

The Nexus between Khat and Other Drug use among Undergraduate Students of Jigjiga University in Ethiopia; Contributing Factors and Prevalence Rates

Gamachu Fufa^{1,*}, Desalegn Shiferaw², Tadele Kinati³, Markos Desalegn⁴

¹Social Work and Health Care, Sociology Department, Jigjiga University, Jigjiga, Ethiopia

²Epidemiology, Health Officer Department, Jigjiga University, Jigjiga, Ethiopia

³Child Health, Nursing Department, Jigjiga University, Jigjiga, Ethiopia

⁴Reproductive Health, Health Officer Department, Jigjiga University, Jigjiga, Ethiopia

Abstract Use of substances such as alcohol, khat leaves (*Catha edulis*) and tobacco has become one of the rising major public health and socio-economic problems worldwide. The issue of substance use among University students, in Ethiopia, has been given less attention and related to different factors. The objective of this research was to assess the Substance use among undergraduate students of Jigjiga University in Ethiopia: The study was conducted in Jigjiga University which is the only University in Somali region. Cross sectional study design was used and the study population was students from selected departments and the sample size was calculated by use of single population proportion formula, accordingly the calculated sample size was 648 after multiplying by design effect of 1.5 and 10 contingency. Data was collected by use of structured questionnaire and first checked manually for completeness and then entered into Epi-data version 3.1. After data coding, entry and cleaning, the data was exported to SPSS version 16.0 for analysis. Descriptive statistics, binary and multiple logistic regressions was employed. Adjusted Odds ratios together with corresponding 95% confidence intervals was used to interpret the findings. From the total 600 respondents 52.5% of them responded yes to the use of khat and one of the other substances. Accordingly ever use was 33.3%, 14.5%, and 14.7% for khat, cigarette, and other drugs respectively. The odds of drinking alcohol was higher among senior students; those at 3rd year with AOR=5(95% CI=2.13, 10.25), those at 4th year with AOR=4.92(95% CI=1.98, 12.14), compared with their junior 2nd year students. Male sex and use of another substance were positively associated to the use of the other substance.

Keywords Khat, Substance, Socio-economic, Public health, Drugs

1. Introduction

According to a United Nations Office on Drugs and Crime (UNODC) Report (2005), some 200 million people, or 5 percent of the world's population aged 15 - 64 have used drugs at least once in the last 12 months – 15 million more than the previous year's estimate. The passage from high school to college is commonly marked by an increment in frequency of opportunities for peer interaction and in importance of the role of peer norms. Sixty percent of individuals within the 21-25 age groups have reported alcohol consumption 30 days prior to the study while 28% of the group aged 18-25 reported binge drinking in the US [6].

Addictive behavior affecting human health is on the rise in many countries including developing countries especially

among young adolescents [6]. Several studies have indicated that cigarette smoking, alcohol consumption and illegal drug use are common among university students [1, 6]. There is a strong link between khat chewing and excessive alcohol consumption, and it is believed to be one of the factors associated with unprotected risky sexual behavior, predisposing the youth for HIV infection and transmission [7]. There are limited studies on substance use and its associated factors amongst different segment of society. In Ethiopia, there areas geographically suitable socially and culturally in consuming different substances. Of the main areas, cities and towns in the eastern corridors in Ethiopia, Jigjiga town is mentionable. This indicates, as substance use among undergraduate students pursuing their education in such geographical pattern warranty study. This study also designed with the intention to fill this knowledge gap.

The use of alcohol, tobacco and other substances constitutes one of the most important risk-taking behaviour among adolescents and young adults in college and University students [1]. Use of these substances has become

* Corresponding author:

hayyuugamachu@gmail.com (Gamachu Fufa)

Published online at <http://journal.sapub.org/phr>

Copyright © 2017 Scientific & Academic Publishing. All Rights Reserved

one of the rising major public health and socio-economic problems worldwide. Recent trends indicate that the use of substances have dramatically increased particularly in developing countries [1]. It is estimated that 9% of the global population aged 12 or older are classified with dependence on psychoactive substances such as alcohol [2].

Tobacco consumption has been the main risk factor for chronic diseases such as cancers, chronic lung disease, diabetes and cardiovascular diseases, however; its use has become a growing concern among college students in many parts of the world [3]. Furthermore, the use of drugs and alcohol among students has become a growing concern [4]. Several studies indicate that substance use among Ethiopian adolescents is considerably rising [5]. Nowadays, alcohol and khat are widely consumed among high school and college students in Ethiopia [5]. Of the young segment of the Ethiopian population, college and university students are the most at risk of using alcohol and other drugs such as khat and tobacco [5].

Most often stimulant medications are increasingly used by high school and college students as a means to improve academic performance. Entering the university, often leads to new opportunities, independence from family control, self-decision making, and peer-pressures to use or abuse alcohol or other drugs. The use of alcohol, khat and tobacco among adolescents can be harmful, leading to decreased academic performance, increased risk of contracting HIV and other sexually transmitted diseases, or other psychiatric disorders such as lethargy, hopelessness and insomnia [2].

2. Objectives of the Study

2.1. General Objective

The objective of this research is to assess the Substance use among undergraduate students of Jigjiga University, eastern Ethiopia: contributing factors and prevalence rates, 2016 with prime focus on khat.

2.2. Specific Objectives

- To assess the magnitude of self-reported khat consumption& other substance use
- To identify associated factors of substance use among Jigjiga University students

3. Methodology

3.1. Study Design

Descriptive cross-sectional study was employed to determine the magnitude and identify associated factors of khat and other substance use among under graduate students of Jigjiga University.

3.2. Study Population

The source population was all under graduate students of

Jigjiga University. The study population was under graduate students in the randomly selected departments during the academic year of 2015/2016.

3.3. Sample Size Determination

The required sample size was calculated using Epi info version 3.1 computer statistical software package by considering the single population proportion formula with the assumption of 4% margin of error (d), 95% confidence level ($z_{\alpha/2} = 1.96$) and 22% proportion of alcohol consumption taken from study conducted among medical students of AAU.

By using the formula

$$n = \frac{(2\alpha / 2) \times p(1 - p)}{d^2}$$

And using a design effect of 1.5, the calculated sample size with 5% contingency for non-response is 648.

3.4. Sampling Procedures

A multi stage sampling procedure was applied to select sample of undergraduate students in the University (stratification in to colleges, SRS to select departments and stratify the department into batches and finally SRS was employed to recruit the required sample size). There are 8 colleges in the University. The calculated sample size was proportionally allocated to each department based on number of the students.

3.5. Data Collection Procedures

Instrument: Self-administered structured questionnaire was used to collect data on socio-demographic, status of substance abuse and other important data related to the objective of the study. Pre-test was done before the actual data collection started on 5% of the sample size among students who were not participated in the actual study.

Data collection: Data collection facilitators were experienced individuals but not instructors in the same campus and training was given by the principal investigators specially how to create conducive environment for the respondents during data collection, since it is sensitive issue, and how to give clarity, if there is any inconvenience. Following an orientation, respondents was filled the questionnaire in private by arranging their seat far apart from one another and not allowing their teachers to enter the room.

3.6. Data Quality Management

Standard questionnaire was adopted and modified according to the variables included in the study and pre-test was conducted to see, if there is ambiguous question and appropriate corrections were given before the actual data collection time. Data collectors were trained and strict supervision were there during data collection. Data was double entered to check the consistency.

3.7. Data Analysis

Data were entered using epi data 3.1 and export to SPSS version 16 for further analysis. Data cleaning was took place, during data entry by use of double entry and after data entry by simple frequency and cross tabulation and their consistency was checked. After data cleaning complete it will be exported to SPSS version 16 for analysis. Data were analysed through Univariate for frequencies, and percentage; bivariate analysis to see association between dependent and independent variables and logistic regression to see the independent effect of selected variables on the status of substance using odds ratio.

4. Result

4.1. Status of Khat Consumption among Jigjiga University Students

From the total study participants 200 (33.3%) ever chew khat whereas 170 (28.33%) of them were current chewers. About have of them initiated khat chewing during high school, 101 (50.5%) and most of them chew khat at dormitory, 74 (37%). About three forth of them chew with their friends, 147 (73.5%).

Table 1. Khat consumption among regular Jigjiga University students

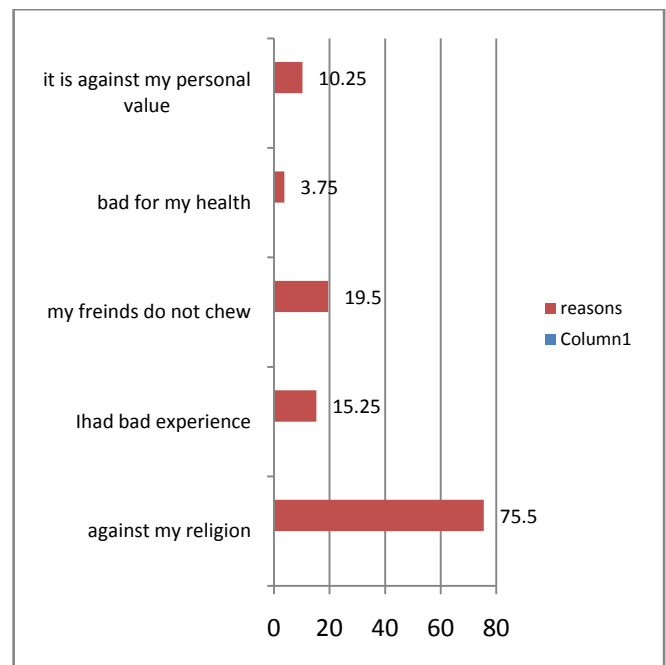
Variables	Frequency	Percent
Ever chew khat		
Yes	200	33.3
No	400	66.7
When you start chewing		
During elementary	33	16.5
During high school	101	50.5
Since campus	66	33
How often do you chew in the last 12 month		
Every day	46	23.0
4-6 per week	36	18
2-3 per week	46	23
2-3 per month	72	36
Money you usually spent on khat		
<20	80	40
20-50	66	33
50-70	16	8
>70	38	19
Where you chew khat		
Dormitory	74	37
Friend home	41	20.5
Khat selling place	42	21
Khat room	36	18
Public place	7	3.5
How long since your last chew		
Few days ago	88	48.4
Few weeks	61	33.5
Few months	30	16.5

Years ago	3	1.6
When you usually chew		
After noon	84	42
Night	12	6
Weekends	74	37
Holydays	27	13.5
Invitation	3	1.5
With whom you usually chew		
Friends	147	73.5
Dorm mates	46	23
Others	7	3.5
What you do after chewing		
Drink alcohol	42	21
Sleep	54	27
Read	104	52

4.2. Reasons for not Chewing Khat

Participants who don't chew khat mentioned different reasons for not chewing; among which religious is the dominant one, 302 (75.5%).

Table 2. Reasons for not Chewing Khat among the Study Participants



4.3. Consumption of Drugs among Under Graduate Students of Jigjiga University

The study also revealed as there were more additional drug components consumed by the undergraduate student of Jigjiga University. Different types of drugs found consumed by the students, in which shisha dominated other drug preferences.

From the study we were able to understand that, students year of study, sex, having chewer friend, ever smoke cigarette and ever use any drug were significantly associated to chewing khat.

Table 3. Consumption of drugs among regular Jigjiga University students

Variables	Frequency	Percent
Ever tried to take any drug		
Yes	88	14.7
No	512	85.3
Ever use marijuana		
Yes	35	39.8
No	53	60.2
Ever use shisha		
Yes	50	56.8
No	38	43.2
Ever use benzene		
Yes	32	36.4
No	56	63.6
Ever use cocaine		
Yes	22	25
No	66	75
Ever use pethidine		
Yes	9	10.2
No	79	89.8
Ever use diazepam		
Yes	15	17
No	73	83
Ever tried injecting addicting drugs	9	1.5
Yes	591	98.5
No		

5. Discussion

In this study, we assessed the prevalence of and factors associated with chewing khat and use of other drugs among undergraduate students of Jigjiga University, eastern Ethiopia.

As indicated in the introduction of this article, substance use is associated with a range of physical and psychological health problems. Hence this study is deemed important from public health perspective because it documents the magnitude of and factors associated with these important risk factors in a population of young university students.

The prevalence of substance use in their life time identified by this study was 52.5% while current users were 40%. Being in the senior academic year, being male, having a friend who consume substance, and using one substance are of major risk factors for the other.

The finding of this study was also lower than the finding of studies conducted among University and college students at different countries like the result of study conducted in Italy (42.2%) [26], study conducted in South Africa (70%) [11], study conducted in western Kenya (51.9%) [21], in Ginnir town, Bale zone among high school and preparatory students (31.2%) [14], the finding of study conducted in Woreta town, North West Ethiopia among high school

adolescents (40.9%) [15], the result of a study conducted in Sothern Ethiopia among Dilla university students (64.7%) [16]. The difference attributed by factors but not necessarily limited to difference in the study areas, availability of the source in the area and the attitude of the local community towards khat chewing and consuming additional drugs following intake of this stimulant leaf and periods of time when the aforementioned studies conducted.

The current prevalence of khat chewing in this study was found to be 33.3%. This result was higher than a similar study conducted among Debra markos Poly technique students in Debra markos town, north Ethiopia (7.8%) [12], study conducted among Rift Valley University students in Bishoftu town (20.7%) [13], among Jima University students, south west Ethiopia (24.2%) [27], among Adigerat University students, northern Ethiopia (6.7%) [17], among Mekele University students, northern Ethiopia (14.8%) [18], among school going students in Eastern Ethiopia (24.2%) [28]. This may be due to the cultural difference in which chewing khat is more or less normative and relatively labelled positive for it has been attached to ways of life society for the sake of respite and joy as one move toward eastern part of the country in which current study was conducted than the fore mentioned areas.

The finding of this study is lower than the result of a study conducted in Ginnir town Bale zone among high school students (48.5%) [14], among Dilla University students, southern Ethiopia (41.8) [16]. Again the observed difference may be contributed by the availability of khat in that area i.e. Bale zone of Oromia region and in southern part of Ethiopia, especially Bale zone of Oromia region is one of the areas in which khat is highly produced and utilized for both consumption and commercial purpose.

The current prevalence of cigarette smoking in this study was 14.5% which was higher than finding of the study conducted among college and University students in Nigeria (4.7%) [10], study conducted among Debre markos poly technique, northern Ethiopia (5.4%) [12], study conducted among Hawassa University students, southern Ethiopia (7.5%) [23], among Adegirat University students, northern Ethiopia (6%) [17], among Makele University students, northern Ethiopia (8.8%) [18] and among high school students in eastern Ethiopia (12.2%) [28].

The finding of current study was lower than other similar studies conducted among college students in Italy (24%) [26], survey conducted among college students in Canada (21.6%) [29], among university students in Beirut, Lebanon (37.2%) [30], among college students in western Kenya (42.8%) [21], Bishoftu town among Rift Valley University students, central Ethiopia (18.3%)[13] and among Dilla University students, southern Ethiopia (19.17%) [16]. About 15% of the study participants ever tried other drugs from which shisha accounts about 57% which is followed by marijuana which is about 40% among participants who responded yes to other substance use in the University.

The finding of this study depicted that the prevalence of the drugs was higher than the results of other studies

conducted among college students in Nigeria cocaine (3.5%) [10], among college students in southern Iran, cocaine (2%) [31], and conducted among college students of western Kenya [21].

The finding of this study also revealed that having friend, ever chew khat, ever smoke cigarette, and ever tried any drug were significantly associated with drinking alcohol, AOR=33.25 95% CI=11,100, OR=2.78, 95% CI=1.15,6.83), AOR=4.45, 95% CI=1.04,19.08), 11.55(3.28,40.75), respectively. The finding of our current study also comparable with the finding of the study which was conducted among Addis Ababa University medical students in which those students having a friend who smokes, and having friend who chew khat, AOR=2.47, 3.89, and 15.11 respectively [22].

Chewing Khat was significantly associated with student's year of study, having chewer friend, ever smoke cigarette and ever tried any drug. Accordingly students at their 3rd year of college study were about 6 times likely to chew khat, AOR=6.24, 95% CI=3.32, 11.74) comparing with their junior but there was no significant association with 4th year and above duration of college study.

Students khat chewing behavior was also significantly associated to having chewer friend, AOR =3.29, 95% CI=2.04, 5.30), ever smoke cigarette, AOR=3.63(95% CI=1.78, 7.34), and ever tried illicit drugs, AOR=4.11(95% CI=1.93, 8.74).

Similarly students who chew khat were about 27 times likely to smoke, AOR 27.23(95% CI=9.47, 78.31) compared with those who didn't chew khat. Using different drugs was another factor significantly associated with smoking, AOR=30.29(95% CI=11.6978.52).

Using different drugs like shisha, hashish and marijuana were other substances frequently used by University students of study population. Like that of other substances mentioned earlier in this study, using different drugs also significantly associated to students year of study, ever drinking alcohol and ever smoke cigarette. Accordingly those student at their year three of study were about 3 times likely to use drugs compared with those didn't drink, AOR=3.17(95% CI=1.10, 9.14), and those at 4th year and above were about 9 times likely to use the drugs, AOR=8.60(95% CI=2.32, 31.85). The odds of using drugs was also about 3 times higher among those who drink alcohol, AOR=2.84(1.31, 6.12). The chance of using the drugs was about 27 times higher among smokers, AOR= 27.54(955 CI=12.47, 60.81) compared with those who didn't smoke cigarette.

6. Conclusions

The objective of our current study was to asses magnitude and factors associated to university students' substance use. Accordingly the magnitude of the substance use was high among the study participants. Students' year of study, male sex, having a friend who use the substance especially alcohol, and using one substance was a factor for the other. Besides,

the nature of the environment and socialization pattern deep rooted in the community's shared sentiments is other influencing factor in terms of easily accessibility and mass of fortified groups within the addiction. Khat use among the undergraduate students of Jigjiga University is prevalent with statistical ratio of 33.3%.

The study revealed as students year of study increases there is high probability to engage in use of khats which by default followed by consumption of other drugs including shisha, hashish and marijuana. In all drugs and different substances use, seniority in academics and male social class students involvement is highly associated to one another. When compared with other drugs for associated factors, khat consumption is of the major predisposing factor for shisha use.

ACKNOWLEDGEMENTS

We would like to acknowledge the invaluable support rendered to us by the academic staffs and the students of Jigjiga University who provided us all the potential information for the study.

The entire project modest fund was by the Jigjiga University's, Directorate of Research, Publication and Technology Transfer and for which the authors are highly indebted. The University's management support in facilitating realization this endeavoured work is also sincerely appreciable.

REFERENCES

- [1] Odejide AO: Status of drug use/abuse in Africa: A review. *International Journal of Mental Health*.
- [2] Volkow ND, Li TK: Drugs and alcohol: Treating and preventing abuse, addiction and their medical consequences. *Pharmacology and Therapeutics* 2005, 108:3-17.
- [3] .Wechsler H, Rigotti NA, Glendhill-Hoyt J, Lee H: Increased levels of cigarette use among college students - a cause for national concern. *JAMA* 1998; 280:1673-1678.
- [4] .Shafik M, Shah Z, Saleem A, Siddiqi MT, Shaikh KS, Salahuddin FF, Siwani R, Naqvi H: Perceptions of Pakistani medical students about drugs and alcohol: a questionnaire-based survey. *Substance Abuse Treatment, Prevention, and Policy* 2006; 1:11-18.
- [5] Kassaye M, Sherief TH, Ghimja F, Teklu F: Drug use among school students in Addis Ababa and Butajira. *Ethiopian Journal of Health Development* 1999; 13:101-106.
- [6] Status of drug use/abuse in Africa: A review. *International Journal of Mental Health* 2006, 4:87-102.
- [7] Andargachew Kassa and Serawit Deyno. Prevalence and Determinants of Active and Passive Cigarette Smoking among undergraduate students at Hawassa University, Hawassa, Ethiopia, *Journal of Tropical Diseases & Public Health*.2 (4): 145.

- [8] Anteneh Messele Birhanu, Telake Azale Bisetegn and Solomon Meseret Woldeyohannes. High prevalence of substance use and associated factors among high school adolescents in Woreta Town, Northwest Ethiopia: multi-domain factor analysis. *BMC Public Health* 2014; 14: 1186.
- [9] Odek-Ogunde M, Pande-Leak D: Prevalence of substance use among students in a Kenyan University: a preliminary report. *East Afr Med J*. 1999; 76:301-306.
- [10] Diane Von Ah, Sheryl Ebert, Anchalee Ngamvitroj, Najin Park, Duck-Hee Kang. Factors Related to Cigarette Smoking Initiation and Use among College Students. *Tobacco Induced Diseases*. 2005; 3(1): 27-40 ().
- [11] Supa Pengpid, Karl Peltzer, Hendry van der Heever and Linda Skaal. Screening and Brief Interventions for Hazardous and Harmful Alcohol Use among University Students in South Africa: Results from a Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*. 2013; 10: 2043-2057.
- [12] Ahmed Yasin Mohammed. Assessment of substance use and associated factors among high school and preparatory school students of Ginnir Town, Bale Zone, Southeast Ethiopia. *American Journal of Health Research*. 2014; 2(6): 414-419.
- [13] Tadesse Gudeta and Eshetu Mulisa. Prevalence of Substance Abuse and its Associated Factors among the Students of the Rift Valley University College, Bishoftu, East Ethiopia. *medicinska revija medical review*. 2015;7(1): 033-040.
- [14] Ahmed Yasin Mohammed. Assessment of substance use and associated factors among high school and preparatory school students of Ginnir Town, Bale Zone, Southeast Ethiopia. *American Journal of Health Research*. 2014; 2(6): 414-419.
- [15] Anteneh Messele Birhanu, Telake Azale Bisetegn and Solomon Meseret Woldeyohannes. High prevalence of substance use and associated factors among high school adolescents in Woreta Town, Northwest Ethiopia: multi-domain factor analysis. *BMC Public Health*. 2014; 14:1186.
- [16] Moges Tadesse; Substance abuse and sexual HIV-risk behaviour among Dilla University students, Ethiopia, *international research journal*. 2014; 5(9): 2141-5161.
- [17] Tilahun Belete Mossie, Gebrewahd Bezabh Gebre Michael and Ashenafi Damte Ayel. Magnitude of Psychoactive Substance Abuse among University Students, Adigrat, North Ethiopia: Cross Sectional Study. *Journal of Psychiatry*. 18 (4): 1000281.
- [18] Kidan Abrha Teferi. Psycho active substance abuse and intention to stop among students of Mekelle University, Ethiopia, 2011.
- [19] Tadele Eticha, Feven Kidane. The Prevalence of and Factors Associated with Current Smoking among College of Health Sciences Students Mekelle University in Northern Ethiopia. *PLOS ONE*. 2014; 9(10): 111033.
- [20] Gabriela Arantes Wagner, Vladimir de Andrade Stempliuk, Monica L Zilberman, Lúcia Pereira Barroso, Arthur Guerra de Andrade. Alcohol and drug use among university students:gender differences. *Rev Bras Psiquiatr*. 2007; 29(2): 123-129.
- [21] Lukoye Atwol, Prisca A Mungla, Moses N Ndung ' u, Kiende C Kinoti, Evans M Ogot. Prevalence of substance use among college students in Eldoret, western Kenya. *BMC Psychiatry*. 2011; 11:34.
- [22] Wakgari Deressa, and Aklilu Azaz. Substance use and its predictors among undergraduate medical students of Addis Ababa University in Ethiopia. *BMC Public Health*. 2011; 11:660.
- [23] Andargachew Kassa and Serawit Deyno. Prevalence and Determinants of Active and Passive Cigarette Smoking among undergraduate students at Hawassa University, Hawassa, Ethiopia. *Journal of Tropical Diseases & Public Health*; 2()4: 1000145.
- [24] Ewenat Gebrehanna, Yemane berhane and alemayehu Worku. Prevalence and Predictors of Harmful Khat Use among University Students in Ethiopia. *Libertas Academica*. 2014; 8: 45-51.
- [25] Shewaye Yismaw, Hassen Kebede. Prevalence and Associated Factors of Alcohol Consumption among College Students in Gondar Town, Northwest Ethiopia. *Science Journal of Public Health*. 2015; 3(4): 453-459.
- [26] Andrea Poscia, Paolo Parente, Emanuela Maria Frisicale, Adele Anna Teleman, Chiara de Waure and Maria Luisa Di Pietro. Risky behaviours among university students in Italy. *Ann Ist Super Sanità*. 2015; 51(2): 111-115.
- [27] Deribachew Hailemariam Wazema, Kachi Madhavi. Prevalence of khat abuse and associated factors among undergraduate students of Jimma University, Ethiopia. *Int. J Res Med Sci*. 2015; 3(7): 1751-1757.
- [28] Ayalu A. Reda, Asmamew Moges, Sibhatu Biadgilign, Birhanu Y. Wondmagegn. Prevalence and determinants of khat (*Catha edulis*) chewing among high school students in eastern Ethiopia: a cross sectional study. *PLoS ONE*. 2015; 7(3).
- [29] Neeru Gupta, Hao Wang, Maurice Collette, Wilfred Pilgrim. New Brunswick Student Drug Use Survey Report. 2012.
- [30] Ahmad Hourri and Mirvat Hammoud. Addictive Behaviors amongst University Students: Contributing Factors, Student's Perception and Addiction Rate. *Journal of Social Sciences*. 2005; 1 (2): 105-113.
- [31] Seyed Taghi, Somayeh Ezid, et al. The prevalence of substance use and associated risk factors among University students in the city of Jahrom, southern Iran. *Int J High Risk Behav Addict*. 2015; 4(2).