Substance Use and Feelings of Self-determination of Summer Students at Bahir Dar University

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Abstract: The main purpose of this study was to examine the prevalence rate of substance use behaviors: the relationship between substance use and their feelings of self-determination and the difference between substance users and non users in their feelings of self-determination. Based on a cross sectional quantitative study, the study took a sample of 155 (males = 104 and females = 51) of Bahir Dar University summer students aged between 20 and 30 years (Mean = 24.26, SD= 2.147). The data were collected through questionnaire aiming at measuring the extent of students' substance use behaviors, basic psychological needs satisfaction and academic self-regulation. Accordingly, the findings showed that the prevalence rates of alcohol, khat and cigarette use among the participants were 50.97%, 50.32% and 27.71% respectively. Pearson product moment correlation coefficient indicated statistically significant positive relationship between khat use and feeling of relatedness need satisfaction, r = .165, p = .041, and statistically significant negative correlation between cigarette smoking and integrated regulation, r = -.175, P = .030. Analysis of t-test also revealed that there was a statistically significant difference between alcohol users and non- users in their relation to feelings of integrated regulation, t (153) = -3.56, p < .001,95% CI [-.57, -.16], and between cigarette smokers and non-smokers in relation to identified regulation, t (153) = -2.19, p = .030, 95% CI - .50, -.03], and integrated regulation, t (153) = -2.49, p = .014, 95% CI [-.51, -.06]. It was concluded that alcohol and cigarette use behaviors seemed to negatively affect summer young adult students' feelings of self-determination.

Keywords*:* substance use, feeling of self-determination

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Introduction

Substances, such as alcohol, nicotine, cannabis, stimulants, opioids, depressants, hallucinogens, volatile and inhalants are psychoactive substances that alter consciousness, thought processes, mood, perception and cognition by affecting the human central nervous system (Cyber Recovery Social Network Forum (CRSNF), 2006; World Health Organization (WHO), 2000). People use these substances for the sake of pleasure and joy, or for the reduction of pain, anxiety, and distress (Ihezue, 1988). The harmful use of these substances is called substance abuse (WHO, 2009; CRSNF, 2006; Wortman & Loftus, 1992).

Psychoactive substance use which has devastating effect on the health of the community particularly the young and on the economy of a particular country is now a global issue (WHO, 2000). The most commonly used/abused substances in Africa are traditional substances such as alcohol, cannabis and khat (Odejide, 2006).

Similarly, in Ethiopia, researchers such as Fekadu, Alem & Hanlon (2007); Yigzaw et al. (2005) Abiye, Abebe & Meseret (2007); Selassie & Gebre (1996); Yigzaw (2002); United Nations Population Fund (UNFPA) (2010) have assessed the prevalence rate of substance use and abuse. Their findings show that

- Alcohol and khat are the most frequently abused drugs followed by cannabis and solvents. Hard drugs such as heroin and cocaine are rarely used (Fekadu, Alem & Hanlon, 2007).
- The most affected groups of substance use are adolescents and young adults (Selassie & Gebre, 1996).
- The most abused substances by students in Ethiopia are khat, alcohol, and cigarettes (Fekadu, Alem & Hanlon, 2007; UN, 1993).

- Abuse of illicit drugs such as heroin, cocaine and cannabis are mostly limited to risk populations such as street children, juvenile delinquents and unemployed youth (Fekadu, Alem & Hanlon, 2007).

In addition, there are studies that examined the consequences of substance abuse on human health (Belew et al., 2000; Yigzaw et al., 2005). It is reported that alcohol, khat, cigarettes and other drug abuse may be associated with mental distress, respiratory and cardiac failure, liver damage, coronary heart disease, chronic obstructive lung disease and lung cancer (Belew, et al., 2000; Yigzaw et al., 2005).

On the other side, feeling of self-determination is an important attribute of students' academic success and it is affected by contextual factors. In this context, it refers to students' basic psychological needs satisfaction and academic self-regulation. Basic psychological needs satisfaction refers to the satisfaction of the need for autonomy, the need for competence and the need for relatedness (Deci & Ryan, 2008) and academic self-regulation refers to the extent to which students are autonomous (self-determined/ self-motivated) to do their academic endeavors such as assignments and preparations for examinations (Ryan & Deci, 2000).

Like that of substance use/abuse, academic self-determination is a well investigated and documented area in various countries such as Belgium and USA. Several findings indicate that supportive environment for the basic psychological needs of students at home and school is determinant for the development of students' feeling of self-determination/autonomous motivation (Deci & Ryan, 2008; Niemiec et al., 2006; Ramos & Tolentino-Anonuevo, 2011; Ryan & Deci, 2000; Soenens & Vansteenkiste, 2005). Even though this area is well researched elsewhere, few studies are found in Ethiopia. The available studies during the review process of this research are Workneh (2004) and Amare (2001, 2004). These limited studies are also fragmented.

For instance, Workneh's (2004) study examined the association between teachers' support and students' self-determination whereas Amare (2001, 2004) examined the association of academic motivation and performance. Workneh (2004) emphasized the source of self-determination (intrinsic motivation) where as Amare (2001, 2004) on the expected outcome of self-determination. This implies that even if these studies seem to revolve around similar areas, they are different.

With regard to the association between substance use and academic self-determination, there are also research findings in other countries. For instance, Reagan, William & Daniel (2007) and Neighbors, Walker & Larimer (2002) from USA report that there is a negative association between these two variables. However, in Ethiopia, though there are studies conducted on the consequences of substance use on human physical health, no or few studies are found pertinent to the association between substance use and students' feeling of self-determination. So, this study is designed to address this gap. To do so, the following research issues were identified:

- the prevalence of substance use among summer students of Bahir Dar University (BDU);
- the relationship between substance use and feelings of basic psychological needs satisfaction;
- the relationship between substance use and extent of feelings of self-regulation for academic endeavors; and
- whether there is a statistically significant difference between substance users and non users in relation to feeling of self-determination.

This study is believed to have both theoretical and practical significance. Theoretically, the study contributes some findings to the already existing knowledge in general and to what is known about the Ethiopian cases in particular. It has also practical significance in that it provides information to the University Guidance and Counseling Office

that may design different intervention mechanisms to minimize the problem.

Theoretical Framework

Self-determination theory (SDT) specifically Basic Psychological Needs Theory (BPNT), and Organism Integration Theory (OIT)) developed by Deci & Ryan (1985) are the theoretical framework of this study. SDT was chosen for the following reasons. Firstly, the theory explains how different social and contextual factors influence autonomous motivation of students. Therefore, it was found to be more appropriate for the topic under investigation: substance use/abuse (social/contextual factor) and self-determination (autonomous motivation). Secondly, it is a theory confirmed as one which has strong implications in educational contexts. In relation to this, Niemiec & Ryan (2009, p.133) state:

> A large corpus of empirical evidence based on SDT suggests that both intrinsic motivation and autonomous types of extrinsic motivation are conducive to engagement and optimal learning in educational contexts. In addition, evidence suggests that teachers' support of students' basic psychological needs for autonomy, competence, and relatedness facilitates students' autonomous self-regulation for learning, academic performance, and wellbeing. Accordingly, SDT has strong implications for both classroom practice and educational reform policies.

This proves the extent to which SDT is used as a framework in different educational research in general and in the area of self-determination in particular. The following section presents the concept of the theory.

Basic Psychological Needs Theory (BPNT) and Organism Integration Theory (OIT)

Basic Psychological Needs Theory (BPNT) asserts that the psychological needs for autonomy, competence and relatedness are basic to human beings and their satisfaction leads to effective functioning and psychological health (Deci & Ryan, 2008). According to BPNT, factors thwarting the satisfaction of these needs may negatively affect a person's motivation, behavior and well-being. For instance, the ongoing satisfaction of all three basic needs results in development of a strong autonomous motivation /self-determination/ which enables a person intrinsically motivated to do things for inherent satisfaction rather than for some separable consequences. On the other hand, the satisfaction of competence and relatedness needs and thwarting of needs for autonomy leads to development of controlled orientation/ extrinsic motivation (doing things to get reward or to avoid punishment). And the thwart of all the three needs leads to development of the impersonal orientation/amotivation which refers to a lack of intention and motivation (Deci & Ryan, 2008).

On the other hand, Organism Integration Theory (OIT) deals with human motivation resulting from the satisfaction or thwart of basic psychological needs in terms of degree of self-determination (self-regulation/ self-motivation) (Ryan & Deci, 2000). It introduced the taxonomy of extrinsic motivation/ controlled motivation/ and the contextual factors that either promote or hinder internalization and integration of the regulation for these behaviors. Internalization is the process of taking in a value or regulation, and integration is the process by which individuals more fully transform the regulation into their own so that it will emanate from their sense of self. These are processes through which extrinsically motivated behaviors become more self-determined (autonomous).

Accordingly, based on the extent of internalization and integration of regulation, OIT identified taxonomy of types of motivation from absence of self-determination to full autonomy as indicated in Figure 1 (Ryan & Deci 2000, pp:61-63).

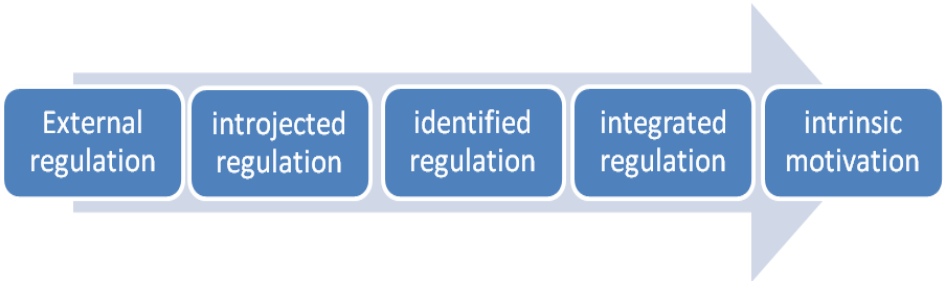

Figure1: Taxonomy of types of motivation (Source: Ryan and Deci 2000, pp. 61-63).

Amotivation is the state of lacking intention to act. When amotivated, a person's behavior lacks intentionality and a sense of personal causation (Ryan & Deci, 2000). It results from not valuing an activity (Ryan, 1995 cited in Deci & Ryan, 2000). *External regulation* is the least autonomous form of extrinsic motivation (most controlled motivation). Such behaviors are performed to satisfy an external demand or obtain an externally imposed reward contingency (Deci et al, 1991; Ryan & Deci, 2000). *Introjected regulation* is the more controlled motivation/ less autonomous type of extrinsic motivation/ describes a type of internal regulation that is still quite controlling because people perform such actions with the feeling of pressure in order to avoid guilt or anxiety or to attain ego-enhancements (self-esteem) or pride (Deci et al, 1991; Ryan & Deci, 2000). *Identified regulation* is a more autonomous or self-determined form of extrinsic motivation. In identified regulation, the person identifies with the personal importance of a behavior and thus accepts its regulation as his or her own (Ryan & Deci, 2000). *Integrated regulation* is the most autonomous form of extrinsic motivation. It occurs when identified regulations are fully assimilated to the self. The more one internalizes the reasons for an action and assimilates them to the self, the more one's extrinsically motivated actions become self-determined (Ryan &

Deci, 2000). *Intrinsic motivation* is the highest form of autonomous motivation. Persons with intrinsic motivation do an activity for its inherent satisfactions rather than for some separable consequence. They are moved to act for the fun or challenge entailed rather than external, pressures, or rewards (Ryan & Deci, 2000).

In global educational contexts, numerous studies have been conducted using STD and reported that autonomy supportive context is associated with students' feeling of self-determination and wellbeing. For instance, Niemiec et al. (2006) conducted two studies to investigate the relations among perceived need support from parents, their adolescents' autonomous self-regulation for academics, and the adolescents' well-being using SDT. They reported that in Study 1, perceived need support from parents independently predicted adolescents' wellbeing and in Study 2, autonomous self-regulation for planning to attend college was a significant partial mediator of the relation of adolescents' perceived need support to well-being. Finally, they concluded that perceived need support from parents seem important for the development of adolescents' autonomous self-regulation and well-being. Similarly, Soenens and Vansteenkiste (2005) also conducted their research in 2 samples of mid-adolescents (N = 328 and N = 285) and confirmed that autonomy-supportive parenting was significantly related to self-determination in 3 life-domains (school, social competence, and job-seeking behaviors) and autonomy-supportive teaching added significantly to the prediction of self-determination in the domains of school and job-seeking behaviors. Ramos & Tolentino-Anonuevo (2011) also found that the teacher's instructional styles of providing autonomy support and teacher structure significantly affects the student's utilization of academic self-regulated learning strategies.

All these findings indicate that there is a link between the support students receive from parents or teachers and their feeling of academic self-regulation.

Substance Use and Self-determination

Substance use is operationally defined in this study as alcohol, khat and cigarette use. The long term substance use has been found to affect an individual's neuropsychological functioning including deterioration of short term memory; impaired task orientation, altered attention level, and lowered level of concentration. It also leads to psychiatric disorder, high level of depression, violence, poverty, homelessness, social isolation and non completion of high school (Mayers, 1995 as cited in Osofesky & Thompson, 2009). WHO (2009) has stated that one of the overwhelming factor affecting physical and mental wellbeing and functioning of a person is substance abuse. It leads a person to dependence syndrome - a cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use including a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state (WHO, 2009).

Substance use/abuse has also an implication on students' self-determination. The assumption here is, if students develop dependency syndrome as a result of frequent substance use, they become unable to govern their behavior by their own to do their academic tasks. In addition, since frequent use of substances deteriorates cognitive capacity and attention, substance users may be unable to internalize and integrate the value achievement or may place little value for academic performance and become less self-regulated to do their academic endeavors. In relation to this, a survey conducted by Reagan et al. (2007) found that substance use has contributed to declining academic performance among adolescents by reducing their academic motivation and impairing their cognitive ability. Similarly a study conducted on 560 college students of North Western University, USA, found that more controlled individuals report greater alcohol consumption, and the greater the alcohol consumption the lower a

person's autonomy will be (Neighbors, Walker & Larimer, 2002). Thus, these findings imply that there is some sort of negative link between substance use/abuse and feeling of self-determination.

Method

Sample

The target population of this study was summer students of Bahir Dar University. To make the data gathering process easily manageable, cluster sampling technique was employed. First, Science Faculty and Sport Academy were randomly selected through lottery technique. From these two faculties again three departments (Sport Science, Chemistry and Physics) were selected using the same technique. Two sections from each department were selected randomly and lastly, all students of these sections were included in the study. Finally, after the necessary screening was made, 155 students (104 males and 51 females) aged between 20 and 30 years (Mean = 24.26, SD= 2.147) were used for analysis. This age group was selected on the assumption that this is a period where different substance use behaviors rise to a peak (Arnett, 2005).

Instrument

The instrument for data collection in this study is a questionnaire. It contains three scales which measure students' substance use, feelings of basic psychological needs satisfaction and self-regulation of academic endeavors. Each scale has four choices which indicate the degree to which the statement is true for an individual or not. That is, 1 = not at all true to me; 2 = somewhat true to me; 3 = true to me; 4 = very true to me. Subjects were instructed to read each item carefully, think about how it relates to their substance use behaviors; feeling of basic psychological needs satisfaction and self-regulation behavior, and then rate how much true it is for them.

Substance use scale designed by the researcher has 23 items. It contains three sub-scales that measure students' level of khat, alcohol and cigarette use. The content and face validity of the instrument; clarity of the instruction and clarity and appropriateness of items were evaluated by two psychology specialists. The pilot study was conducted on 23 Amharic summer students. Internal consistency of the instrument was examined through Cronbach alpha and the reliability coefficient of this scale was found to be .79 which is acceptable since it is greater than .70. Sample items include: "Khat (Chat) chewing makes me to study hard"; "once a week I chew Khat to study"; "I drink alcohol (Tela, Tej, Areqie, Beer, Ouzo …) at least once a week"; "The more I drink, the better I feel relaxed"; "Before going to study, I want to smoke a cigarette;" "I smoke a cigarette at least once a day" .

Basic Psychological Need Satisfaction scale was adapted from Basic Psychological Need Satisfaction (general scale) developed by La Guardia et al. (2000). It has 21 items measuring students feeling of satisfaction of the need for autonomy, competence, relatedness. The reliability coefficient of the scale for this study was .78. Sample items include: "I feel like I am free to decide my life choice" (autonomy); "I feel confident about my abilities" (competence), "People in my life care about me" (relatedness).

Academic self-regulation questionnaire (SRQ-A) adapted from Academic self-regulation questionnaire (SRQ-A) developed by Ryan and Connell (1989). It is a 34 items assessing students 'level of academic self-regulation/motivation (external regulation, introjected regulation, identified regulation, integrated regulation and intrinsic motivation). Amotivation was not included in the scale because of the assumption that every summer student joins university at least to earn a degree. The reliability of the scale for this study was .87. Sample items include: "*Why do I participate in doing group assignment?" "Because* I want the group leader to think I'm a good student (Introjected regulation), "Because I'll get in trouble if I don't participate"

(external regulation); “Because I enjoy doing assignment” (intrinsic motivation.

Procedure of Data Collection and Analysis

Before administration was carried out, consent was obtained from participants. Then, the questionnaire was administered to 210 students of 2011 academic year. It was administered by the researcher and other six teachers (assistants) in the classroom and took 40 to 60 minutes to complete.

Before analysis, screening of questionnaires was made. Forty-two questionnaires were discarded due to incompleteness, and the responses of 13 participants aged above 30 were rejected since the study is delimited to those young adults whose age ranges from 20 to 30. So, the remaining 155 responses of students were used for data analysis purposes.

To examine prevalence rate of substance use behaviors, the obtained data of substance use sub scales were categorized into four groups: Non users, Low level substance users, Medium level substance users and High level substance users (substance abusers). This category was made based on the interval of the instrument (That is, 1 = not at all true to me; 2 = somewhat true to me; 3 = true to me; 4 = very true to me). Thus, non users are those participants whose substance use sub scale mean score is equal to 1; Low level substance users are those respondents whose substance use sub scale mean score ranges from greater than 1 to 2; Medium level substance users include those respondents whose substance use sub scale mean score ranges from greater than 2 to 3; and High level substance users, who can be categorized as substance abusers, are those respondents whose substance use sub scale mean score ranges from greater than 3 to 4.

Using similar procedure, the data was also grouped into two: substance users and non users to examine the differences in self-determination. The cut-off point used to group participants was 1.01. That means participants whose substance use sub-scale mean score is less than 1.01 were grouped under non users and those whose substance use sub scale is greater than or equal to 1.01 under substance users.

Data Analysis

This research employed quantitative data analysis techniques, such as percentage and correlation and t-test analysis. Percentage was used to examine prevalence of substance use behaviors. Pearson product moment correlation coefficient was used to examine the linear relationship between substance use behaviors and feelings of basic psychological needs satisfaction and academic self-regulation. To examine whether significant difference existed between substance users and non users in feelings of self-determination, independent sample t-test analysis was employed. Alpha level 0.05, (2-taild) was used to test significance.

Results

Prevalence of Substance Use

The result showed that from the total of 155 students, the percentage of students who never use alcohol, khat, and cigarette is 49.03% (*n*=76), 49.68% (*n*=77) and 72.26 % (*n*=112) respectively. On the other hand, the prevalence rate of low level of Alcohol, khat, and cigarette use is 44.52%, 38.71% and 23.23% respectively; medium level alcohol, khat, and cigarette use is 6.45%, 8.39% and 3.87% respectively; and high level alcohol, khat, and cigarette use 0%, 3.22% and 0.64% respectively. These imply above 50 % of the participants use alcohol and Khat and about 28 % of the participants use cigarette.

Correlation between Substance Use, Basic Psychological Needs Satisfaction, and Self-regulation

Table 1: The Correlation between Substance Use, Basic Psychological Needs and Self-regulation

	M	*SD*	1	2	3
1. Alcohol	1.30	0.43			
2. Khat	1.39	0.59			
3. Cigarette	1.15	0.34			
4. Autonomy	2.67	0.43	-.088	.002	-.059
5. Competence	2.90	0.52	-.026	.142	.027
6. Relatedness	2.73	0.51	.117	.165*	.034
7. External	2.63	0.53	.103	.085	.004
8. Introjected	2.55	0.52	.147	.071	.121
9. Identified	3.22	0.68	-.099	-.081	-.106
10. Integrated	3.35	0.65	-.134	-.081	-.175*
11. intrinsic	2.82	0.60	.019	.068	.052
n=155					

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

As it can be seen from Table 1, the correlation between khat use and feeling of relatedness need satisfaction is positive which is statistically significant, r = .165, p =.041. On the other hand, statistically non significant positive correlation was obtained between khat use and feeling of competence need satisfaction; alcohol use and feeling of relatedness needs; khat use and feeling of autonomy need satisfaction; cigarette use and feeling of competence need satisfaction; and cigarette use and feeling of relatedness needs satisfaction. The result also revealed statistically non significant negative correlation between alcohol use and feeling of autonomy need satisfaction; alcohol use and feeling of competence need satisfaction; cigarette smoking and feeling of autonomy need satisfaction.

On the other hand, Table 1 shows statistically significant negative correlation between cigarette smoking and integrated regulation, r = -.175, P = .030. This means that as students rating of cigarette smoking is greater, their rating of doing their academic tasks by internalizing and integrating its value to the self becomes lower. Though the correlation coefficients results are not statistically significant, negative correlation between alcohol use and identified regulation, alcohol use and integrated regulation, khat use and identified regulation, khat use and integrated regulation, and cigarette smoking and identified regulation was observed. On the opposite, positive correlation is obtained between alcohol use and external regulation; alcohol use and introjected regulation; alcohol use and intrinsic motivation; khat use and intrinsic motivation; and cigarette smoking and intrinsic motivation. No linear relationship between cigarette smoking and external regulation was observed.

These findings depicted that although the magnitude of majority association results is not significant; the direction of the associations matches with the hypothesis that states substance use is negatively related with feelings of self-determination. On the opposite, there are also results which are not fit with the hypothesis. Thus, checking the consistency of these findings will require further investigation.

Differences in Feelings of Self-Determination

Table 2: Feeling of Self-Determination Difference between Alcohol Users and Non Users

Variables	Alcohol (users, *n =79;* Non users, *n =76*	Mean	SD	*t*(153)	P	95% *CI* LL	95% *CI* UL
External	Users	2.65	0.51	0.31	.759	-0.14	0.19
	Non users	2.62	0.54				
Introjected	Users	2.54	0.53	-0.45	.654	-0.20	0.13
	Non users	2.57	0.51				
Identified	Users	3.12	0.73	-1.87	.064	-0.42	.012
	Non users	3.33	0.62				
Integrated	Users	3.18	0.67	-3.56	.000	-0.57	-0.16
	Non users	3.54	0.58				
Intrinsic	Users	2.79	0.54	-0.64	.523	-0.25	0.13
	Non users	2.85	0.67				
Autonomy	Users	2.62	0.39	-1.37	.173	-0.23	0.04
	Non users	2.72	0.46				
Competence	Users	2.83	0.53	-1.74	.083	-0.31	0.02
	Non users	2.97	0.52				
Relatedness	Users	2.72	0.49	-0.19	.852	-0.18	0.15
	Non users	2.74	0.53				

Note: CI = confidence level; LL = lower limit; UL = upper limit.

Statistically significant difference in feeling of integrated regulation is obtained between students who use alcohol and those who do not use alcohol, t(153) = -3.56, p < .001, 95% CI [-.57, -.16] (Table 2). This means the mean score of integrated regulation items of alcohol users is less than the mean score of integrated regulation items of non users. In other words, alcohol users are less self-determined than

non users in doing their academic activities. The remaining t test results are not statistically significant.

Table 3: Feeling of Self-Determination Difference between Khat Users and Non Users

Variables	Khat (Users, *n* = 78; Non users, *n* = 77)	Mean	SD	t(153)	P	95 % CI	
						Lower	Upper
External	Users	2.67	0.48			-0.10	0.24
	Non users	2.60	0.56	0.85	.397		
Introjected	User	2.61	0.48			-0.06	0.27
	Non users	2.50	0.55	1.31	.191		
Identified	User	3.16	0.65			-0.34	0.09
	Non users	3.29	0.71	-1.17	.244		
Integrated	User	3.27	0.63			-0.36	0.046
	Non users	3.43	0.67	-1.54	.127		
Intrinsic	User	2.82	0.54			-0.20	0.19
	Non users	2.82	0.67	-0.06	.952		
Autonomy	User	2.62	0.39			-0.24	0.03
	Non users	2.73	0.46	-1.57	.118		
Competence	User	2.89	0.48			-0.18	0.15
	Non users	2.91	0.57	-0.15	.878		
Relatedness	User	2.78	0.46			-0.06	0.26
				1.19	.234		

Note: CI = confidence level; LL = lower limit; UL = upper limit.

No statistically significant difference is observed between khat users and non users in feelings of self-determination as it is indicated in Table 3.

However, as it can be seen from Table 4, statistically significant difference between cigarette smokers and non smokers is found in relation to identified, t(153) = -2.19, p = .030, 95% CI [–.50,-.03] and integrated regulation, t(153) = -2.49, p = .014, 95% CI [-.51, -.06]. This means, the smokers' level of internalization and integration of the value of doing academic endeavor is lower than that of the non smokers. The remaining t values are statistically non significant.

Table 4: Feeling of Self-Determination Difference between Cigarette Users and Non Users

Variables	Cigarette (Users, *n* = 43; Non users, *n* = 112)	Mean	SD	*t*(153)	p	95% CI	
						LL	UL
External	Users	2.61	0.43				
	Non users	2.64	0.56	-0.32	.749	-0.22	0.16
Introjected	Users	2.61	0.44				
	Non users	2.53	0.55	0.95	.345	-0.10	0.03
Identified	Users	3.03	0.60				
	Non users	3.30	0.70	-2.19	.030	-0.50	-0.03
Integrated	Users	3.15	0.61				
	Non users	3.43	0.65	-2.49	.014	-0.51	-0.06
Intrinsic	Users	2.85	0.48				
	Non users	2.81	0.65	0.35	.726	-0.18	0.25
Autonomy	Users	2.63	0.36				
	Non users	2.69	0.45	-0.83	.410	-0.22	0.09
Competence	Users	2.88	0.49				
	Non users	2.90	0.54	-0.23	.819	-0.21	0.17
Relatedness	Users	2.74	0.49				
	Non users	2.73	0.52	0.09	.926	-0.17	0.19

Note: CI = confidence level; LL = lower limit; UL = upper limit.

Discussion

Prevalence of Substance Use Behaviors

It is found that substance use is prevalent among the samples of BDU summer young adult students. Above fifty percent of the participants use alcohol and Khat and about 28% of the participants use cigarette. The prevalence might be attributed partly to the age or period that the participants of this study exist and partly to the program to which the participants belonged to. Arnett (2005) called this period (from 20 to 30 years of age) emerging adult which is known as a period of independence/autonomy. It is a period of increased freedom, weakened parental monitoring and increased importance of peer relationships. It is also a period of experimentation and exploration. Young adults want to obtain a wide range of experiences before settling down into the roles and responsibilities of adult life. They want to experience the sensation of novel substances (Arnett, 2005). Peer pressure is also another contributing factor for substance use at this period. Thus, since the participants of this study are at an emerging adulthood age, they may be influenced by these developmental issues to use different types of substances.

Another possible explanation especially for the khat use may be the program itself. The program that the participants enroll into is summer program with an academic schedule of only two months. Within this tight program, students are required to complete four to six courses. They are also expected to do different academic tasks individually and in group and prepare for their mid and final examinations. This situation may create stress and anxiety and may force them to use khat to get energy and to stay longer involved in their academic activities.

The Correlation between Substance Use and Feeling of Basic Psychological Needs Satisfaction

The obtained statistically significant positive correlation between khat use and feeling of relatedness need satisfaction indicates that as students rating of khat chewing behavior for doing academic activities increases, their rating of feelings of relationship needs satisfaction also increases. This result contradicts with what was found by Mayers (1995): substance use leads to social isolation (cited in Osofesky & Thompson, 2009). This discrepancy possibly results from the period itself and the nature of the substance. The period of a young adult is a period of experimentation (Arnett, 2000). Thus, the devastating effects of khat use on relationship may not be magnified at this stage as it is expected. In addition to this, Khat is a stimulant. Its use induces a state of euphoria with feelings of increased alertness and arousal (Fekadu , Alem & Hanlon, 2007). During chewing session vivid discussions with excited mood are common among khat users. So these conditions may lead them to feel that they are loved and have secure and satisfying connections and relationships with others.

The Relationships between Substance Use and Academic Self-regulation

The study found statistically significant negative correlation between cigarette smoking and integrated regulation. This means that as students' smoking behavior increases, their valuing the importance of doing academic activities for the self decreases. This finding is also somewhat related with the finding of Reagan et al. (2007): substance users found to be less motivated to achieve high grades because they place little value on academic performance.

Integrated regulation is the highest autonomous type of extrinsic motivation. It shares different qualities with intrinsic motivation. A student who reaches at this level accomplishes academic activities to create something new or to understand the learning material

thoroughly (Deci & Ryan, 2000; Deci et al., 1999). On the other hand, cigarette is a very addictive drug compared to other types of substances (Clayton, Caudill, & Segress, 2009). This implies that young adults who experiment cigarette as a part of their identity exploration may quickly develop dependency syndrome. If students develop dependency syndrome, they worry about how they can get cigarette rather than initiate themselves to do academic tasks. These students, if they cannot get cigarette on time, may experience anxiety, irritability, decreased concentration, restlessness, tremor, heart racing, sweating, craving, insomnia, drowsiness, headaches, depression, and digestive disturbances (Leukefeld et al. (2005). Thus, these feelings may diminish their self-regulation by making them give little value or importance of doing academic tasks (Reagan et al, 2007).

Differences in Feeling of Self-determination

A statistically significant difference is found between students who use alcohol and those who do not use alcohol in feeling of integrated regulation and between cigarette smokers and non smokers in feelings of identified and integrated regulation. This indicates students who use alcohol and cigarette have lower self-motivation to accomplish academic endeavors than non users. This result is consistent with the findings of Reagan et al (2007) and Neighbors, Walker and Larimer (2002). As students' level of substance use behavior increases, the level of internalization and integration of the value of doing academic activities will decrease. Thus, they are accompanied by controlled motivation and do their academic tasks more to get reward or to avoid pain or to be respected than to achieve something important or new from the task itself (Ryan & Deci, 2000).

According to Ryan & Deci (2000), controlled motivation results from the satisfaction of competence and relatedness needs and thwarting of autonomy need satisfaction. The same is true in the present investigation. Though it was not statistically significant, negative correlation was found between alcohol use behavior and feeling of

autonomy need satisfaction and cigarette smoking and autonomy need satisfaction (Table 1). This implies alcohol and cigarette users feel that their needs for autonomy is thwarted or they feel that they have low freedom of making their own decisions or choices or they have low self-regulation.

Thus, from these findings it can be concluded that through thwarting autonomy needs satisfaction, alcohol, and cigarette use behavior can negatively affect young adults' feelings of self-determination.

Future Directions

The result indicates that half of the samples use alcohol and khat and a quarter of the samples use cigarette. This result shows the extent of dissemination of substance use behavior among university students. So assessing the environmental risk factors that increase the likelihood of substance use behaviors among university students is vital.

Recommendation /Implication for Intervention/

Based on the results, the following recommendations or suggestions are forwarded for intervention to minimize the dissemination of substance use behaviors among university students.

The aim of a university is to produce healthy citizens who actively participate in the development of the country. Thus, it is helpful if BDU designs different types of intervention mechanisms, such as

- giving research-based orientations to first year students as soon as they arrive at university and informing them the negative effect of substance use behaviors on students' healthy functioning regularly;

- preparing discussion sessions with students on how to protect themselves from experimenting with substance use and helping students to be self responsible;
- using " Don't Use Substance " message as a motto of the university (which is found to be very effective message in prevention of substance use behaviors (Leukefeld et al., 2005); and
- examining the environmental risk factors that aggravate the problem and designing consistent controlling mechanism to discourage students who use substances and people who provide different psychoactive substances to students.

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