

KHAT USE PREVALENCE, CAUSES AND ITS EFFECT ON MENTAL HEALTH, BAHIR-DAR, NORTH WEST ETHIOPIA

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Abstract

The main objectives of this study were to assess the prevalence, causes and effects of khat chewing on levels of anxiety, depression and social-skills of Bahir-Dar University (BDU) students who have an experience of khat chewing. Methods: For this study, 154 (i.e. 112 khat users and 42 non-khat users) participants were selected using repeated survey sampling. The levels of anxiety and depression were assessed using anxiety and depression symptoms inventory and the level of social-skill was assessed using social avoidance and distress scale. The analysis was made using descriptive statistics like frequency, minimum, maximum, mean, correlation; and inferential statistics like one-way ANOVA. Along with, thematic analysis for qualitative data was used.

The study revealed that 33% and 67% of khat users were categorized as dependent khat users and non-dependent khat users respectively. Some of the worsening factors of khat chewing were; the high production khat in the area and khat chewing houses in the nearby university villages, and non-attendance of awareness creating opportunities on the psychological, social and economic influence as a result of khat use. The expense was highly affecting the life of students mainly when they were frequent chewers of khat. Statistically significant difference was found in the levels of anxiety ($p < 0.01$) and depression ($p < 0.05$) between dependent khat users, non-dependent khat users and non-khat users. However, statistically significant variation was not obtained on the level of social-skills among the three groups ($p > 0.05$).

Anxiety and depression are determined by the level of dependence, dependent khat users higher level of experience as compared to non-dependent khat users and non-khat users. Therefore, it is not becoming a khat user, but developing dependency on khat which is associated with anxiety and depression. Many factors worsening khat chewing and the usage of khat was uneconomical for university students.

Keywords: Drug Abuse, Prevalence, Perceived Causes, Mental Health, University Students

Introduction

Khat (*Catha edulis*) an evergreen plant that grows mainly in Ethiopia, Kenya, Yemen, and at high altitudes in South Africa and Madagascar is an addictive stimulant and highly prevalent drug among individuals (Atalay & Teshome, 1999). Drug abuse (Khat Dependency) highly affects mental health (anxiety, depression) and social skills of many young lives.

Currently, several million people are estimated to be frequent khat users for its euphoric effects and other subjectively explained desirable effects. It is believed to enhance social interaction and usually used by individuals to improve their working capacity mainly by students, drivers, female sex workers, military personnel, pastoralists, farmers, etc. (Kennedy, 1987). Besides in some countries where the use of Khat is widespread, the habit has a deep-rooted socio-cultural tradition. This is particularly true in Ethiopia; for example, chewing of khat in the eastern and south-eastern parts of the nation has a deep-rooted socio-cultural practice (Kalix & Braenden as cited in Mekonen, 2005).

Although khat is used by different groups of the society, overstated prevalence of khat consumption marks to youth. A study which was conducted in Ethiopia stated that the prevalence of khat consumption among youth ranges from age 16 to 30 and accounts for 62% of the total khat consumption in the country. From this figure, the prevalence of khat chewing by college and university students constitutes 22.3% (Adugna, Jira & Molla, 1994).

Such alarmingly ever-increasing psychoactive drug has a number of side effects. Several case reports of khat-induced psychological problems have been published; though results seem inconsistent. Subjectively, the pleasurable effects of khat use are considered as beneficial (Kennedy, 1987). These effects are similar to those of amphetamine and include euphoria, increased alertness and excitement (Giannini, 1986).

Students who have an experience of using khat believe their habit as a source of better alertness, concentration, imaginative abilities, improve interpersonal relationship. In line with this, Tedla (1996) pointed out that

khat is not considered as harmful; rather it is well thought-out as a drug which is said to induce mild euphoria and excitement, often accompanied by making a person to be better in fluency and sometimes progressing to high excited state.

In contrast, some of the studies indicated that after about two to three hours of chewing ceases, unpleasant after-effects tend to dominate its euphoric effect and is replaced by insomnia, lack of sensation, lack of concentration and low mood (Pantelis, Hindler, & Taylor, 1989). Some khat chewers also experience unpleasant effects even during the chewing process, describing anxiety, tension, restlessness and hallucinations. Objectively, chewers can be seen to show a range of experiences, from minor psychological problems to the development of significant behavioral problems like over-talkativeness, over activity, insomnia, a tendency of carelessness, anxiety, irritability, emotional instability agitation hallucination, low mood and sluggishness, depression, and aggression (Margetts as cited in Kennedy, 1987; Odenwald, 2007).

The prior studies also discovered inconsistent findings on using khat related to social-skill. Sykes et al., (2010) stated that using khat has a significant association with both positive and negative social impacts. At one end, it is considered as a normal and pleasurable social practice and at the other end lagging behind in social-skill. In addition, research findings on khat use indicated the involvement of a number of skills in social interaction which is associated with khat use; however, the precise nature of the relationship remains unclear (Patel, Wright & Gammampila, 2004).

On the other hand, some research findings stated that the psychological and social problems of khat use are associated with the level of dependency on khat. Its frequent use leads in to psychological dependency that appears to increase self-esteem, confidence, friendliness and pleasure during chewing session; otherwise, their psychological and social problems including anxiety, depression, and social-skill become in trouble (Ihunwo, 2004; Odenwald, 2007; Sykes et al., 2010).

As to the observation of the researchers, khat chewer youths in different settings, including in colleges and universities, hold a positive view about the practice of khat use. They are usually witnessed stating the benefits of khat as: a feeling of well-being, a sense of excitement, increase energy levels, improve alertness, enhance the ability to concentrate, increase imaginative ability and capacity to associate ideas, advances social-skill and make better in work performance.

On the other hand, findings obtained from previous studies indicated that many individuals face a number of problems as a result of khat chewing. It has a significant influence on the psychological constructs like anxiety and depression among individuals. However, those psychological problems of

khat chewing are strongly associated with the severity of dependency on khat. “The heavier and more frequent the use, the greater the risk was seen to be” (Sykes et al., 2010). Besides, dependent khat chewers show diversified psychological symptoms including stress, anxiety, depression, irritability and emotional instability more frequently than non-chewers (Odenwald, 2007).

One more problem related to khat chewing is that its euphoric effect directs to use other psycho-active and/or depressant drug/s like cigarette, alcohol, ‘hashish’, and then leads to use other hard drugs like marijuana, cannabis, cocaine supposed to have diversified psychosocial maladjustment (Atalay, Elizabeth & Ruth, 2002).

Despite the positive attitude for the practice of using khat and inconsistencies of case reports on psychological and socio-economic problems related to khat use, we can clearly observe multidimensional difficulties of using khat from different groups of the community as a result of high prevalence in the practice of khat chewing. Among those, college and university students are highly vulnerable groups in Ethiopia. More specifically, students in Bahir-Dar University are highly vulnerable as a result of very high widespread of Khat production and consumption in the area, and the prevalence of khat chewing centers in the nearby villages of the University campus that are recent phenomenon in the area (Almqvist, Karisson & Angman, 2005).

Although the prevalence of khat chewing and its physiological and socioeconomic effects are studied (Belew, 1997; Atalay, 2004; Adnew, 2005) in some parts of Ethiopia, the problems of khat chewing related to anxiety, depression and social skills are not yet further investigated in Bahir-Dar (i.e. a culture where khat production and consumption is a quite recent phenomenon). Rather, some of studies have been undertaken in the western culture where khat is not usually produced and consumed. So that little is understood in detail on its psychological and social problems in a culture where it is highly produced and consumed. Moreover, psychological and social problems based on the severity of dependency on khat still remain unclear to behavioral researchers, and is characterized by full of inconsistent arguments.

Therefore, it is vital to conduct a research on empirical basis to assess the psychological and social problems that are induced by khat chewing. Thus, taking those problems into consideration, the present study tried to assess khat induced psychological and social reactions (i.e. anxiety, depression and social skills) among students of Bahir-Dar University who reside on the main campus. Therefore, the main objective of the study is to address the psychological and social problems associated with khat chewing among youth and fill the research gap concerning the associations as well variations in the severity of khat dependency with chewer’s psychosocial

problems. More specifically, the study attempted to answer the following basic research questions.

- What is the prevalence of khat use with respect to the demographic characteristics of Bahir-Dar University students?
- What are the triggering and worsening factors for University students to chew khat?
- Does khat chewing behavior of students create any unnecessary expense?
- Is there statistically significant difference among Bahir-Dar University students on the levels of anxiety, depression and social skills across dependent khat users, non-dependent users, and non-users?

Methods

Design

The study applied ex-post-facto (causal comparative) research design, with quantitative and qualitative methods of data collection as it involved two groups of study participants khat users and non-khat users. The rationale behind using this design is that the study focused on the data which was obtained from participants in a retrospective way by using appropriate data gathering instruments and the groups are already existing dichotomy. In order to meet the objectives of the study, three dependent variables (anxiety, depression, and social skills) were considered as indicators of mental health problems.

Participants

Undergraduate students of Bahir-Dar University residing in the main campus and having an experience of using khat were considered as part of this study. Accordingly, the participants were selected using repeated survey sampling. The rationale behind in the preference of applying this sampling method were, students could not disclose their usage of khat chewing (which made the selection process difficult) and there was no sampling frame. So, the researchers had decided to sample more than once until the desirable number of respondents was obtained. As a result, triple samples were taken using simple random sampling. Thus, 112 junior and senior students who had an experience of using khat were found. Furthermore, another 42 students who never had an experience of using khat in their lifetime were made to become comparative participants. The details of participants' demographic characteristics can be inferred from table 1 below.

Table 1: Demographic Characteristics of Study Participants

Demographic Variables					Khat Users		Non-Khat Users		Total			
					N	%	N	%	N	%		
Sex	Male				88	78.6	25	59.5	113	73.4		
	Female				24	21.4	17	40.5	41	26.6		
	Total				112	100	42	100	156	100		
Age	Mean	SD	Min	Ma	18-20	30	26.8	13	31	43	27.92	
					x	21-24	58	51.8	21	50	79	51.29
	22.4	2.663	18	29	25-29	24	21.4	8	19	32	20.78	
Place of Origin	Urban				65	58	18	42.9	83	53.9		
	Rural				47	42	24	57.1	71	46.1		
Marital status of the family	Married				65	58	26	61.9	91	59.1		
	Separated				18	16	7	16.7	25	16.23		
	Divorced				19	17	6	14.3	25	16.23		
	Widowhood				10	8.9	3	7.1	13	8.3		
	Total				112	100	42	100	154	100		
Birth Order	Eldest				23	20.5	9	21.4	32	20.8		
	Youngest				24	21.4	10	23.8	34	22.1		
	Middle				56	50	19	45.2	75	48.7		
	The Only child				9	8	4	9.5	13	8.4		
	Total				112	100	42	100	154	100		

About 154 study participants (112 khat users and 42 non-khat users) who genuinely provided the data were surveyed. Among those, 73.4% (78.6% of khat users and 59.5% of non-khat users) were males. Only 26.6% (21.4% of khat users and 40.5% of non-khat users) were females.

With respect to their age, all of the study participants were youth that ranges from age 18-29 and their mean age was found to be 22.4 with standard deviation 2.66. In specific, the mean age for khat users was 22.25 with standard deviation 2.73 and the mean age for non-khat users was found to be 22.05 with standard deviation 2.479. As can be seen from table one above, 51.3% of participants were found to be in between age of 21-24.

As depicted in Table 1 above, 58% of khat users were brought up in urban while it is found to be rural for the majority (57.1%) of non-khat users. Related to marital status of the family 59.1% (i.e. 58% khat users and 61.9% non-khat users) of study participants were from married families and 16.23% of khat users and 14.3% of non-khat users were from divorced families.

Only 8.9% of khat users and 7.1% of non-khat users were from widowhood families; it does mean that 23% of khat users were from single parent home. Further, the study indicated the majority of khat users (50%) and non-khat users (42.2%) were middle in their birth order in their family. Only 8% of khat users and 13% of non-khat users were found to be the only children for their parents.

Instruments

In order to address specific research objectives both quantitative and qualitative data collecting tools were applied. So as to gather demographic information from study participants, questionnaire was developed. In addition, the researchers had adopted four scales, and made the necessary validation and employed for data collection. More specifically, the scales employed include: Severity of Dependency Scale on khat (SDSK), which was developed by Kassim and Croucher (2009) and administered to assess the dependency level of study participants. Depression Symptoms Inventory (DSI) which was revised by Tedla (1996) and consists of Anxiety Symptoms Inventory (ASI) as a sub-scale was administered in order to assess the participants' levels of anxiety and depression. Along with this, Social Avoidance and Distress Scale (SADS) a revised version of Robinson, Shaver, Wrightsman and Andrews (1991) was administered to assess participants' social skills.

Two Focus Group Discussions (FGDs) were held to generate relevant qualitative data. Thus, one group consisted of five participants who were khat chewers, and the second group consisted of six participants who were non-khat chewers. Thus, the FGD guide, consists of five unstructured items that could serve as guiding questions for generating discussion on basic points during discussion, was prepared. The instrument was developed to get the details unnecessary expense as a result of khat use, and worsening factors for the prevalence of chewing khat. In addition, three unstructured interview guide questions were prepared by the researcher to get the details in the prevalence of khat production in the area.

Instrument Adaptation, Validation and Reliability

In order to validate data collecting instruments the following actions were undertaken. Two senior language experts evaluated the translated Amharic version of SDSK, DSI, and SADS. Accordingly, their suggestions were incorporated for further analysis of the instruments. The Amharic version of SDSK, DSI and SADS was translated back to English again by the research team. The back translation was evaluated by the professionals, and hence the necessary rearrangement was made with items. Furthermore, pilot test was performed on 30 sample participants of BDU. Hence, it was found that the reliability coefficient for the instruments as a whole ranged from 0.76 to 0.82 (in specific for SDS $\alpha = 0.77$, ASI $\alpha = 0.74$, DSI $\alpha = 0.82$, and SADS $\alpha = 0.80$) was argumentatively acceptable to gather data.

Data Analysis

The description of results on the demographic information, reinforcing factors for khat chewing, and categorizing the level of

dependency on khat among study participants were explained using descriptive statistics. In order to analyze the result of the mean scores obtained from ASI, DSI and SADS among DKU, NDKU and NKU, the researchers preferred to employ one-way ANOVA. Moreover, students' khat-chewing behavior related to economic expenses and the prevalence of worsening factors for khat use were analyzed thematically in a qualitative way.

Ethical Considerations

During data collection the appropriate ethical considerations were made. First, consent was obtained from the participants. Then, respondents were ensured with respect to their right to withdraw during participation as well. They were also told to have the right to demand for canceling their responses just after participation. Since the issue of khat use is relatively sensitive issue, privacy was maintained during data collection so that participants were no longer experienced shame from their colleagues and University community.

Results

Levels of Dependency

Table 2: Scores Obtained from Severity of Dependency Scale on Khat (N=112)

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>	Groups	<i>N</i>	%
SDSK	112	0	10	4.6	2.35	NDKU	37	33.01
						DKU	75	66.99

NDKU: Non-Dependent Khat Users

DKU: Dependent Khat Users

As depicted in Table 2 above, the mean score of participants on severity of dependency scale on khat (SDSK) was 4.6 with $SD=2.35$ and their minimum and maximum score were found to be 0 and 10 respectively. When we look at the percentage of participants on SDSK score, 33.0% scored ≥ 6 (i.e. the cutoff point for SDSK which was provided by test developers) were considered as dependant khat users (DKUS). The rest 67% of the study participants reported total scores below the cutoff point and those were categorized as non-dependent khat users (NDKU).

Prevalence of Khat Use among Bahir-Dar University Students

Table 3: The Descriptive Score on the Magnitude of Khat Chewing and Additional Drug Use related to the Level of Dependency on Khat EFGAERY

Issues raised	Level of Dependency	N	Minimum	Maximum	M	SD
Average number of days per week that khat is chewed	NDKU	75	1	5	3.05	1.1
	DKU	37	3	5	4.14	0.75
Amount of khat chewed per chewing session on average in gram	NDKU	75	25	100	47.69	19.28
	DKU	37	25	100	64.86	18.12
Number of additional drugs used	NDKU	7	0	4	1.27	1.18
	DKU	37	0	5	2.16	1.19
Using additional drugs	Response	N	%	Level	N	%
	No	27	24.1	NDKU	50	66.7
	Yes	85	75.9	DKU	35	94.6
Type of additional drugs consumed	Cigarette				20	17.9
	Alcohol				21	18.8
	Cigarette and alcohol				29	25.9
	Cigarette, alcohol, shish				14	12.5
	Many drugs including Hashish				6	5.4

NDKU: Non-Dependent Khat Users

DKU: Dependent Khat Users

The study revealed that the average number of days per week that khat is chewed by study participants was found to be 3.05 days with $SD=1.1$ and about 48.2% of study participants chewed khat more than the average number of days per week. As depicted in table 4 above the study demonstrated the amount of khat that ranges from 25-100 gram ($M=47.69$ gram with $SD=19.28$) was consumed per chewing session. The study stated that 29.5% of the respondents consumed more than the average amount of khat per chewing session.

With respect to using additional drugs, most (61.61%) of khat users reported to have an experience of cigarette smoking. Among these 17.9% smoke cigarette alone while the rest 73.3% smoke cigarette along with other drugs. On the other hand the majority of khat user study participants consume alcohol along with other drugs. In the extreme case, 5.4% of study participants indicated that they chew khat along with using hard drugs like 'hashish' (cocaine, cannabis, marijuana.)

The result of the study indicated that above half (53.6%) of the study participants started khat use in their high school age and 29.5% of them started after they came the University. Among khat users, 33.0% participants were dependant khat users and the remaining 67% were non-dependant chewers. The average number of days per week that khat is chewed by study participants was found to be 3.05 days ($SD=1.1$).

In addition, the study revealed that 48.2% of respondents chewed khat more than the average number of days per week. Moreover, the study

demonstrated that the amount of khat that ranges from 25-100 gram ($M=47.69$ gram with $SD=19.28$) was consumed per chewing session. The study stated that 29.5% of study participants consumed more than the average amount of khat per chewing session.

Regarding using additional drugs, which were consumed by most (61.61%) of khat user participants reported to have an experience of smoking cigarette. Among these 17.9% smoke cigarette alone while the rest 73.3% smoke cigarette along with other drugs. On the other hand, the majority of khat user participants consume alcohol along with other drugs. In the extreme case, 5.4% of the respondents indicated that they chew khat along with using hard drugs like ‘hashish’ (cannabis, marijuana).

Perceived Factors that Reinforce University Students to Chew Khat

Table 4: The Onset and Reinforcing Factors of Chewing Khat

Items	Options	F	%
When did you begin chewing khat?	Elementary school age	13	11.6
	High school age	60	53.6
	In university campus	33	29.5
	Others	6	5.4
With whom you begin to chew khat?	Friends	68	60.7
	Neighbors	11	9.8
	Family members	11	9.8
	Alone	22	19.6
What instigated you to start chewing?	To confirm to my friends /family members	39	34.8
	To get relaxed	11	9.8
	To read/study	61	54.5
	Others	11	9.8
What is the reason that makes you to chew khat at present?	To keep alert and concentration	80	71.4
	Relaxation with friends	43	38.4
	To spend a relaxed time.	18	16.1
	To minimize sleep time	20	17.9
	As a result of my addiction	8	7.1
How often do you chew khat?	Always	21	18.8
	Sometimes	70	62.5
	Rarely	21	18.8
Do you have any of your family member/s who chew/s khat at present?	yes	73	34.8
	No	39	65.2
If your answer is “yes” who is using khat?	Father	23	20.5
	Brother/s	33	29.5
	Sister/s	4	3.67
	Mother and other family members	6	5.4

As can be seen from Table 4 above, Khat users were asked when they started chewing, the largest proportion (53.6%) of study participants reported that they begun in their high school age. Those study participants who started chewing in university campus were 29.5%. But only 11.6% of them indicated that their chewing habit was traced back to elementary school age.

The same also revealed that the majority (60.7%) of khat user study participants reported that they started chewing with their friends, and 19.6% started khat use alone. Regarding their family members, friends and neighbors contribution as role models, 60 % of them imitated the behavior of chew khat from their friends. Equal proportion (9.8%) of khat users imitated their chewing behavior from neighbors and their family members.

Regarding their perceived reason, more than half (54.5%) of chewers reported that they started chewing for their academic purpose and 34.8% started it to confirm their friends and their family members. In addition to this, when khat users were asked the reason that makes them to chew khat at the time of data collection, the majority (71.4%) indicated that they used it for concentration while reading and 17% stated to minimize sleep time. Notable number (38.4%) of participants said to confirm to their friends.

Only 34.8% of khat users did have family members who chewed khat. Among those 20.5% of chewers were having father model chewers and 29.5% of them were having models of siblings and other family members. However, very small proportion (5.4%) of khat users had reported to have mother khat user. Further about 18.8% of study participants were found to be regular chewers and the highest proportion (62.5%) of them used khat sometimes, and only 18.8% of study participants chew rarely.

Worsening Factors for the Behavior of Khat Use

Recently the production of khat is alarmingly increasing. Because of better economic wealth with in a small plot of land by using a minimal labor, a number of farmers are highly expanding khat production. A farmer as an interviewee from the nearby kebeles of Bahir-Dar stated, “Plantation of 200 khat seedlings is by far better than the usual farming in two hectares”. This means the prevalence of khat production in the area is one of the factors that increase the prevalence of khat consumption among BDU students.

The practice of chewing khat had been highly criticized by the communities for centuries around Bahir-Dar. But such historic critic can't hinder the current prevalence of khat use among university students. Participants of the FGD explained that now day, there are a variety of houses for khat chewing are open to public in the nearby university village. Anyone who would like to chew in accompany can get service like hotel or restaurant. It is full of the expected needs including soft drink, coffee, tea, a variety of cigarettes, a variety of other smokes ‘sendel’, and is reported to have hard drugs like hashish (i.e. cocaine and Marijuana).

In addition, participants of the FGD explained that lack of strict policies, laws and rules at least in controlling the prevalence of khat chewing centers in the city in general and in the nearby University villages in particular are factors which are worsening the prevalence of using khat

among youth University students. Key informants of the FGD further explained that even the existing institutional rules are not practicing. According to the discussion made by Khat user FGD members, some of those who are responsible to implement the rule of the University are involving in the practice of khat consumption rather than taking their responsibility. Moreover, FGD participants added that the first practice of khat use by itself has the power to reinforce individuals to use it frequently; “today’s dependency is a result of yesterday’s start!” Which signifies the onset of khat use by itself reinforces the individual to use it again and again?

Besides, both groups of FGD members similarly explained that the absence of awareness on the impact of khat chewing either in economic, social as well as health related issues would make youngsters to start khat use without hesitation. One of the FGD participants stated that,

“I started it spontaneously without analyzing the pros and cons of it. I never had any kind of information about the negative outcome of using khat. Rather, I had positive outlook thinking as it increases the concentration and minimizes my sleep time while reading”.

The statement of the respondent implies that lack of awareness on the consequence of khat use is another factor that contributed the prevalence of khat chewing among youth. Indeed, all of the FGD members argued that such factors are highly worsening the prevalence of khat use among university students.

Expenses Related to Khat-chewing Behavior of Students

To investigate whether there is unnecessary expenses related to khat chewing behavior of students, the data obtained from FGD is presented as follows:

The data obtained via FGD indicated that khat chewer students who are frequent khat users have expense in one or another dimension of students’ life. Its expense is highly affecting the life of students mainly when they are frequent chewers of khat. Even though there is expected expense as a result of chewing khat, the data obtained via FGD has confirmed that dependant khat users are found to be highly affected with respect to unnecessary expenses. In addition, it was reported by the participants that students using khat are blamed for their antisocial behaviors like stealing others’ properties. Both groups of FGD members argued that khat chewers develop such a behavior so as to get some money for the sake of buying khat. The most common properties frequently reported as stolen by khat users include money, books, clothes, shoes, etc. In brief the unnecessary expense as a result of khat use can be inferred from the words of the participant of FGD is quoted as follows:

“I closely know some of the students who exhibit disorganized in terms of dressing, keeping hinge, and ask pen, pensile and lecture notes from others. They are typically known for borrowing money from their friends and sometimes ask assistance from others whom they never know before. Since the frequent khat users are tend to request money from their friends, relatives and sometimes from others who do not have much intimacy, they are likely to encounter clashes and misunderstandings incase their demand is not successful or when they are unable to pay back the money.”

Indeed, that is frequent khat users have unnecessary expense and problem of disciplines.

Differences on the Levels Mental Health across Groups

Table 5: Summary of one way ANOVA for the Comparison of Anxiety, Depression and Social skills (N=154)

Variable	Groups	M	SD	df	F
Anxiety	NKU	8.28	3.29	151(2)	9.65 **
	NDKU	8.52	3.74		
	DKU	11.35	3.36		
Depression	NKU	9.30	4.83	151(2)	6.34 *
	NDKU	9.69	4.66		
	DKU	12.68	4.53		
Social-skill	NKU	80.67	6.35	151(2)	2.68
	NDKU	81.61	7.59		
	DKU	78.11	8.64		

**p<0.01 *p<0.05

NKU: Non-Khat Users (n=42); NDKU: Non-Dependent Khat Users; (n=75) DKU: Dependent Khat Users (n=37)

As can be seen in Table 5 above, Summary of one way ANOVA revealed statistically significant difference in the levels of anxiety ($F_{(2, 15)} = 9.64, p < 0.05$) and depression ($F_{(2, 15)} = 6.34, p < 0.05$) among the three groups of study participants (NKU, NDKU and DKU). However, the study indicated statistically significant difference on the level of social skills was not found ($F_{(2, 15)} = 2.68, p > 0.05$) among those three groups (NKU, NDKU and DKU). In order to know the specific groups contributing to significant difference observed on anxiety and depression among the three groups, Scheffe’s Post-hoc multiple comparisons was used.

Table 6: Scheffe’s Post-hoc Test on Anxiety and Depression by Level of Dependency on Khat

Variable	Level of Dependency (J)		
	Level of Dependency (I)	NDKU	DKU
Anxiety	NKU	-0.23	-3.07*
	NDKU		-2.83*
Depression	NKU	-0.38	-3.37*
	NDKU		-2.98*

*p<0.05

As the result showed in Table 6 above, statistically significant difference was existed among study participants who were categorized as dependent khat users. They scored significantly higher mean value as compared to non-khat users (mean difference =-3.07*) and participants of non-dependent khat users (mean difference = -2.83*). However, NDKU seem to have relatively the same mean score in anxiety with participants of NKU with mean difference of 0.23.

Similarly, Scheffe's Post-hoc analysis in the mean scores of depression symptoms inventory revealed that significantly higher mean score was observed among DKU as compared to NDKU and NKU with mean difference of 3.36* and 2.98* respectively. As indicated in the same table, participants of NDKU scored the same mean value with NKU with mean difference of 0.38.

Discussion

Prevalence and Triggering Factors of Khat Chewing

The study brought some significant evidences that the majority of youths began a habit of khat chewing with their friends. The finding of this study is consistent with previous study conducted by Kimmel (1995) explained that peer pressure and conformity to the group norms is the main factor that increases the likelihood of adolescent drug use. The study also supports previous findings to some extent that some youth who have a habit of khat use are from families having a habit of khat use.

Similarly, Yeshigeta and Abraham (2004) demonstrated that the presences of family members who chew khat are found to be a risk factor to develop a behavior of chewing. Kimmel (1995) further explained that the disposition to start chewing is influenced by the nature of their friendship. He said, "The more their friends chew, the closer campaign they keep with those friends". In addition, youth who grew up in a home having khat chewer family member/s (parents, siblings and others) are more likely to influence them to chew khat. Such finding is also consistent with the onset of another psychoactive drug cigarette among adolescents.

Tigist (2006) also demonstrated that friends and family drug use behavior plays a crucial role in the imitation and maintenance by adolescents and youth. Previous findings seem to be inconsistent in that some studies suggest the habit of khat consumption could not vary with year level of study (Ageely, 2009); while others propose the risk of khat use raises in line with increasing years of study (Yigzaw, 2002). The study supports that the risk of khat consumption increases with increasing years of study; implying that the more students accustomed to live on campus, the more they are likely to start khat consumption.

Place of origin determines developing the behavior of khat use to some extent. The current study revealed that place of origin for more than half (58%) of khat users is urban as compared to non-khat users (42.9%). This shows that for youths being urban upbringing could have the likelihood of being khat chewer than being rural upbringing. This finding is almost consistent with previous study conducted in Ethiopia stated that urban youth constitutes 64% of the total khat chewer youth (Aseffa et al., 2005). Similarly, a study in Yemen by Ageey (2009) revealed that khat is found more among students with an urban background than those with a rural background. As he explained, out of 1,629 khat chewer study participants about 84% had distinctly urban upbringing.

Regarding the reasons for the practice of khat use, the earlier findings explained a number of reasons. The main reasons given by students for their commencement of khat use are: to keep alert, to increase concentration and imaginative ability while reading, to minimize sleep time, for relaxation with friends, and to get relief from stress (Yeshigeta & Abraham, 2004; Yigzaw, 2002). In line with this, a study conducted in Somalia and Kenya (2003) pointed out that khat use in higher academic institutions is believed to give an atmosphere of concentration, cheerfulness, optimism and a general sense of wellbeing.

In the same way, result of this study revealed that the majority of khat chewer students reasoned out as they use it to keep alert and to maintain concentration while reading (71.4%), the rest khat user participants reason out to maintain relaxation with friends (38.4%). Only 17.9 % of study participants used khat to minimize sleep time for their reading. Thus, this study revealed that a consistent result with respect to the significance of khat use by university students in that it is chewed more or less for similar purpose.

As one can infer from the result, more than half (53.6%) of study participants started khat consumption in their high school age, and 29.5% of them started it in university campus for the first time. This result is in line with the study which was conducted among college students in North-West Ethiopia (Yigzaw, 2002). This previous study stated that about 40% of ever chewers started chewing khat when they were in senior secondary school or as first year college students. Similarly, the finding of this study is somehow consistent with the study conducted in other socio-cultural context Yemen (Jaza region) demonstrated that the prevalence of khat use and its onset is significantly higher in high school years than colleges (Ageey, 2009).

Regarding the marital status of parents related to the practice of chewing khat among youth, the study revealed that 25.13% of khat users (i.e. 16.23% from divorced parents, and 8.9% from widowhood families) were from single parent homes. This implies that youth who grew up in single

parent homes were more likely to involve in khat use behavior than those youth who grew up from married families. This finding is substantiated by a survey study which was conducted by Atalay et al., (2002) in 11 regions of Ethiopia on the prevalence of khat chewing among youth. Demonstrated that socio-demographic factors such as male sex, age and educational level, are positively correlated with khat chewing. In contrast, marital status of the family is inversely associated with the behavior of khat consumption among adolescents and youth.

To some extent the behavior of khat chewing can also be explained in relation to birth order. The study shows that half (50%) of the participants were middle in their birth order, and 8% of them were the only children for their parents. This finding is substantiated by the earlier studies. For instance, Ageey (2009) stated that the ratio of khat chewers was compared interims of birth order of the respondents it was found that 7.4% were middle children and 1.5 of them were the only children for their parents.

Worsening Factors for the Prevalence of Khat Chewing

The study verified a number of factors that aggravate the prevalence of khat use among Bahir-Dar University main campus students. Some of the major factors which are noticed by FGD participants are the prevalence of khat production in the area, and the prevalence of khat chewing centers in the nearby University villages, and non-attendance of awareness creating opportunities on the psychological, social and economic influence as a result of khat use. Non-existence of strict policies at least on the prevalence of khat chewing centers and khat production and leniency on the implementation of the existing institutional rules on campus are considered as significant factors. This confirms other studies made by Almqvist, Karisson and Angman (2005) stated as khat production which is highly prevalent in unusual areas of khat production in history of Bahir-Dar and its surrounding is simultaneously worsening the prevalence of khat consumption in the area.

Expenses of Khat Use

The present study clearly demonstrated that developing a behavior of khat use leads to have unnecessary expense among university students. The expense is highly affecting the life of students mainly when they are frequent chewers of khat. The study is in line with the previous findings that khat chewing behavior encountered economic problem among chewers. Atalay and Teshome (1997) have reported significant inverse relationship between khat chewing behavior with economic challenges. Similarly, Sikiru and Babu (2009) in their survey study among Jimma university students pointed out that about 90% of chewers reported as khat use is highly affecting their

economy. Thus, this study finding consistent with respect to the existence of unnecessary economic expense among university students.

Mental Health and Khat Chewing

Regarding the levels of anxiety and depression related to khat chewing, the study demonstrated that the mean score of anxiety measure obtained from NDKU was almost equal to the mean score of NKU; but significantly lower than the mean score of DKU. Further analyses by Scheffe's Post-hoc inter mean comparison clearly indicated that the existing significant difference was due to the highest mean score of DKU. However, there is no significant difference on the level of anxiety and depression NDKU and NKU.

From this, it is possible to understand that DKU are highly manifesting different symptoms of anxiety including feeling of fearful, dizziness, nervousness, heart pounding, trembling, headache, feeling restless, etc and symptoms of depression i.e. appetite loss, insomnia, sadness, loss of sexual desire, loneliness, feeling blue, thought of ending once life, feeling of being busy, worrying too much about things, feeling no interest in things, etc, than NDKU as well as NKU. This finding is consistent with the previous studies. Three researchers namely Havell (2004), Odenwald (2007) and Ihunwo (2004) pointed out that frequent khat users manifested anxiety, depression, stress, restless and suicidal tendencies more repeatedly than non-khat chewers. According to Havel (2004) the magnitude of the problem is contingent with the dependency level of individuals on khat.

On the other hand, regarding the social problems of khat users, this study demonstrates that the mean score of social skills measure of DKU was almost equal to the mean score of NDKU and NKU ($F_{(2, 15)} = 2.68, p > 0.05$). This does mean that khat users does not have significant problems related to social isolation or discrimination, low motivation, unable to relax in unfamiliar social situations, a desire to avoid people, unable to talk with new guests, desire to avoid people, etc. Even though the finding rejected the difference in the level of social skills among those three groups, which is inconsistent with the previous finding, DKU mean score ($M = 78.11$) is lower than the mean score of NDKU ($M = 81.61$) and NKU ($M = 80.66$).

It implies that khat use does not influence social skills unless the individual is dependent on it. In line with this, a recent study by Sykes et al., (2010) stated that using khat has both positive and negative influences in social skills. He stated that at one end, it is considered as normal and pleasurable for day to day social practice and at the other end it is harmful, addictive drug with socially negative consequences. In contrast, a study which was conducted among Somali, Ethiopian and Yemeni communities in Britain Havell (2004) pointed out that there is perception associated with a

wide range of problems including: personal neglect, social isolation, low interpersonal relationship skill.

Conclusion

The conclusions from these findings were made within the context of non-avoidance of limitations. Because of the characteristics of the population being studied it was hard to find out sample frame to draw samples via random sampling once. In that case, repeated survey sampling method was used to select samples for the study. As a result, the conclusions drawn from the study probably could have low external validity.

Based on the findings of the study the following conclusions are inferred. Even though there are a number of reinforcing agents that leads youth to chew khat, most start chewing with their friends. In addition, khat chewing is easily imitated from friends, family members, neighbors, and others; and being from an urban origin has its own contribution to become khat user than being from rural origin. Most of the participants started the habit of khat use in their high school age; and the majority of the participants use khat for their academic purpose to maintain alertness, to increase concentration and imaginative ability and to minimize sleep time; implying that their concentration to read depends on khat consumption.

Since one-third of the total khat chewers belong to the category of DKU, for whom this study demonstrated an association with psychological hazards, the researchers fairly concluded that use of khat need not be underestimated to determine the well being of the students. With respect to psychological problems, anxiety and depression are significantly higher among DKU as compared to NDKU and NKU. However, there is no statistically significant variation among those groups. It implies that developing dependency on khat is more likely attributable to develop symptoms of anxiety and depression.

The statement of the respondent implies that lack of awareness on the consequence of khat use, prevalence of its production in the area, and chewing centers in the nearby University villages are the factor that contributed the prevalence of khat chewing and developing a behavior of khat use that leads to have unnecessary financial expense.

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