%)**	**Item mean**	**SD**
My friends think I (shouldn't, should) chew khat	292 (46.6)	68 (10.8)	57 (9.1)	0 (0.0)	17 (2.7)	41 (6.5)	152 (24.2)	-0.82	2.554
What my friends think I should do matter to me (not at all, very much)	44 (7.0)	27 (4.3)	7 (1.1)	8 (1.3)	31 (4.9)	193 (30.8)	317 (50.6)	5.87	1.772
My parents would…...me to chew khat (disapprove, approve)	297 (47.4)	119 (19.0)	80 (12.8)	0 (0.0)	26 (4.1)	44 (7.0)	61 (9.7)	-1.45	2.059
My parent's approval to chew khat is important to me (not at all, very much)	55 (8.8)	21 (3.3)	12 (1.9)	11 (1.8)	42 (6.7)	165 (26.3)	321 (51.2)	5.78	1.873

Religious leaders would (disapprove, approve) me to chew khat	273 (43.5)	86 (13.7)	80 (12.8)	3 (0.5)	10 (1.6)	44 (7.0)	131 (20.9)	-0.93	2.434
Religious leaders' approval to chew khat is important to me (not at all, very much)	39 (6.2)	7 (1.1)	5 (0.8)	11 (1.8)	45 (7.2)	165 (26.3)	355 (56.6)	6.08	1.585
My family think I (disapprove, approve) chew khat	297 (47.4)	78 (12.4)	87 (13.9)	1 (0.2)	25 (4.0)	54 (8.6)	85 (13.6)	-1.19	2.258
What my family think I should do matter to me (not at all, very much)	25 (4.0)	16 (2.6)	7 (1.1)	5 (0.8)	38 (6.1)	161 (25.7)	375 (59.8)	6.19	1.471

SD = standard deviation

Table 16: Frequency and percentages of responses of participants for measurement items on control belief and perceived power of control (n = 627), among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Items	**Extremely (%)**	**Quite (%)**	**Slight (%)**	**Neither (%)**	**Slight (%)**	**Quite (%)**	**Extremely (%)**	**Item mean**	**SD**
I will have interest to chew khat (unlikely, likely)	231 (36.8)	117 (18.7)	41 (6.5)	21 (3.3)	25 (4.0)	77 (12.3)	115 (18.3)	3.29	2.412
Having interest makes it (more difficult, easier) to chew khat.	99 (15.8)	77 (12.3)	90 (14.4)	7 (1.1)	80 (12.8)	77 (12.3)	197 (31.4)	0.45	2.303
I may chew khat when I feel anxiety/depression (unlikely, likely)	148 (23.6)	102 (16.3)	42 (6.7)	30 (4.8)	40 (6.4)	127 (20.3)	138 (22.0)	4.03	2.389
When I feel anxiety or depression, I am (less likely, more likely) to chew khat	138 (22.0)	76 (12.1)	96 (15.3)	15 (2.4)	54 (8.6)	71 (11.3)	177 (28.2)	0.10	2.387
I may not get khat easily to chew it (unlikely, likely)	66 (10.5)	51 (8.1)	71 (11.3)	70 (11.2)	52 (8.3)	135 (21.5)	182 (29.0)	4.79	2.079

Not getting khat easily makes it (less likely, more likely) to chew khat	314 (50.1)	78 (12.4)	88 (14.0)	6 (1.0)	37 (5.9)	41 (6.5)	63 (10.0)	-1.40	2.101
I will chew khat when I have ceremony	178 (28.4)	65 (10.4)	40 (6.4)	29 (4.6)	26 (4.1)	117 (18.7)	172 (27.4)	4.11	2.507
When there is ceremony, I am (less likely, more likely) to chew khat	200 (31.9)	63 (10.0)	97 (15.5)	9 (1.4)	24 (3.8)	74 (11.8)	160 (25.5)	-.27	2.484
I am too young to chew khat (unlikely, likely)	164 (26.2)	77 (12.3)	25 (4.0)	17 (2.7)	17 (2.7)	61 (9.7)	266 (42.4)	4.42	2.636
Being young make it (more difficult, easier) to chew khat.	440 (70.2)	62 (9.9)	56 (8.9)	2 (0.3)	28 (4.5)	9 (1.4)	30 (4.8)	-2.18	1.614
I am happy to start khat chewing (unlikely, likely)	163 (26.0)	72 (11.5)	41 (6.5)	42 (6.7)	36 (5.7)	130 (20.7)	143 (22.8)	4.08	2.410
Being happy make it (more difficult, easier) to start khat chewing.	191 (30.5)	77 (12.3)	86 (13.7)	8 (1.3)	39 (6.2)	67 (10.7)	159 (25.4)	-0.26	2.467
I will be less productive if I start khat chewing (unlikely, likely).	113 (18.0)	47 (7.5)	25 (4.0)	39 (6.2)	53 (8.5)	131 (20.9)	219 (34.9)	4.82	2.316
When I start khat chewing, I am (less likely, more likely) to become less productive	211 (33.7)	91 (14.5)	96 (15.3)	7 (1.1)	53 (8.5)	46 (7.3)	123 (19.6)	-0.63	2.348
I will be encouraged by religious leaders, If I start khat chewing (unlikely, likely)	205 (32.7)	32 (5.1)	33 (5.3)	49 (7.8)	40 (6.4)	121 (19.3)	147 (23.4)	4.02	2.481
Being encouraged by religious leaders make it (more difficult, easier) to start khat chewing	242 (38.6)	74 (11.8)	94 (15.0)	3 (0.5)	18 (2.9)	61 (9.7)	135 (21.5)	-0.67	2.451
I will develop a disease if I chew khat (unlikely, likely)	88 (14.0)	56 (8.9)	56 (8.9)	41 (6.5)	59 (9.4)	119 (19.0)	208 (33.2)	4.78	2.224

Chewing khat is …….. to develop disease (less likely, more likely)	134 (21.4)	66 (10.5)	121 (19.3)	14 (2.2)	102 (16.3)	62 (9.9)	128 (20.4)	-0.07	2.222

SD = standard deviation

Table 17: Summary of independent T-test for knowledge variables with intention among the youth of Raya-Azebo, South Tigray, Ethiopia, 2019.

Variables (N=627)		**Values**	**N**	**Mean**	**SD**	**T**	**P-value**	**Effect size**	**95% CI**	
									Lower	**Upper**
Sources of information	Teacher	Yes	281	9.43	7.05	-8.388	0.000	0.101	-7.10	-4.41
		No	346	15.19	9.59					
	Health professional	Yes	260	10.65	7.85	-4.654	0.000	0.033	-4.75	-1.93
		No	367	13.99	9.51					
	Television	Yes	134	12.07	8.45	-0.788	0.029	0.001	-2.42	1.03
		No	493	12.76	9.16					
	Radio	Yes	96	10.41	7.81	-2.618	0.000	0.011	-4.56	-0.65
		No	531	13.01	9.16					
	Religious leader	Yes	248	15.18	9.87	5.947	0.000	0.054	2.85	5.66
		No	379	10.93	7.97					
	Administrative leader	Yes	11	10.82	9.76	-0.666	0.816	0.001	-7.21	3.56
		No	616	12.64	8.99					
	Friends	Yes	122	11.00	8.67	-2.208	0.028	0.008	-3.78	-0.22
		No	505	13.00	9.05					
	Social media	Yes	83	11.84	8.77	-0.833	0.369	0.001	-2.97	1.20
		No	544	12.73	9.05					
Type of information	Khat is useful for health	Yes	37	23.57	6.26	8.003	0.000	0.093	8.78	14.50
		No	590	11.92	8.71					
	Khat is dangerous for health	Yes	460	9.53	6.86	-17.274	0.000	0.323	-12.89	-10.26
		No	167	21.10	8.76					

Khat increases social relationship	Yes	122	21.24	8.41	13.353	0.151	0.222	9.14	12.28
	No	505	10.53	7.84					
Khat is source of income	Yes	117	17.42	9.36	6.617	0.002	0.065	4.16	7.66
	No	510	11.51	8.56					
Is this information transmitted by sources useful?	Yes	604	12.65	9.06	1.067	0.004	0.002	-1.79	6.05
	No	21	10.52	6.97					
Does khat chewing cause addiction and disease?	Yes	500	9.34	6.60	-26.021	0.000	0.52	-17.37	-14.93
	No	127	25.49	4.57					

SD = standard deviation

Table 18: Summary of independent T-test for past behavioral experience variables with intention among the youth of Raya-Azebo, South Tigray, Ethiopia, 2019.

Variables (N = 627)	**Values**	**N**	**Mean**	**SD**	**T**	**P-value**	**Effect size**	**95% CI**	
								Lower	**Upper**
Do you have any past experience of khat chew?	Yes	263	16.74	8.81	10.581	0.000	0.152	5.79	8.43
	No	364	9.63	7.91					
Do you use any other substance?	Yes	260	15.53	9.09	7.097	0.000	0.075	3.61	6.37
	No	367	10.36	8.36					
Cigarette smoking	Yes	80	17.55	8.67	2.338	0.207	0.021	0.45	5.24
	No	178	14.71	9.18					
Shisha smoking	Yes	110	20.50	7.65	8.421	0.271	0.217	6.56	10.56
	No	148	11.94	8.37					
Alcohol	Yes	130	10.85	8.00	-9.89	0.655	0.276	-11.46	-7.66
	No	128	20.41	7.51					

SD = standard deviation

Table 19: Bivariate analysis of socio-demographic variables in predicting intention toward khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Variables (N = 627)	**Values**	**ß**	**P-value**	**95% CI**		**R^2 (R-square)**	**Adj. R^2**
				Lower	**Upper**		
Age	15-24	0.646	<0.001	0.382	0.911	0.035	0.034
Sex	Female (ref.)	11.708				0.005	0.003
	Male	1.354	0.076	-0.142	2.850		
Marital status	Married (ref.)	11.975				0.039	0.036
	Single	0.115	0.889	-1.497	1.726		
	Divorced	6.388	<0.001	3.678	9.098		
Religion	Orthodox (ref.)	8.658				0.160	0.158
	Muslim	7.225	<0.001	5.923	8.527		
Education	11-12 (ref)	7.743					
	Unable to read & write	9.202	<0.001	5.892	12.512	0.123	0.115
	Able to read & write but no formal education	8.320	<0.001	5.214	11.425		
	5-8	2.085	0.203	-1.125	5.294		
	9-10	2.815	0.072	-0.258	5.888		
	Diploma	2.757	0.232	-1.771	7..285		
	Others	3.257	0.158	-1.271	7.785		
Occupation	Student (ref)	8.701					
	Farmer	4.654	<0.001	2.993	6.315	0.146	0.138
	Spouse	2.567	0.043	0.076	5.058		
	Private employee	3.885	<0.020	0.616	7.155		
	Daily laborer	2.208	0.395	-2.882	7.298		
	Gov’t employee	4.799	0.004	1.577	8.021		
	Others	10.09	<0.001	8.130	12.050		
Income	0-9000	0.002	<0.001	0.001	0.002	0.057	0.055

Source of income	Parents (ref)	12.379				0.165	0.157
	Agriculture	3.694	<0.001	2.088	5.300		
	Salary	3.867	0.002	1.416	6.317		
	Khat selling	13.570	<0.001	10.995	16.144		
	Coffee/tea and shopping	7.494	<0.001	4.627	10.361		
	No source	6.829	<0.001	3.830	9.828		
	Others	5.208	0.002	1.910	8.506		

Adj. R^2= Adjusted R-square, ß = Unstandardized regression coefficient

Table 20: Bivariate analysis of knowledge variables in predicting intention toward khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Variables (N = 627)	**Values**	**ß**	**P-value**	**95% CI**		**R^2 (R-square)**	**Adj. R^2**
				Lower	**upper**		
Sources of information	Teacher	5.757	<0.001	4.409	7.104	0.101	0.100
	Health professional	3.343	<0.001	1.933	4.754	0.033	0.032
	Television	0.691	0.431	-1.032	2.415	0.001	-0.001
	Radio	2.603	0.009	0.651	4.556	0.011	0.009
	Religious leader	-4.259	<0.001	-5.666	-2.853	0.054	0.052
	Administrative leaders	1.825	0.506	-3.558	7.208	0.001	-0.001
	Friends	2.00	0.028	0.221	3.779	0.008	0.006
	Social media	0.885	0.405	-1.200	2.969	0.001	0.000
Type of information	Khat is useful for health	-11.644	<0.001	-14.501	-8.787	0.093	0.091
	Khat is dangerous for health	11.574	<0.001	10.258	12.889	0.323	0.322
	Khat increases social relationship	-10.711	<0.001	-12.286	-9.136	0.222	0.221
	Khat is source of income	-5.911	<0.001	-7.665	-4.157	0.065	0.064

Usefulness information	No (ref)	14.787				0.002	0.000
	Yes	-2.132	0.286	-6.055	1.791		
Khat causes disease	No (ref)	-6.808				0.520	0.519
	Yes	16.148	<0.001	14.929	17.367		
Type of disease	Physical (ref)	18.132				0.218	0.215
	Mental	-9.748	<0.001	-11.244	-8.253		
	Both	-7.057	<0.001	-8.614	-5.501		

Adj. R^2= Adjusted R-square, ß = Unstandardized regression coefficient

Table 21: Bivariate analysis of past behavioral experience variables in predicting intention toward khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia, 2019.

Variables (N = 627)	**Values**	**ß**	**P-value**	**95% CI**		**R^2 (R-square)**	**Adj. R^2**
				Lower	**Upper**		
Past experience of khat chewing	No (ref)	23.846				0.152	0.151
	Yes	-7.109	<0.001	-8.428	-5.789		
Use of other substances	No (ref)	20.519				0.075	0.073
	Yes	-4.989	<0.001	-6.369	-3.608		
Types of substance abuse	Cigarette	-2.842	0.020	-5.236	-0.449	0.021	0.017
	Shisha	-8.561	<0.001	-10.563	-6.559	0.217	0.214
	Alcohol	9.560	<0.001	7.657	11.464	0.276	0.274

Adj. R^2 = Adjusted R-square, ß = Unstandardized regression coefficient

Annex II: Analysis results of one-way ANOVA and post hoc comparison

Educational status had significant effect on the intention of khat chewing ($F(6,620) = 14.53$, mean square = 1043.59, $P < 0.001$). The mean values show that participant who are unable to read and write (n = 91, M = 16.95, 95% CI = 15.13, 18.76) and able to read and write with no formal education (n = 160, M = 16.06, 95% CI = 14.57, 17.55) had more intention toward khat chewing than participants of grade 1-4 and degree (n = 22, M = 11, 95% CI = 6.97, 15.03) and 9-10 (n = 181, M = 10.56, 95% CI = 9.35, 11.77). The post hoc comparison shows that the participants who are unable to read and write and able to read and write with no formal education had a significant mean difference from participants whose educational status is grades 5-8, 9-10, and 11-12 but not with grade 1-4, diploma, and degree. This finding specifies that majority mean difference in the intention toward khat chewing among the educational status is due to the significantly greater amount of intention toward khat chewing by the participants of unable to read and write and able to read and write with no formal education.

According to the one-way ANOVA Occupational status had significant effect on the intention to khat chewing ($F(6, 620) = 17.72$, mean square = 1238.77, $P < 0.001$). There was a mean value difference in the occupation of the participants. This shows that others (unemployed, no have other daily works) (n = 110, M = 18.79, 95% CI = 17.09, 20.48), government employee (n = 30, M = 13.50, 95% CI = 10.02, 16.98) and farmers (n = 197, M = 13.36, 95% CI = 12.06, 14.65) had more intention of khat chewing than the private employee (n = 29, M = 12.58, 95% CI = 9.31, 15.86), daily laborer (n = 11, M = 10.91, 95% CI = 5.13, 16.68) and spouse (n = 56, M = 11.27, 95% CI = 9.22, 13.31). The post hoc comparison shows others (unemployed, no have other daily works) had a significant mean difference from the farmer, spouse, students but not with government employees, private employees, and daily laborers. In addition, a farmer had significant mean differences with students. It implies that the majority of mean difference in the intention toward khat chewing among occupations is because of a significant amount of intention toward khat chewing by participants in others of occupation (unemployment and no have other works).

The intention toward khat chewing is significantly affected by level of incomes ($F(4, 456) = 13.84$, mean square = 1033.51, $P < 0.001$). The findings of one-way ANOVA descriptive analysis reveal that participants whose monthly income was greater than 1000 birr (n = 231, M = 16.01, 95% CI = 14.81, 17.22) and have no monthly income (n = 35, M = 15.71, 95% CI = 12.63, 18.80) had

more intention of khat chewing than participants whose monthly income was 500-1000 (n = 108, M = 12.00, 95% CI = 10.39, 13.61), 300-500 (n = 19, M = 10.00, 95% CI = 5.89, 14.10), and 100-300 Ethiopian birr (n = 68, M = 8.03, 95% CI = 6.55, 9.51). Post hoc comparison indicates that participants who had monthly income greater than 1000 Ethiopian birr had a significant mean difference with those who had monthly income of 100-300 and 500-100 Ethiopian birr while there is no mean difference with those had income of 300-500 and had no monthly income. The overall mean difference of intention toward khat chewing among the level of monthly income is due to the significant amount of intention of khat chewing by the participants whose income was greater than 1000 Ethiopian birr.

The sources of income had a significant effect on the intention to khat chewing ($F(6, 619) = 21.70$, mean square = 1464.21, $P < 0.001$). The mean differences toward khat chewing was observed among the sources of income. The results demonstrate that participants whose sources income is khat selling (n = 47, M = 22.85, 95% CI = 20.90, 24.80), coffee and tea selling and shopping (n = 36, M = 16.08, 95% CI = 13.04, 19.13), have no sources of income (n = 32, M = 15.53, 95% CI = 12.37, 18.68), and others (bus station working and daily activities) (n = 48, M = 14.73, 95% CI = 12.07, 17.38) had more mean of intention to khat chewing than participants whose source of income is agriculture (n = 231, M = 12.29, 95% CI = 11.18, 13.42), salary (n = 55, M = 12.09, 95% CI = 9.73, 14.45) and parents (n = 177, M = 8.56, 95% CI = 7.48, 9.65).

To determine the location of difference a post hoc comparison analysis was done. Based on the post hoc comparison, participants whose source of income was khat selling and parents were significantly different from the participants whose source of income was agriculture, shopping and coffee, and tea selling, others, and have no sources of income. Participants whose source of income was khat selling had also a significant difference with parents and salary. But there was no significant difference between parents and salary. The overall difference in the intention of khat chewing between sources of income is because of the significantly greater amount of intention toward khat chewing was taken by the participants whose sources of income was khat selling and parents.

Annex III: Code book of Elicitation study

Categories	Parent codes	Child codes	Descriptions
Behavioral belief	Advantage of khat chewing	Relaxation	khat chewing make you relaxed
		Relieve depression and anxiety	khat chewing make you free from depression/anxiety
		To pray more	chewers more pray than nonchewers
		To spend time	To have nice stay
		To have good social life	Khat chewing builds good social life
	Disadvantage of khat chewing	Teeth decay	khat chewing cause teeth decay or changes their color and fragmenting of their integrity
		Abdominal disease (e.g. Appendicitis)	Khat chewing cause appendicitis and intestinal disease
		Loss of time	Killing more time in khat time rather than at working
	Other additional opinion	Treatment of evil eye diseases	Khat chewing remove evil by chewing together with praying i.e. j person with evil cure after chewing khat society together
Normative belief	Khat chewing supporter	Religious leaders	Sheiks motivate khat to be chewed by the community
		Parents	Muslim parents allow their children to chew khat
		Family members	Muslim family members like brothers also supporters to khat chewing
	Khat chewing non supporter	Religious leaders	Priests strictly forbid khat chewing

		Parents	Orthodox Christian forbid khat chewing
Control belief	Pushing factors	Accessibility	If the agricultural area of khat is near or your own, it is favorable to chew it
		Religion	Muslim are allowed to chew by sheiks
		Availability	If khat is available everywhere, it invites you to chew
	Difficulty for khat chewing	Fear of disease	Khat cause diseases
		Religion	Christian orthodox leaders not allow khat to chew
		Accessibility	If the khat area is far away it is less chance to get khat easily
		Availability	If khat is not available everywhere, it difficult to get khat

Annex IV: Information and consent sheet

Information sheet

This information and consent form are prepared for the study participants to introduce the study in order to understand it clearly and involve voluntarily in the community cross-sectional study whose title is intention khat chewing among youths in Raya Azebo, south Tigray, Ethiopia.

Title of the study: intention for khat chewing among youths in Raya Azebo, South Tigray, Ethiopia, 2018/2019.

Principal investigator (PI)

Name: Abadi Hailay

Address: Addis Ababa, Tikur Anbessa Specialized Hospital (TASH)

Phone: +251919010908

Email: abadih1901@gmail.com

Name of the organization: Addis Ababa University, College of Health Sciences, School of Public Health

Name of sponsor: Adigrat University

Introduction: this information and consent form is prepared to explain the study you are asked to involve. You are invited to take part in this study on the intention of khat chewing among youths in Raya Azebo, south Tigray, Ethiopia. It is your choice and interest whether to take part or not. If you don't want to participate, you are not expected to explain or give a reason. If you don't want to participate now, but change your mind later, you can involve if it is in the period of data collection.

This participant information sheet will help you to decide if you would like to take part and tells you about the study. It sets out why we are conducting the study, what your participation would involve, what the benefits and risks/advantages and disadvantages to you might be, and what would happen after the study ends. I will go through this information with you and answer any

questions you may have. You can ask questions about anything that you don't understand and/or want to know more about. Before deciding whether to participate in this study you can discuss with your family, relative, or friends about the interview or participating in the study.

Please listen to me carefully and understand the information about the study and you can raise a question of what is not clear before you join the interview. The principal investigator is a final year Master of Health Promotion and Health Education graduate student from the school of public health, college of health science, Addis Ababa University.

Purpose of the study: this study aims to assess the intention of khat chewing among youths in the community. I am hoping this study helps and contributes to the government and the community to solve the problem including the health problems in designing strategies and intervention programs. Khat chewing has a negative health effect and it is a soundless and smokeless gun that kills human beings by causing different changes in the human body. The PI wants to find out ways to reduce what happening by khat chewing. The PI also believes that you can help him by telling what you know and thinks about khat chewing. PI wants to learn what people say about the different ways that people think about khat chewing.

Procedures of the study: I am asking you to help the PI learn more in your community. I am inviting you to participate in this research project. If you accept, you will give oral consent and be asked to answer the question. The type of procedure that will be conducted is an interview with the youth. During the interview, I or if you want another interviewer will sit down with you in comfortable place. If it is better for you, the interview can take place in your home or another place gives you comfort. If you don't wish to answer any of the questions, you can say to the interviewer 'skip to the next questions. No one else but the interviewer will present unless you would like someone else to be there.

Duration of the study: the research takes place over 11 months. The study is conducting starting from July 2018 to June 2019. The interview will be held once and will take about one hour.

Benefits of the study: If you participate in this study, we can't guarantee or promise that you will receive any benefit directly from the research. There will be no direct benefit to you for your participation in this study. However, I hope the information obtained from this study may benefit

from the final result of the study and the future generation to save them from suffering khat chewing substance abuse.

Risk of the study: there is no risk by participating in this study but the participants invest their golden work/rest time to take part or to answer the questions.

Confidentiality/Privacy: the information collected from each participant will be kept in a secret manner within only the investigator and other legal authorities who need it. Participants' names and other potential identifiers are not recorded on the questionnaire (information or responses given by participants are anonymous). Therefore no one can know whether the information is yours or not. The data/information collected will be stored in a file locked in the investigator cabinet without the participant's name but code will be assigned to it. The soft copy of the data/information will be put in the form of a document and will have a strong password to protect from leaking any information. You can give the information at the place where you feel comfortable and happy.

Right to participation (Voluntary participation): each participant has the right to fully understand the purpose and methods of the study. Participants are not enforced to talk about personal information like name or address. It is your choice/decision whether to participate or not in this study and it is your own right to change your mind to participate after refusal.

Right to refuse or withdraw: if the participant is not comfortable with the study participation, he/she is free to refuse or withdraw from the study at any time without losing your right because it is to cause discomfort on him/her. No one can force the participant to take part in this study and no one will be mad or disappointed if the participant says "no". It is your choice to participate or not. You can think about it and tell me later if you want to proceed.

Reimbursements/incentive: there is no payment or incentive given to the participants in this study. The only incentive providing to the participants is saying "thank you".

Informed oral consent

Dear participant,

In assuring the health of the community, the understanding of intention, attitude, subjective norm, and perceived behavioral control of khat chewing on this next generation of the population is crucial. This study is proposed to assess the intention of khat chewing in the eligible youth in the selected district. Therefore, I would like to inform you that you to select a comfortable place to keep your privacy and we will have a discussion/interview concerning this study.

Before we start the discussion, I will read to you the purpose, procedures, benefits, risks, confidentiality and other conditions of this study, then you will tell me your decision whether you agree or disagree to proceed based on the information provided to you.

The purpose of this study is to assess the intention of khat chewing among youths and at the end of the study to project appropriate recommendations and to help strategies development how to minimize the health problem caused by khat chewing. The questionnaire of the study contains various types of questions like close-ended and scaled response questions. The questionnaire has private and intimate questions to be answered by you. I am going to ask the questions and your answers are confidential that the information will not leak to other peoples. Your name and other potential identifiers will not be recorded at the questionnaire and the information/data collected only used by the investigator and other legal authorities who need it for strategy development and other important issues.

You have the right not to answer any forwarded question that you don't need to answer and you can withdraw the interview at any time you want and feel discomfort. However; your honest answers to these questions are very important and will help us to better understanding, and give better meaning to the intention of khat chewing among youths.

I would like to greatly appreciate you for your voluntariness and help in giving a response to these study questions. The interview is voluntary and will take around about one hour.

Are you willing to take part in this study?

Yes: _____ No: _____

Date: _____/_____/_____

Thank you

Consent/assent form for adolescents aged 15-17 year

The health of youths is at risk when compared to other age groups. Youths are the age group which is vulnerable to substance abuse and other health problem causing conditions. Youth is the age when most human being shaped their behaviour. Therefore, youth have to understand about substance abuse like khat chewing.

In line with this fact, this study is proposed to assess the intention of khat chewing in selected districts. Therefore, I would like to inform you that your child and I will have a short discussion session concerning this study. Before we proceed to interview, I will read and you will listen to me carefully to what I am going to read to you about the purpose, procedure, confidentiality, benefits, risks and other conditions of the study and tell me whether you agree or disagree to your child to take part in this study.

The purpose of this study is to assess the intention of khat chewing among youths and at the end of the study to forward appropriate recommendations through which the behavior of population in khat chewing will be changed. The questionnaire involves different intimate and private life questions to be answered by your child.

I am going to ask questions and your child answers are completely confidential. As a general, I will keep the information you told me at the time of interview are confidential, unless you give consent to disclose certain information. Your son/daughter's name or other potential identifiers will not be recorded at the questionnaire.

Your son/daughter has the right not answer any question forwarded question that he/she doesn't want to answer and your son/daughter can withdraw the interview at any time he/she want or feel discomfort. However; your son/daughter's answers to these questions are very important and will help us to a better understanding of the intention of khat chewing among youths.

Are you willing to take part in this study?

Yes: _____ No: _____

Date: _____/_____/_____

Thank you

Annex V: QUESTIONNAIRE (ENGLISH VERSION)

Study site _____ code of interview _____date _____

I am going to ask you to join this study of youths who are helping us to investigate their viewpoints about the consumption of khat. Your responses will be anonymous. Your answers will not be linked to you personally. Please note that your responses will not have any influence/impact on your life and /or khat production. Your honest answers will help us to learn about your experience. Therefore, please honestly respond to all questions/statements.

Name of data collector_____ Sign_____

I. Socio-demographic characteristics of study participants Raya Azebo district, Southern Tigray, Ethiopia, 2018/2019.

S. no.	Questions	Category/options	Skip
101	What is your age in completed years?	_____	
102	Sex	1. Male 2. Female	
103	What is your Marital status?	1. Single 2. Married 3. Divorced 4. Widowed	
104	What is your Religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify_____)	
105	What is your educational status?	1. Unable to read and write 2. Able to read and write but no formal education 3. Formal education a. Grade (specify)_____	

		b. Diploma c. Degree	
106	What is your Occupational status?	1. Farmer 2. Spouse 3. Private employee 4. Student 5. Daily laborer 6. Government employee 7. Other (specify)_____	
107	What is your income per month (Ethiopian Birr)?		
108	What is the main source of your income?		
109	What is your Ethnicity?	1. Tigray 2. Amhara 3. Oromo 4. Other (specify)----------	

II. Knowledge of khat

S. No.	Questions	Options	Skip
201	Have you ever heard about khat?	1. Yes 2. No.	If No skip to 205.
202	If "Yes" from whom did you hear the information? (multiple answers is possible)	1. Teacher 2. Health professionals 3. Television 4. Radio 5. Religious leaders 6. Administrative leaders 7. Friends	

		8. Social media	
203	What type of information was transmitted? (multiple answers is possible)	1. Khat is useful for health 2. Khat is dangerous for health 3. Khat increases social relationship 4. Khat is a source of income	
204	Is this information transmitted by sources useful?	1. Yes 2. No	
205	Does khat chewing cause addiction and disease?	1. Yes 2. No	
206	If "Yes" for Q 206, what are the diseases?	1. Physical illness 2. Mental illness 3. Both	

III. Past experiences of substance abuse

S. No.	Questions	Option	Skip
301	Do you have any past experience of khat chew?	1. Yes 2. No	
302	Do you use any other substance? (previous or current)	1. Yes 2. No	
303	If "Yes" for Q302, what type of substance do you use/used? (multiple answers is possible)	1. Cigarette smoking 2. Shisha smoking 3. Alcohol 4. Others (specify)_____	

The following questions ask your intentions, attitudes, subjective norm, and perceived behavioral control of khat chewing in the next 6 months. Choose the number that best represents your choice according to your degree of agreement with the statement.

IV. Measuring intention

1	2	3	4	5	6	7
Extremely	**Quite**	**Slightly**	**Neither**	**Slightly**	**Quite**	**Extremely**

S. No.	Questions/statements	Options							
401	I expect to start khat chewing in the future	Extremely likely	1	2	3	4	5	6	7	Extremely unlikely
402	I want to start chew khat chewing in the future	Extremely likely	1	2	3	4	5	6	7	Extremely unlikely
403	I intend to start khat chewing in the future	Extremely likely	1	2	3	4	5	6	7	Extremely unlikely
404	I will start khat chewing in the future	Extremely likely	1	2	3	4	5	6	7	Extremely unlikely

V. A direct and indirect measure of attitude

A direct measure of attitude

S. No.	Questions/statements	Options
501	Chewing khat is	Harmful 1 2 3 4 5 6 7 Beneficial
		Bad 1 2 3 4 5 6 7 Good
		Unpleasant 1 2 3 4 5 6 7 Pleasant
		Worthless 1 2 3 4 5 6 7 Worthy

An indirect measure of Attitude: measuring behavioral belief and outcome evaluation

Questionnaire items to assess the strength of behavioral beliefs and outcome evaluation

S.no.	Question/statements	Options

511	If I chew khat, I will feel that I am doing something useful for physical health.	Extremely unlikely	1 2 3 4 5 6 7	Extremely likely
512	Doing something useful to health is	Extremely undesirable	-3 -2 -1 0 +1 +2 +3	Extremely desirable
513	If I chew khat, I will pray more than another time.	Extremely unlikely	1 2 3 4 5 6 7	Extremely likely
514	Praying more than other time is	Extremely undesirable	-3 -2 -1 0 +1 +2 +3	Extremely desirable
515	If I chew khat, I will relax and relieve anxiety/depression.	Extremely unlikely	1 2 3 4 5 6 7	Extremely likely
516	Relaxing and relieve from anxiety/depression is	Extremely undesirable	-3 -2 -1 0 +1 +2 +3	Extremely desirable
517	If I chew khat, I will expose to substance abuses	Extremely unlikely	1 2 3 4 5 6 7	Extremely likely
518	Exposing to substance abuse is	Extremely undesirable	-3 -2 -1 0 +1 +2 +3	Extremely desirable
519	If I chew khat, I will become mentally ill.	Extremely unlikely	1 2 3 4 5 6 7	Extremely likely
520	Becoming mentally ill is	Extremely undesirable	-3 -2 -1 0 +1 +2 +3	Extremely desirable
521	If I chew khat, I will have weight loss and teeth decay	Extremely unlikely	1 2 3 4 5 6 7	Extremely likely
522	Having weight loss and teeth decay is	Extremely undesirable	-3 -2 -1 0 +1 +2 +3	Extremely desirable

VI. A direct and indirect measure of subjective norm

A direct measure of subjective norm

S.no.	Question/statements	Options							
601	Most of the people who are important to me think that (……) to start khat chewing	I should	1	2	3	4	5	6	7	I should not
602	It is expected of me to start khat chewing	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
603	I feel under social pressure to start khat chewing	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
604	People who are very important to me want me to start khat chewing	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

An indirect measure of subjective norm: measuring normative belief and motivational to comply

Questionnaire items to assess the strength of Normative beliefs and motivation to comply

S.no.	Question/statements	Options							
611	My friends think I ……. chew khat	Should not	-3	-2	-1	0	+1	+2	+3	Should
612	What my friends think I should do matter to me	Not at all	1	2	3	4	5	6	7	Very much
613	My parents would ……. me to chew khat	Disprove	-3	-2	-1	0	+1	+2	+3	Approve
614	My parent's approval to chew khat is important to me	Not at all	1	2	3	4	5	6	7	Very much
615	Religious leaders would …..… me to chew khat	Disprove	-3	-2	-1	0	+1	+2	+3	Approve

616	Religious leaders' approval to chew khat is important to me	Not at all	1	2	3	4	5	6	7	Very much
617	My family think I ……. chew khat	Should not	-3	-2	-1	0	+1	+2	+3	Should
618	What my family think I should do matter to me	Not at all	1	2	3	4	5	6	7	Very much

VII. A direct and indirect measure of perceived behavioral control

A direct measure of perceived behavioral control

S.no.	Question/statements	Options							
701	I am confident that I could start khat chewing if I wanted to	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
702	For me to start khat chewing is	Easy	1	2	3	4	5	6	7	Difficult
703	The decision to start khat chewing is beyond my control	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
704	Whether I start khat chewing or not is entirely up to me	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

An indirect measure of Perceived Behavioral Control (PBC): measuring control belief and perceived power

Questionnaire items to assess the strength of control beliefs and perceived power

S.no.	Question/statements	Options							
711	I have the interest to chew khat	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely

712	Having interest makes it (…….) to chew khat.	More difficult	-3	-2	-1	0	+1	+2	+3	Easier
713	I may chew khat when I feel anxiety/depression	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
714	When I feel anxiety/depression, I am …….to chew khat	Less likely	-3	-2	-1	0	+1	+2	+3	More likely
715	I may not get khat easily to chew it	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
716	Not getting khat easily makes it ……to chew khat	Less likely	-3	-2	-1	0	+1	+2	+3	More likely
717	I will chew khat when I have a ceremony	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
718	When there is ceremony, I am …….to chew khat	Less likely	-3	-2	-1	0	+1	+2	+3	More likely
719	I am too young to chew khat	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
720	Being young makes it ……to chew khat.	More difficult	-3	-2	-1	0	+1	+2	+3	Easier
721	I am happy to start khat chewing	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
722	Being happy makes it …….to start khat chewing.	More difficult	-3	-2	-1	0	+1	+2	+3	Easier
723	I will be less productive if I start khat chewing.	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
724	When I start khat chewing, I am …….to become less productive	Less likely	-3	-2	-1	0	+1	+2	+3	More likely

725	I will be encouraged by religious leaders, If I start khat chewing	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
726	Being encouraged by religious leaders make it …… to start khat chewing	More difficult	-3	-2	-1	0	+1	+2	+3	Easier
727	I will develop a disease if I chew khat	Extremely unlikely	1	2	3	4	5	6	7	Extremely likely
728	Chewing khat is …….. to develop disease	Less likely	-3	-2	-1	0	+1	+2	+3	More likely

Thank you for your participation

Annex VI: Elicitation study interview guide

An indirect measure of attitude, subjective norm, and perceived behavioral control

In-depth interview guideline for qualitative (elicitation) study

I am conducting a study among youths in Raya Azebo district. I am interested in what factors determine the intention of khat chewing. I would appreciate your participation in the in-depth interview to respond to the question on intention of khat chewing. The interview will take 30-60 minutes. In this period, you respond to the question raised by the interviewer. You can stop the interview at any time you feel discomfort. All the information got from the interviewee was confidential and was used only for the current study purpose. So, you (participant) should fill free to talk and discuss any beliefs regarding the topic because there is no right or wrong answer. Therefore, please tell me what you really think and believe.

Thanks for your participation

Bach ground characteristics

Please start with telling us your

- ✓ Name
- ✓ Age
- ✓ Occupation
- ✓ Income
- ✓ Religion
- ✓ Ethnicity
- ✓ Educational status
- ✓ Marital status

I. Behavioral belief questions

1. What do you believe are the advantages of khat chewing?
2. What do you believe are the disadvantages of khat chewing?
3. Is anything else you can say about khat chewing?

II. Normative belief questions

1. Are there any individuals or groups who support khat chewing?
2. Are there any individuals or groups who do not support khat chewing?

3. Is there anything else you can say associated with khat chewing?

III. Control belief questions

1. What factors or circumstances enable you to chew khat?
2. What factors or circumstances make it difficult or impossible for you to chew khat?
3. Are any other issues that come to your mind when you think about chewing khat?

Thank you for participation

Annex VII: ሓበሬታን ፍቃድን መፅናዕቲ

ሓበሬታ መፅናዕቲ

እዚ ሓበሬታን ፍቃድን ዝተዘጋጀየ ምእንታን ተሳተፍቲ እቲ መፅናዕቲ ዕላሙኡ ብደንቢ ክርድእዎን በዓረሰ ፍቃዶም ክሳተፉን እዩ። እቲ መፅናዕቲ ኣብ ማሕበረ ሰብ ዝካየድ ኮይኑ ዕላሙኡ ድማ ድሌት ናይ ሰባት ኣብ ጫት ምቕሓም ንቀፃሊ እነታይ ይመስል ንምፍላጥ እዩ።

ርእሲ እቲ መፅናዓቲ፡ ድሌት ጫት ምቕሓም ወጣታት ራያ ዓዘቦ ደቡብ ትግራይ ኢትዮጵያ 2011 ዓ/ም

መፅናዓቲ መካየዲ

- ስም፡ ኣባዲ ሃይላይ
- ኣድራሻ፡ ኣዲስ ኣበባ ዩኒቨርስቲ ትቁር ኣንበሳ ሆስፒታል
- ቁፅሪ ስልኪ፡ +251919010908
- ኢመይል፡ abadih1901@gmail.com
- ስም ትካል፡ ኣዲስ ኣበባ ዩኒቨርስቲ ትቁር ኣንበሳ ሆስፒታል

መእተዊ፡ እዚ ሓበሬታን ፍቃድን ዝተዘጋጀየ እቲ ትሳተፍሉ መፅናዓቲ ንምግላፅ እዩ። ኣብዚ መፅናዓቲ ንምስታፍ ብክብሪ ተጋቢዝኩም ኣልም።ምሰታፍን ዘይምሰታፍን ናይ ባዕልካ ውሳነ እዩ። ናይ ምስታፍ ድልየት እንተዘይሃሊካ ንምንታይ ዝኣበካ ምክንያት ምቅራብ ኣየድሊየካን። ደሓር ኣብ ግዜ መፅናዕቲ ሓሳብካ እንተቀይርካ ምስታፍ ትክእል እካ።

እዚ ናይ ተሳተፍቲ ሓበሬታ ንምውሳንን ብዛዕባ እቲ መፅናዕቲ ንምሕባርን ይሕግዝ። ሓበሬታ እዚ መፅናዕቲ, እቲ መፅናዕቲ ንምንታይ ከም ዝካየድ፣ ተሳትፎኻ እንታይ ከም ዘጠቓልል፣ እንታይ ዓይነት ጥቕምን ጉድኣትን ከም ዘሎዎን ድሕሪ መፅናዕቲ እንታይ ከም ዝኸውን ን ምግላፅ እዩ። ዘይተረደኣካ እንተሃሊዩ ምሕታት ይካኣል እዩ። ቅድሚ ንምስታፍ ምውሳንካ ቤተ-ሰብ ኮነ ኣዕርክተኻ ምንጋር ትኽእል ኢኻ።

ሙሉእ ሓበሬታ እቲ መፅናዕቲ በፅሞና ክተዳምፅ፤ ክትርዳእን ግልፂ ዘይኮነ እንተሃሊዩ ድማ ቅድሚ ናብ ቃለ-መሕተት ምጅማርና ሕቶ ክትሓትን ብትሕትና ይላቦ። መፅናዕቲ ዘካይድ ሰብ ኣብ ናይ ሕብረተ-ሰብ ጥዕና ኣታሓላልዋ ክፍሊ ትምህርቲ ካልኣይ ድግሪ ጥዕና ምስጓም ተምሃራይ እዩ።

ዕላማ እቲ መፅናዕቲ፡ ዕላማ ናይዚ መፅናዕቲ ድሌት ጫት ምቕሓም ወጣታት ንምፍላጥ እዩ።እዚ መፅናዕቲ ስትራቴጂ ብሕንፃፅን ፕሮግራም ብምቕራፅን ኣብ ምፍታሕ ናይ ጥዕና ፀገማት ክሕግዝን ዓብይ ኣስተዋፅኦ ክህልዎን ተስፋ ይገብር። ጫት ምቕሓም ኣብ ጥዕና ኣሉታዊ ተፅዕኖ ኣሎዎ። ጫት ድምፅን ጭስን ኣልቦ ቀታሊ ሰብ እዩ። እቲ መፅናዒ ኣካል ጫት ብምቕሓም ዝኽውን ዘሎ ነገር ምቕናስ ይደልን ንስኻ ድማ እቲ ስለ ጫት ምቕሓም እትፎልጦን እትሓሰቦን ነገር ብግልፂ ክትዛረብ ዓብይ እምነት ኣለዎ። መፅናዕቲ ዘካይድ ኣካል ሰባት ስለ ጫት ምቕሓም ዘለዎም ዝተፈላለየ ኣረኣእያ ምፍላጥ ይደሊ።

ኣካይዳ እቲ መፅናዓቲ፡ ተሳታፊ እቲ መፅናዓቲ ፍቓደኛ እንተኮይኑ ናይ ቃል ፍቃድ ይህብ፡፡ ድሕሪ ናይ ቃል ፍቃድ ምሃቡ ተሳታፊ ኣብ ዝምቹዎን ደስ ዝብሎን ቦታ ቃለ-መሕተት ይግበረሉ፡፡ ተሳታፊ ሕቶ ደስ እንተዘይኢልዎ ናብ ቀፃሊ ሕቶ ሽገር ምባል ይካኣል እዩ፡፡ ምስ ተሳታፊ ብዘይካ ጠያቒ ካሊእ ኣካል ክኸውን የብሉን፡፡ ጠያቒ ንተሳታፊ ሕቶ የንብበሉ ተሳታፊ ድማ ሰሚዑ ይምልስ፡፡

መፅናዕቲ ዝወሰዶ ግዜ፡ እዚ መፅናዕቲ ካብ ሓምለ 2010 ክሳብ ሰነ 2011 ዓ/ም ን 11 ወርሒ ዝካየድ እዩ፡፡ ጥረ-ሓበሬታ ንምእካብ ድማ ካብ ጥሪ ክሳብ መጋቢት ዘሎ ግዜ እዩ፡፡

ጥቅሚ መፅናዕቲ፡ ኣብዚ መፅናዕቲ ብምስታፍካ እዚ ጥቅሚ ክትረክብ ኢኻ ኢልና ቃል ኣይንኣቱን እና፡፡ እዚ እዩ ዝባሃል ቀጥታዊ ጥቅሚ የብሉን፡፡ ነገር ግን ድሕሪ መፅናዓቲን ንቐፃሊ ወላዶን ብተዘዋዋሪ ክጠቕም እዩ ዓብይ ተስፋ ኣለና፡፡

ጉድኣት መፅናዕቲ፡ ኣብዚ መፅናዓቲ ብምስታፍ ዝመፅእ ጉድኣት የለን፡፡ ይኹን ዳኣምበር ወርቃዊ ናይ ስራሕ ኮነ ዕረፍቲ ክስውኡ እዮም፡፡

ታኣማንነት/ምስጥር ምሕላው፡ እቲ ካብ ተሳተፍቲ ዝእከብ ጥረ-መረዳእታ ብምስጥር ክትሓዝ እዩ፡፡ መፅናዕቲ ዘካይድን ካሊእ ሕጋዊ ኣካልን ጥራሕ እዮም ክሪእዎ ዝኽእሉ፡፡ ናይ ተሳተፍቲ ስም ኮነ ካልኦት ተቐምቲ ኣብ መረዳእታ መእከቢ ወረቐት ኣይፃሓፍን፡፡ ስለዚ እቲ መረዳእታ ናይ መን ምኻኑ ኣይፍለጥን፡፡ ዝተኣከበ መረዳእታ ኣብ ናይ ዋና መፅናዓቲ መካየዲ ተሳሓቢ ክቅሎፍ እዩ፡፡ ኣብ ውሽጢ ኮምፒተር ዝተቐመጠ መረዳእታ ድማ ብመሕለፊ ቃል ይዕዖ፡፡ ፍቃደኛ ጥራሕ እንተኾይኖም ካሊእ ግዜ ንካሊእ ሰብ ክዋሃብ ይክእል እየ፡፡

ናይ ምስታፍ መሰል፡ ሕድሕድ ተሳታፊ ዕላማን መስርሒን እቲ መፅናዕቲ ብደንቢ ናይ ምርዳእ መሰል ኣለዎም፡፡ ሕድሕድ ተሳታፊ ኣብቲ መፅናዕቲ ዝሳተፍ ብዓርሰ ፍቓዱ ጥራሕ እዩ፡፡

ናይ ምእባይ/ምቁራፅ መሰል፡ ተሳተፍቲ እቲ መፅናዕቲ እንድሕር ዘይተመጪዎም ዘይምስታፍን መቁራፅን ይኹእሉ እዮም፡፡ ሕድሕድ ተሳታፊ ንምእባይ ኮነ ምቁራፅ መሰሉ ዝተሓለወ እዩ፡፡ ማንም ሰብ ኣገዲዱ ከሳትፍ ኣይክእልን ምክንያቱ ብናይ ተሳታፊ ፍቃደኛነት ጥራሕ እዩ ዝውሰን፡፡

መተባብዒ/ክፍሊት፡ ንተሳተፍቲ ዝኮነ ዓይነት ዝዋሃብ ክፍሊት ኮነ መተባብዒ የለን፡፡ እታ ክትቀርብ ትክእል መተባብዒ “የቐንየለይ” ጥራሕ እያ፡፡

ቃላዊ ፍቓድ

ከቡር ተሳታፊ፡

ድሌት፣ ኣመላካክታ፣ ማሕበራዊ ሕግን ባህርያዊ ቀፅፅርን ጫት ምቕሓም ምፍላጥን ምርዳእን ኣብ ምርግጋፅ ጥዕና ማሕበረ-ሰብ ዓብይ ታራ ኣለዎ፡፡ ዕላማ እቲ መፅናዕቲ ድሌት ጫት ምቕሓም ምልካዕ እዩ፡፡ ስለዚ ፀጥ ዝበለን ምጩው ዝኮነ ቦታ ምረፅ ካብኡ ኣነ እውን ቃለ-መሕተት ክቐፅል እየ፡፡ ቅድሚ ቃለ-መሕተት ምጅማርና ዕላማ፣ ኣካይዳ፣ ጥቕሚ፣ ጉድኣቱ፣ ታኣማንነትን ካልኦት ኩነታትን እቲ መፅናዕቲ ከንበልካ/ኪ እየ፡፡ ስለዚ ናይ ምቕፃልን ዘይምቕፃልን ውሳነኻ ብዕሊ ተፍልጠኒ፡፡

ዕላማ እቲ መፅናዕቲ ድሌት ጫት ምቕሓም መንኣሰይ ምልካዕ፣ ድሕሪ እቲ መፅናዕቲ ድማ ትክክለኛ ሓሳብ ምሃብን ጫት ብምቕማሕ ዝመጠፅእ ናይ ጥዕና ፀገማት ስትራተጂ ብምንዳፍን ምቅናስ እዩ። እቲ ቃለ-መሕተት ዝተፈላለዩ ሕቶታት ዝሓዘ እዩ። ሕቶታት ከሓተካ እየ። መልስኻ/ኺ ድማ ምስጥርን ማንም ሰብ ድማ ኣይክፍለጥን እዩ። ስምካ/ኺ ኮነ ካልኦት ጠቐምቲ ኣብዚ ወረቐት ኣይሰፍሩን እዮም።

ዝተሓተትካዮ/ክዮ ሕቶ ናይ ምምላስ ኮነ ኣብ ማእኸል ቃለ-መሕተት ናይ ምቁራፅ መሰል ኣለካ/ኪ። ይኹን ዳእበር ናትካ/ኪ ታኣማኒ መልሲታት ንድሌት መንኣሰይ ኣብ ጫት ምቕማሕ ብጣዕሚ ጠቐምትን ንዝበለፀ ምርዳእን ትርጉም ምሃብን ይሕግዝ።

ንዘረኣካዮ/ክዮ ፍቀደኝነትን መልሲ ብምሃብ ብምሕጋዝካ/ክን ካብ ልበይ ከድንቐካ/ክን ከምስግነካ/ክን ይደሊ። እቲ ቃለ-መሕተት ከባቢ ሓደ ሰዓት ይወስድ።

ምስዚ ቃለ-መሕተት ክትቅፅል ትደሊ ድኻ/ኺ?

እወ---------- ኣይኮነን----------

ዕለት----------/----------/----------

የቐንየለይ

ቃላዊ ፍቓድ ካብ 15-17 ዓመት ንዝኮኑ መንእሰይ፣

መንእሰይ ነዝተፈላለዩ ናይ እፃዊ ወልፊን ካልኦት ናይ ጥዕና ፀገማት ዘምፅኡ ዝተቃልዐ እዩ። ዕድመ ንእስነት መብዛሓትኡ ናይ ቀፃሊ ባህርያትና ዝቅረፀሉ ግዜ እዩ። ስለዚ መንኣሰይ ስለ ጥዕኖኣም ክፈልጡን ክርድኣምን ኣለዎ። ዕላማ እቲ መፅናዕቲ ድሌት ጫት ምቕሓም ምልካዕ እዩ። ስለዚ ወዶም/ኣሎምን ኣነን ሕፅር ዝበለ ግዜ ቃለ-መሕተት ከም ዝህልወና ከፍልጦም ይደሊ። ቅድሚ ቃለ-መሕተት ምጅማርና ዕላማ፣ ኣካይዳ፣ ጥቐሚ፣ ጉድኣቱ፣ ታኣማንነትን ካልኦት ኩነታትን እቲ መፅናዕቲ ከንብቦ እየ። ስለዚ ናይ ምቕፃልን ዘይምቕፃልን ውሳነኻ ብዕሊ ተፍልጡኒ።

ዕላማ እቲ መፅናዕቲ ድሌት ጫት ምቕሓም መንኣሰይ ምልካዕ፣ ድሕሪ እቲ መፅናዕቲ ድማ ትክክለኛ ሓሳብ ምሃብን ጫት ብምቕማሕ ዝመጠፅእ ናይ ጥዕና ፀገማት ስትራተጂ ብምንዳፍን ምቅናስ እዩ። እቲ ቃለ-መሕተት ዝተፈላለዩ ሕቶታት ዝሓዘ እዩ። ሕቶታት ከሓተካ እየ። መልስኻ/ኺ ድማ ምስጥርን ማንም ሰብ ድማ ኣይክፍለጥን እዩ። ስምካ/ኺ ኮነ ካልኦት ጠቐምቲ ኣብዚ ወረቐት ኣይሰፍሩን እዮም።

ወዶም/ኣሎም ዝተሓተቶ/ዝተሓተተቶ ሕቶ ናይ ምምላስ ኮነ ኣብ ማእኸል ቃለ-መሕተት ናይ ምቁራፅ መሰል ኣለዎ/ዋ። ይኹን ዳእበር ናቱ/ታ ታኣማኒ መልሲታት ንድሌት መንኣሰይ ኣብ ጫት ምቕማሕ ብጣዕሚ ጠቐምትን ንዝበለፀ ምርዳእን ትርጉም ምሃብን ይሕግዝ።

ንዘረኣካዮ/ክዮ ፍቀደኝነትን መልሲ ብምሃብ ብምሕጋዝካ/ክን ካብ ልበይ ከድንቐካ/ክን ከምስግነካ/ክን ይደሊ። እቲ ቃለ-መሕተት ከባቢ ሓደ ሰዓት ይወስድ።

ምስዚ ቃለ-መሕተት ክትቅፅል ትደሊ ድኻ/ኺ?

እወ---------- ኣይኮነን----------

ዕለት----------/----------/----------

የቕንየለይ

Annex VIII: ቃለ-መሕተት (Tigrigna version)

መፅናዕቲ ዝካየደሉ ቦታ----------ኮድ ቃለ-መሕተት----------ዕለት--------/-------/--------

ሐዚ ዝጥይቀካ/ኪ ኣብዚ ናይ መንኣሰይ መፅናዕቲ ንክትሳተፍን ኣብ ጫት ዘለካ ኣርኣያ ብምንጋር ክትሕግዘን እዩ። መልስኻ/ኺ ምስጥራውን ምንም ዓይነት ስም ኮነ ጠቋሚ የብሉን። ዝሃብካዮ መልሲ ኣብ ሂወትካ/ኪ ዘምፀኦ ፀገም የለን። እሙን መልስኻ/ኺ ናትካ/ኪ ተመኪሮ ክንማሃረሉ ይሕግዘና። ስለዚ ኩሉ ሕቶ ብሓቂ ክትምለሰልና/ስልና ብትሕትና ይላቦ።

ስም ሓበሬታ ኣካቢ---------- ፊርማ----------

ክፍሊ ሓደ፡ ማህበራዊ ባህርያት

ታ. ቁ	ሕቶታት	መማረፅታት	ሕለፍ
101	ዕድመኻ/ኺ ክንደይ እዩ (ብሙሉእ ቁፅሪ)	----------	
102	ፆታ	1. ተባዕታይ 2. ኣንስተይቲ	
103	ናይ ሓዳር ኩነታት	1. ዘይተመረዐወ/ት 2. ባዓል/ቲ ሓዳር 3. ዝተፋትሐ/ት 4. ዝመተዎ/ዝሞታ	
104	ሃይማነትካ/ኪ እንታይ እዩ?	1. ኦርቶዶክስ ተዋህዶ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ካልኦት (ይጠቐስ)……	
105	ደረጃ ትምህርትካ/ኪ እንታይ እዩ?	1. ምንባብን ምፅሓፍን ዘይኽእል 2. ምንባብን ምፅሓፍን ዝኽእሉ ግና ስሩዕ ትምህርቲ ዘይተኻታተለ 3. ስሩዕ ትምህርቲ ዝተኻታተለ 3.1. ክፍሊ (ይጠቐስ)……. 3.2. ዲፕሎማ 3.3. ድግሪ	
106	ስራሓኻ/ኺ እንታይ እዩ?	1. ሓረስታይ 2. ናይ ሓዳር ኣጋር 3. ብውልቀ ዝተቐፀረ 4. ተምሃራይ/ሪት 5. መዓልታዊ ሰራሕተኛ 6. ናይ መንግስቲ ቁፃር 7. ካሊእ (ይጠቐስ)----------	
107	ወርሓዊ እቶትካ/ኪ ክንደይ እዩ (ብብር)?		
108	ናይ እቶትካ/ኪ ዋና መሰረት/ፍልፍል እንታይ እዩ?		
109	ብሄርካ እንታይ እዩ?	1. ትግራዋይ 2. ኣምሓራይ 3. ኦሮሞ	

		4. ካሊእ (ይጠቐስ)----------	

ክፍሊ ክልተ፡ ናይ ጫት ፍልጠት

ታ. ቁ	ሕቶ	መማረፂ	ሕለፍ
201	ብዛዕባ ጫት ሰሚዕኻ/ኺ ትፈልጥ ዶ?	1. እወ 2. ኣይኮነን	መልሲ ኣይኮነን እንተኾይኑ ናብ ሕቶ ቁፅሪ 205 ሕለፍ/ፊ
202	መልሲ ሕቶ ቁ. 201 "እወ" እንተኾይኑ እቲ ሓበሬታ ካብ መን ረኪብካዮ/ኪዮ? (ቡዙሕ መልሲ ይካኣል እዩ)	1. መምህር 2. ባዓል ሞያ ጥዕና 3. ተሌቪዥን 4. ሬድዮ 5. መራሕቲ ሃይማኖት 6. ኣማሓደርቲ 7. ኣዕርኽትኻ/ኺ 8. ማህበራዊ ሚድያ	
203	እንታይ ዓይነት መልእኽቲ ኢኻ/ኺ ሰሚዕኻ/ኺ? (ቡዙሕ መልሲ ይካኣል እዩ)	1. ጫት ንጥዕና ጠቓሚ እዩ። 2. ጫት ንጥዕና ጎዳኢ እዩ። 3. ጫት ማሕበራዊ ርክብ ይውስክ። 4. ጫት ናይ እቶት መሰረት እዩ።	
204	እቲ ዝተመሓላለፈ መልእኽቲ ጠቓሚ ድዩ?	1. እወ 2. ኣይኮነን	
205	ጫት ምቐሓም ወልፊን ሕማምን ከምፅእ ይክእል ዶ?	1. እወ 2. ኣይኮነን	
206	መልሲ ቁፅሪ 205 "እወ" እንተኾይኑ እቶም ሕማማት እንመን እዮም? (ቡዙሕ መልሲ ይካኣል እዩ)	1. ኣካላዊ 2. ኣእምራዊ	

ክፍሊ ሰለስተ፡ ሕሉፍ ተመክሮ እዚ

ታ. ቁ	ሕቶ	መማረፂ	ሕለፍ
301	ቅድሚ ሐዚ ጫት ትቐሕም ነይርካ/ኪ ዲኻ/ኺ?	1. እወ 2. ኣይኮነን	
302	ካሊእ ዓይነት ኽ ትጥቀም/ሚ ዶ? (ኣብ ዝሓለፈ ይኹን ሐዚ)	1. እወ 2. ኣይኮነን	
303	መልሲ ሕቶ ቁ. 302 "እወ" እንተኾይኑ እንታይ ዓይነት እዩ? (ቡዙሕ መልሲ ይካኣል እዩ)	1. ሽጋራ 2. ሺሻ 3. ኣልኮላዊ መስተ 4. ካሊእ (ይጠቐስ)----------	

እዞም ዝስዕቡ ሕቶታት ብዛዕባ ድሌት፣ ኣመላኻኽታ፣ ማሕበራዊ ሕግን ባህርያዊ ቁፅፅርን ጫት ምቕማሕ ኣብ መፃኢ 6 ወርሒ ይሓቱ። ዝበለፀ መልሲ ይመልሱ።

ክፍሊ ኣርባዕተ፡ ድሌት መለክዒ

1	2	3	4	5	6	7
ብጣዕሚ ልውል	ብጣዕሚ	ንእሽተይ	ማእኸላይ	ንእሽተይ	ብጣዕሚ	ብጣዕሚ ልውል

ፀጋማይ ጎኒ ይውክል

የማናይ ጎኒ ይውክል

ታ. ቁ.	ሕቶታት/ሙሉእ ሓሳባት	መማረፅታት							
401	ጫት ምቕሓም ክጅምር እየ ኢለ ይፅበ	ብጣዓሚ ክኸውን ይኽእል	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ኣይኽእልን
402	ጫት ምቕሓም ክጅምር ክደሊ እየ	ብጣዓሚ ክኸውን ይኽእል	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ኣይኽእልን
403	ጫት ምቕሓም ክጅምር ይደሊ እየ	ብጣዓሚ ክኸውን ይኽእል	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ኣይኽእልን
404	ጫት ምቕሓም ክጅምር እየ	ብጣዓሚ ክኸውን ይኽእል	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ኣይኽእልን

ክፍሊ ሓሙሽተ፡ ቀጥታውን ኢ-ቀጥታውን መለክዒ ኣመላካክታ

ቀጥታዊ መለክዒ ኣመላካክታ

ታ. ቁ.	ሕቶታት/ሙሉእ ሓሳባት	መማረፅታት							
501	ጫት ምቕሓም (……) እዩ።	ጎዳኢ	1	2	3	4	5	6	7	ጠቕሚ
		ሕማቕ	1	2	3	4	5	6	7	ፅቡቕ
		ደስ ዘይብል	1	2	3	4	5	6	7	ደስ ብሃሊ
		ዋጋ ዘይብሉ	1	2	3	4	5	6	7	ዋጋ ኣለዎ

ኢ-ቀጣታዊ መለክዒ ኣመላካክታ (ባህርያዊ እምነትን ገምጋም ውፅኢት ባህሪን)

ታ.ቁ.	ሕቶታት/ሙሉእ ሓሳባት	መማረፂታት							
511	እንድሕር ጫት ምቕማሕ እንተጀሚረ ንኣካላዊ ጥዕናይ ሓደ ፅቡቕ ነገር ከም ዝገበርኩ ክስመዐኒ እዩ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
512	ንኣካላዊ ጥዕና ሓደ ፅቡቕ ነገር ምስራሕ…….. እዩ	ብጣዓሚ ኣየድልይን	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ኣድላይ
513	እንድሕር ጫት ምቕማሕ እንተጀሚረ ካብ ካሊእ ግዚ ዝበለፀ ክፅሊ እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
514	ካብ ካሊእ ግዚ ዝበለፀ ምፅላይ …… እዩ	ብጣዓሚ ኣየድልይን	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ኣድላይ
515	እንድሕር ጫት ምቕማሕ እንተጀሚረ ዘና ክብልን ካብ ጭንቅን ድብርት ነፃ ክኸውን እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
516	ዘና ምባል፤ ካብ ጭንቅን ድብርትን ነፃ ምኻን …….. እዩ	ብጣዓሚ ኣየድልይን	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ኣድላይ
517	እንድሕር ጫት ምቕማሕ እንተጀሚረ ነወልፍታት ክቃለዕ እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
518	ንወልፍታት ምቅላዕ …….. እዩ	ብጣዓሚ ኣየድልይን	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ኣድላይ
519	እንድሕር ጫት ቐሚሐ ናይ ስነ-ኣእምሮ ፀገም ክህልወኒ ይኽእል እዩ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
520	ናይ ስነ-ኣእምሮ ፀገም ምህላው …… እዩ	ብጣዓሚ ኣየድልይን	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ኣድላይ
521	እንድሕር ጫት ቀሚሐ ክብደት ክቕንስን ኣስናነይ ክምይፅ/ክብስብስ ይኽእል እዩ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
522	ክብደት ምቕናስን ስኒ ምብስባስ …… እዩ	ብጣዓሚ ኣየድልይን	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ኣድላይ

ክፍሊ ሽዱሽተ፡ ቀጥታውን ኢ-ቀጥታውን መለከዒ ማሕበራዊ ሕጊ

ቀጥታዊ መለከዒ ማሕበራዊ ሕጊ

ታ. ቁ.	ሕቶታት/ሙሉእ ሓሳባት	መማረፅታት							
601	ንዓይ መብዛሕቲኦም ወሰንቲ ዝኾኑ ሰባት ጫት ክትቕሕም (……) ይብሉኒ፡፡	ይግባእ	1	2	3	4	5	6	7	ኣይግባእን
602	ጫት ምቕሓም ካባይ ዝፅበ ነገር እዩ፡፡	ብፍፁም ኣይሰማዕማፅን	1	2	3	4	5	6	7	ብጣዓሚ ይስማዕመፅ

603	ጫት ምቕሓም ንክጅምር ናይ ከባቢ ተፅዕኖ ዘሎ ይመስለኒ፡፡	ብፍፁም ኣይስማዕማዕን	1	2	3	4	5	6	7	ብጣዓሚ ይስማዕመዕ
604	ንዓይ ወሰንቲ/ጠቕምቲ ዝኾኑ ሰባት ጫት ምቕሓም ንክጅምር ይደልዩ፡፡	ብፍፁም ኣይስማዕማዕን	1	2	3	4	5	6	7	ብጣዓሚ ይስማዕመዕ

ኢ-ቀጥታዊ መለክዒ ማሕበራዊ ሕጊ (ናይ እምነት ሕግን ምፍፃም ተበግሶን)

ታ.ቁ.	**ሕቶታት/ሙሉእ ሓሳባት**	**መማረፂታት**							
611	ኣዕርክተይ ኣነ ጫት ..... ኢሎም ይሓስቡ	ክቕምሕ የብሉን/ክትቕምሕ የብላን	-3	-2	-1	0	+1	+2	+3	ክቕምሕ ኣለዎ/ክትቕምሕ ኣለዋ
612	ኣዕርክተይ ብዛዕባ ኣነ ዝሓስብዎ ንዓይ ቦታ.....	በፍፁም የብሉን	1	2	3	4	5	6	7	ብጣዓሚ ኣለዎ
613	ወለደይ ኣነ ጫት ..... ይብሉ	ክቕምሕ የብሉን/ክትቕምሕ የብላን	-3	-2	-1	0	+1	+2	+3	ክቕምሕ ኣለዎ/ክትቕምሕ ኣለዋ
614	ወለደይ ብዛዕባ ጫት ምቕማሕ ዝህቡኒ መረጋገፂ ንዓይ ጥቕሚ.....	በፍፁም የብሉን	1	2	3	4	5	6	7	ብጣዓሚ ኣለዎ
615	መራሕቲ ሃይማኖት ኣነ ጫት ..... ይብሉ	ክቕምሕ የብሉን/ክትቕምሕ የብላን	-3	-2	-1	0	+1	+2	+3	ክቕምሕ ኣለዎ/ክትቕምሕ ኣለዋ
616	መራሕቲ ሃይማኖት ብዛዕባ ጫት ምቕማሕ ዝህቡኒ መረጋገፂ ንዓይ ጥቕሚ	በፍፁም የብሉን	1	2	3	4	5	6	7	ብጣዓሚ ኣለዎ
617	ቤተሰበይ ኣነ ጫት ..... ይሓስቡ	ክቕምሕ የብሉን/ክትቕምሕ የብላን	-3	-2	-1	0	+1	+2	+3	ክቕምሕ ኣለዎ/ክትቕምሕ ኣለዋ
618	ቤተሰበይ ብዛዕባ ኣነ ዝሓስብዎ ንዓይ ቦታ....	በፍፁም የብሉን	1	2	3	4	5	6	7	ብጣዓሚ ኣለዎ

ክፍሊ ሸዋዓተ፡ ቀጥታውን ኢ-ቀጥታውን መለክዒ ባህርያዊ ቁፅፅር

ታ. ቁ.	**ሕቶታት/ሙሉእ ሓሳባት**	**መማረፅታት**							
701	ጫት ምቕሓም ክጅምር እንተደልየ ብርግፅ ክጅምር ይኽእል እየ፡፡	ብፍፁም ኣይስማዕማዕን	1	2	3	4	5	6	7	ብጣዓሚ ይስማዕመዕ
702	ጫት ምቕሓም ንምጅምር ንዓይ (.....) እዩ፡፡	ቀሊል	1	2	3	4	5	6	7	ከቢድ

703	ጫት ምቕሓም ናይ ምጅምር ውሳነ ካብ ዓቕመይ ንላዕሊ እዩ፡፡	ብፍፁም ኣይሰማዕማዕን	1	2	3	4	5	6	7	ብጣዓሚ ይስማዕመዕ
704	ጫት ምቕሓም ጀመርኩ ኣይጀመርኩ ኩሉ ንባዕለይ እዩ፡፡	ብፍፁም ኣይሰማዕማዕን	1	2	3	4	5	6	7	ብጣዓሚ ይስማዕመዕ

ኢ-ቀጥታዊ መለክዒ ባህርያዊ ቁፅፅር (ቁፅፅር እምነትን ሓይሊ እምነትን)

ታ.ቁ.	**ሕቶታት/ሙሉእ ሓሳባት**	**መማረፂታት**							
711	ጫት ንምቕማሕ ድሌት/ስምዒት ኣለኒ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
712	ድሊት ምህላው ጫት ንምቕማሕ ..... ይገብሮ	ብጣዓሚ ከቢድ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ቐሊል
713	ጭንቅን ድብርትን ክስመዐኒ ከሎ ጫት ክቕምሕ ይኽእል እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
714	ጭንቅን ድብርትን ክስመዐኒ እንኮሎ ኣነ ጫት ናይ ምቕማሕ ዕድል..... እዩ	ብጣዓሚ ዝተሓተ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ዝለዓለ
715	ጫት ክቕምሕ ዝደለኹሉ እዋን ጫት ዘይክረክብ ይኽል እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
716	ጫት ዘይምርካብ ንምቕማሕ ..... ይገብሮ እዩ	ብጣዓሚ ከቢድ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ቐሊል
717	ዝኾነ ድግስ ክህሊ እንኮሎ ጫት ክቕምሕ እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
718	ድግስ ክህሉ እንከሎ ጫት ናይ ምቕማሕ ዕድል ..... ይገብሮ እዩ	ብጣዓሚ ዝተሓተ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ዝለዓለ
719	ጫት ንምቕማሕ ዕድመይ ገና እዩ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
720	ንእሽተይ ዕድመ ምኻን ጫት ንምቕማሕ ..... ይገብሮ እዩ	ብጣዓሚ ከቢድ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ቐሊል
721	ጫት ምቕማሕ ንክጅምር ሕጉስ እየ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
722	ሕጉስ ምኻን ጫት ንምቕማሕ ..... ይገብሮ እዩ	ብጣዓሚ ከቢድ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ቐሊል
723	ጫት ምቕማሕ እንተጀሚረ ኣብ ስረሐይ ዕዉት ኣይኮነን	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል

724	ጫት ምቕማሕ ምስ ጀመርኩ ኣነ ስረሐይ ዕዉት ናይ ዘይምኻን ዕድል ……. እዩ	ብጣዓሚ ዝተሓተ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ዝለዓለ
725	ጫት ምቕማሕ እንተጀሚረ መራሕቲ ሃይማኖት ከበራታትዑኒ እዮም	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
726	ብመራሕቲ ሃይማኖት ምብርትታዕ ጫት ንምቕማሕ ……...ይገብሮ	ብጣዓሚ ከቢድ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ቐሊል
727	ጫት እንተቕሚሐ ናይ ጥዕና ፀገም ከም ፀለለይ እዩ	ብጣዓሚ ክኸውን ኣይኽእልን	1	2	3	4	5	6	7	ብጣዓሚ ክኸውን ይኽእል
728	ጫት ምቕማሕ ናይ ጥዕና ፀገም ምህላው ዕድል ……. ይገብሮ	ብጣዓሚ ዝተሓተ	-3	-2	-1	0	+1	+2	+3	ብጣዓሚ ዝለዓለ

Annex IX: Curriculum vitae of principal investigator

❖ Personal information

Full name	Abadi Hailay Atsbaha
Date of birth	January 24, 1991 G.C.
Age	27
Sex	Male
Place of birth	Hawzen, Eastern Tigray, Northern Ethiopia
Marital status	Single
Nationality	Ethiopian
Address	abadih1901@gmail.com
Phone No	+251919010908

❖ Educational Background

Educational level	Institution attended	Year
Elementary (1-8)	Koraro, Hawzen, East Tigray	2001-2006
High school (9-10)	Masho, Hawzen, East Tigray	2007-2008
Preparatory (11-12)	Masho, Hawzen, East Tigray	2009-2010
Higher Education	Aksum University, Central Tigray, Ethiopia	2010-2014

❖ Qualifications

1. **Attending master/postgraduate education in Health Promotion specialty track**

At School of Public Health, College of Health Sciences, Addis Ababa University (since September 2017)

2. **BSc. in Public Health (2010-2014)**

College of Health Science, Aksum University, Ethiopia

Undergraduate thesis: Assessment of Predisposing Factors of HIV Acquisition Among Shire Campus University Students, Northern west Tigray, Ethiopia.

3. Academic and performance awards

I have graduated with very great distinction. I have awarded by achieving different activities of health institutions in my profession.

❖ Employment history

- I have served as a junior health professional (health officer) and outpatient department case team leader in Kukufto Health center, Raya Azebo, Southern Tigray, Ethiopia from October 2015 to September 2016.
- I was serving as an Assistant lecturer in the Department of Public Health, College of Health Sciences and Medicine, Adigrat University, Northern Ethiopia.

❖ Research interest: prevention and control of substance abuses

I am preparing a thesis proposal on: "Intention for khat chewing among youths in Raya Azebo, Southern Tigray, Ethiopia, 2019". Theory of Planned Behavior (TBP) perspective

❖ Skills

- Proficient ability to conduct both quantitative and qualitative types of research
- Creative, innovative, highly self-motivated and strong solving health problems
- Skill of statistical and other qualitative analysis software (SPSS, Epi-info, Epidata, Stata and Open code)
- Good computer skill like MS word, excel, MS Powerpoint
- Expertise in designing and preparing an attractive presentation and other demonstrations
- Good communication skill both verbally and written.

❖ Professional training

- Comprehensive prevention and treatment of Tuberculosis, HIV, and leprosy
- Multi-drug resistance Tuberculosis (MDR- TB)
- Sexually Transmitted Infection (STI) prevention and treatment

❖ Hobbies

- Highly motivated in data collection and reading researches

- To master my profession in order to have good performance in many contexts
- To serve the community very well
- To conduct researches

❖ **Language**

I am excellent in speaking, writing, reading and listening in Tigrigna, Amharic, and English.

References

1. **Dr. Adugnaw Berhane (Ph.D., Assistant professor)**

☞ Research thesis principal advisor
☞ Department of preventive medicine, School of Public Health
☞ College of Health Science, Addis Ababa University, Addis Ababa, Ethiopia
☞ Tel: +251911391111, E-mail: adugnawbm@gmail.com

2. **Dr. Eshetu Girma (Ph.D., Associate Professor)**

☞ Department of preventive medicine, School of Public Health
☞ College of Health Science, Addis Ababa University, Addis Ababa, Ethiopia
☞ Tel: +251910818859, E-mail: yaneteshetu@gmail.com

3. **Dr. Mirigissa Kaba (Ph.D., Associate Professor)**

☞ Department of preventive medicine, School of Public Health
☞ College of Health Science, Addis Ababa University, Addis Ababa, Ethiopia
☞ Tel: +251911213631, E-mail: mirgissk@yahoo.com

4. **Dr. Mitikie Molla (Ph.D., Associate Professor)**

☞ Department of preventive medicine, School of Public Health
☞ College of Health Science, Addis Ababa University, Addis Ababa, Ethiopia
☞ Tel: +251911131805, E-mail: mitikemolla@gmail.com

Annex X: Curriculum vitae of primary Advisor

1. PERSONAL DATA

LAST NAME:

Surname: **MEKONNEN** Given Name: **ADUGNAW BERHANE**

Physical Street Address for courier delivery: Kara Kore, the way to Jimma main road, Addis Ababa

Telephone Mobile: +251911391111`

Email 1: adugnawmph@yahoo.com Email 2: adugnawbm@gmail.com

Marital Status: Married

Gender: Male

Country of Origin: Ethiopia

Present Nationality: Ethiopian

Languages and Fluency Level: Amharic, English

---

1. EDUCATION:

- **Doctor of Philosophy (Ph.D.) in Public Health:** Addis Ababa University, Addis Ababa, Ethiopia, 2012-2016. Awarded 09 July 2016, from Addis Ababa University.
- **Master of Public Health (MPH)(concentration-Health Education & Behavioral Sciences):** Jimma University, Jimma, Ethiopia, 2006- 2008. Awarded 14 June 2008, from Jimma University.
- **Bachelor's Degree in Public Health(BSc)**, Dilla University, Dilla, Ethiopia, 1999-2003. Awarded 17 July 2003, from Dilla University.

---

2. WORK HISTORY:

- **May 2018 to date: Ph.D. Program Co-coordinator & Assistant professor in Public Health: Addis Ababa University, Addis Ababa, Ethiopia**
- **October 2008 to September 2011** - Dean in the College of Health Sciences, Debre Berhan University, Ethiopia.
- **October 2003 to September 30, 2006**: Head of Chacha Health Center and Coordinator of HIV/AIDS Prevention and Control Office in Angolela District, Amhara Region, Ethiopia.

3. PUBLICATIONS:

- Authored and co-authored about 33 published papers in peer-reviewed journals

4. OTHERS:

- Board Secretary and Founding Member of Public Health Officers Association of Ethiopia
- Chair of the Scientific-Technical Committee of the 2015 Annual Conference of Public Health Officers Associations of Ethiopia.

Annex XI: Declaration

Letter of declaration

I, undersigned MPH student hereby declared that this is entirely my original work and I am the sole author of this thesis titled "Intention to khat chewing among youths of Raya-Azebo district, Southern Tigray, Ethiopia". To the best of my knowledge, this thesis contains no material previously published by any other person except where due acknowledgment has been made. All other's ideas and words used to support my thesis development have been properly cited according to good scientific practice. This thesis has been accepted as partial fulfillment of the requirement for the degree of master in Health Education and Health Promotion, which has never been presented and submitted in a whole or in part, in this or any other University for the award of degree, diploma or other qualification certificates.

I have attempted to identify all the risks related to this research that may arise in conducting it, obtained relevant ethical/safety approval, and acknowledged my obligations and the rights of participants. This thesis has been submitted in printed and electronic form. I hereby confirm that the content of both the printed version and electronic version are the same. I understand that the provision of incorrect information may have legal consequences.

Name : Abadi Hailay Atsbaha (BSc.)

Date of submission: October 2, 2019 **Signature: _____**

Approval of the Primary Advisor

This thesis work has been submitted for examination with the approval of my University primary advisor

Name of the Primary Advisor: Dr. Adugnaw Berhane (MPH, Ph.D., Assistant professor)

_____ October 2, 2019

Signature **Date**