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Assessment of the Effects of Khat Consumption on the Health of the Non School Going Youths in Daynile District, Mogadishu-Somalia

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Abstract: ***The study was to assessing the effects of khat on health. The major objectives were to determine the effects of Khat consumption among the non school going youth case study in Daynile District, Mogadishu, Somalia. Therefore this study was focused Non school going youth in Daynile District. The specific objectives were; To determine the level of Khat consumption among non school going youth, to identify the reasons of Khat use among non school going youth and to determine effect of Khat consumption on the Health and socio-economic status of non school going youth in Daynile District, Mogadishu, Somalia. Methodology: This was a cross-sectional study with both quantitative and qualitative, data collected using questionnaire, key informant and observational checklists on a sample size of 107 respondents. Results Majority of the respondents (68.2%) were male as compared to females who were only 31.8%. The results indicate that most of the youth in the study sample were aged between 26-29 years (38.3%) followed by those between 18-25 years (37.4%) and then those between 30-35 (11.2%). Only 13.1% were above 35 years. This indicates that most of the respondents in the sample were in their early adulthood age (20 - 39). The results also indicate that more than 75% of the youth were in their 20s or below. There was a significant relationship between Khat consumption with heart problems (p=000) and also there is a significant relationship between the frequency of use and heart problems. When asked how often they participate in growing and selling of Khat, majority indicated that they do not do so, an indication that they are mainly consumers and not dealers, save a few (25%). Recommendations: Khat use is found to be present in most local communities of Somalia and so this substance should be included in local generic substance misuse education and prevention initiatives. Khat use should be declared unacceptable by the commissioner of culture in the country. This is to prevent those people who promote Khat use hiding in culture and showing that it is a custom to which people should stick. It is recommended that there is a need for Local authorities, police and crime commissioners to discourage the consumption of Khat in the community and to declare it as illegal for consumption, production and trade. Special licenses need to be given for those few individuals who may be allowed to grow Khat needed for other purposes.***

Keywords: Khat, Substance abuse, consumption, health, youths, initiatives

1. Introduction

Consumption of Khat is a matter of health concern globally. The United Nations (UN), World Health Organisation (WHO) and developed countries like United States, Britain, Germany, China have all campaigned against its consumption although cases of impoundment continue to be reported at major world airports. It is rated a prohibited import in Australia. The WHO (2009) has reportedly warned of its damaging effects on human health and categorizes it as a drug. Non consumption would imply emotional stability and guided action on the other hand (Wilbert, 2009). Its consumption results in changes in a person's physical appearance, personality, attitude or behavior. However, although there are campaigns against Khat consumption in most parts of the world, there is open and wide spread consumption among the youth (Fugate, 2009). This special interest group should be protected from the vice.

Treated as a drug, Khat consumption can manifest both physical and behavior symptoms. Physical symptoms include loss of appetite, increase in appetite, changes in eating habits, unexplained weight loss or gain , inability to sleep, awake at unusual times, unusual laziness. Others are nausea, vomiting or excessive sweating, tremors or shakes of hands, feet or head and irregular heartbeat (Fugate, 2009). However, it is also associated with merry making and social cohesion for some communities.

There are campaigns against Khat consumption in Somalia (Saudi medical journal, 2009; E.A medical journal, 2009). The country is campaigning against negative forces like Khat chewing that can undermine national reconstruction and reconciliation. It is reported that its consumption is habitual, unregulated and has actually reached epidemic proportions (British Journal of Clinical Pharmacology, 2009).

According to SIMON (2011) doctors in parts of Sweden are connecting young Somali`s heart problems to Khat. They had more severe infections, more chest pains; irregular heart beat and had higher risks of cardiac deaths and stroke than other patients that did not use Khat. It is of academic and social interest to know why such levels have been reached, the effects and any measures that can be adopted to control Khat consumption.

Countries that are supportive of Khat chewing undermine the sustainability of development and health efforts especially with regard to groups like the youth. The youth form the majority of world populations and are therefore a critical mass in determining control efforts in Khat chewing. They are

potential targets and sources of education as a key element in the control efforts (Anderson & Carrier, 2011).

A habitually depressed youth community cannot be proactive, rendering the national health planning process futile. Whereas the youth have the energy and other resources, they can be misguided to channel this potential to unproductive habits. The energy that would otherwise be put to development efforts by a productive age group is instead invested in Khat chewing. This justifies the researcher's interest in the area.

Consumption of Khat could be dangerous to human health. It would appear communities are not sensitized on the danger it poses to human health, concentrating on the short term excitement it is reported to have on its consumers. It depresses the human immune system, causes memory shortfalls, and disorganizes reproductive systems as well as thermoregulatory functions in man. This study will emphasize efforts to understand more the habit of Khat chewing and hence devise more effective control measures

2. Statement of the Problem

The youth are increasingly being made to believe in life styles that disturb their health. One of these life styles is Khat consumption (Douglas & Lintzeris, 2011). There is open and wide spread consumption that law makers and consumers seem not to bother about (Fugate, 2009).

Khat is a stimulant herb whose consumption can be harmful. It is associated with idleness and hypertension. Chronic consumption can lead to impairment of mental health, personality disorders and mental deterioration. It can lead to increased susceptibility to infectious diseases like TB, HIV and hepatitis (Fugate, 2009).

For a long time Khat chewing has been going on in various parts of the world, but mainly in Asia and Africa (Krikorian, 1983). In other continents like Europe and America, Khat chewing was introduced by migrants mainly from African countries of Somalia, Ethiopia, Eritrea, Kenya and so on. In the whole world, the two most prominent countries for Khat chewing are Yen and Somalia (Krikorian, 1983). According to Krikorian (1983), Khat chewing is common in countries within the horn of Africa, the Arab Peninsula, East and Southern as well as parts of Asia. Its cultivation is also common in those areas, although it is more pronounced in Ethiopia, Yemen and Somalia (Odenwal, 2006). According to Odenwal (2006), Khat was first caltivated in Ethiopia in a place called Hararge highlands and from there, it was taken to Yemen (Gebissa). From that time, Khat as a plant has been described using different botanical and common names. Khat chewing started as a habit among casual workers, after discovering that it can help reduce physical fatigue while travelling or working (Odenwal, 2006). It is mainly the young and tender leaves and stems that are chewed. The chewers of Khat keep an egg-sized bolus in their cheek for several hours, while swallowing the extracted juice, after which they spit the bolus anywhere they find (Al-Motarreb *et al.*, 2002).

Despite all the facts about Khat chewing, it is unclear whether the chewers in Somalia are well aware about the dangers it has on their health. It has been indicated that Khat chewing has numerous effects to the health of users. For example, Khat chewing has been associated with health problems like cancer, ulcers, liver diseases, dizziness, insomnia, headache, fatigue, disrupted sleep, impotence, low birth weight, still birth, impaired lactation, hyperthemania, perspiration and so on (Heather *et al.*, 2011). According to Erica (2010), Khat chewing has increased in the last two decades and its health effects have become a global problem among its users who are now spread worldwide. Somalia is one of the countries where Khat chewing has been identified for a long time. For example, the demand for Khat in Somalia before it was banned was estimated to be at 20 tons every day and an amount worth US$ 800,000, used to be shipped from Kenya on a daily basis (Erica, 2010). In one city of Hargeisa, Somaliland, the demand for Khat trade was estimated to be at 300,000 US$ per day (Erica, 2010). Despite all the facts about Khat chewing, little has been empirically and scientifically documented about the extent of its usage as well as the extent of its effects especially on health of people in Somalia (Odenwald *et al*., 2007).

General Objective

The main objective of this study was to determine the effects of Khat consumption on health of the non school going youth in Daynile District, Mogadishu, Somalia.

Specific Objectives

The specific objectives of this study are

1) To determine the level of Khat consumption among non school going youth in Daynile District, Mogadishu, Somalia.
2) To identify the reasons of Khat use among non school going youth in Daynile District, Mogadishu, Somalia.
3) To determine effect of Khat consumption on the Health and socio- economic status of non school going youth in Daynile District, Mogadishu, Somalia

3. Literature Review

Khat (pronounced "cot") is a stimulant drug derived from a shrub (Catha edulis) that is native to East Africa and southern Arabia. The khat plant itself is not scheduled under the Controlled Substances Act; however, because one of the mind-altering chemicals found in it, cathinone, is a Schedule I drug (a controlled substance with no recognized therapeutic use), the Federal Government considers khat use illegal. (Erica, 2012).Leaves of the khat shrub are typically chewed and held in the cheek, like chewing tobacco, to release their stimulant chemicals.

The main psychoactive ingredients in khat are cathinone and cathine. These chemicals are structurally similar to amphetamine and result in similar stimulant effects in the brain and body, although they are less potent. Like other stimulants, cathinone and cathine stimulate the release of the stress hormone and neurotransmitter norepinephrine and raise the level of the neurotransmitter dopamine in brain circuits regulating pleasure and movement. (Odenwald *et al*., 2007).
It is estimated that as many as 10 million people worldwide chew khat. It is commonly found in the southwestern part of the Arabian Peninsula and in East Africa, where it has been used for centuries as part of an established cultural tradition. In one large study in Yemen, 82 percent of men and 43 percent of women reported at least one lifetime episode of khat use. Its current use among particular migrant communities in the United States and in Europe has caused concern among policymakers and health care professionals. No reliable estimates of prevalence in the United States exist. (Advisory Council on the Misuse of Drugs (ACMD), 2013)

According to Al-Hebshi & Skaug (2005), Khat is a name given to the leaves of the Catha edulis tree, which is native to regions in East Africa and the Middle East. According to Odenwald *et al*. (2007) Catha edulis is a native flowering plant mainly found in the horn of Africa countries such as Somalia, Ethiopia and so on. Despite its originality in the horn of Africa, its usage goes beyond and of recent it has been said to be global. It has been indicated by Morgan (2012) that for centuries, Khat has been chewed by many people mainly in countries such as Yemen, Ethiopia, Somalia and Kenya. Several reports including that of Morgan (2012) have further indicated that Khat usage has gone global, reaching countries like Australia, UK, Canada, USA and so on. The dominance of Khat chewing has been generally agreed to be in the horn of Africa and the Arabian Peninsula. Among communities from these areas, khat chewing has a history as a social custom dating back thousands of years (Advisory Council on the Misuse of Drugs (ACMD), 2013).

Khat contains a monoamine alkaloid called cathinone an amphetamine, which is said to cause excitement, loss of appetite and euphoria. It was classified by WHO as a drug of abuse that can cause serious health and social problems among the using communities and individuals (ACMD, 2013). Khat chewing has been targeted by various anti-drug organisations. It is a controlled substance in countries like USA, Canada and Germany, although its production, sale and consumption are legal in many other nations, such as Somalia, Ethiopia, Yemen and Djibouti. It has been given various names traditionally; such as Khat, Qat, Ghat and Chat, basically in its home regions of the Horn of Africa and the Arabian Peninsula. In some Western countries, it is called the Arabian tea, but in Great Lakes countries, it is called Mraa and in South Africa, it is called the bushman's tea (Marshall Tim, 2010).

For a long time, Khat-chewing has been majorly restricted to its original countries of cultivation but of recent, it has found its way to South Africa, Europe and America (Al-Mugahed, 2008). Its fresh leaves and tops are chewed more or less frequently, dried and consumed as tea, to achieve a state of euphoria and stimulation. The leaves or the soft part of the stem can be chewed with either chewing gum or fried peanuts to make it easier to chew. Its confinement to the regions where it is grown, was because only the fresh leaves have the desired stimulating effects. But in recent years, improved roads, off-road motor vehicles, and air transportation have increased its global distribution and as a result, the plant has been reported in England, Wales, Rome, Amsterdam, Canada, Israel, Australia, New Zealand, and the United States (Basker, 2013).
Several reasons may explain the consumption of Khat, but in Somalia, despite its rampant use, less empirical investigations exist to explain what moves people who are predominantly Muslims to chew the Khat. Traditionally, Khat is used as a socializing drug, and this is still very much the case in Yemen, where khat-chewing is predominantly a male habit. Yemenis use traditional costumes and chew the stimulating plant in the afternoons. Chewing Khat is also part of the Yemeni business culture to promote decision-making, but foreigners are not expected to participate. Some Yemeni women have their own saloons for the occasion, and participate in chewing Khat with their husbands on weekends (Marshall, 2010; Morgan, 2012). In other countries, outside of its core area of growth and consumption, Khat is sometimes chewed at parties or social functions. It may also be used by farmers and laborers for reducing physical fatigue or hunger, and by drivers and students for improving attention and also counter the effects of hangover (Marshall, 2010; Morgan, 2012).

Another reason for Khat cultivation and chewing is the high income it provides for farmers and traders. Some studies done in 2001 estimated that the income from cultivating Khat was about 2.5 million Yemeni rials per hectare, while fruits brought only 0.57 million rials per hectare (Morgan, 2012).

Health Effects of Khat Chewing

Khat consumption has many effects, including social, economic and health. Various studies have been conducted on the effects Khat chewing has on the communities. Unfortunately, most of these studies are outside the context of Somalia, which is taken to be among the major producers and consumers of this plant. One of the justifications for the inadequate researches on the effects of Khat chewing is the costs involved in testing the effects. Most of the previous studies used experimental designs to examine especially these effects. This study used a descriptive design to investigate the effects of Khat chewing on a wider content scope, given the fact that the researcher was at the verge of completing his course and so constrained with monetary and equipment resources required to conduct an experimental study. The approach was deemed appropriate, given the inadequate findings on the subject matter. In this section, we discuss past studies on the health effects including dependency syndrome, cardiovascular effects, effects on the respiratory system, oral and gastrointestinal system pathologies, liver, psychiatric effects and cognitive effects.

Khat and Dependency Syndrome

Dependence on drugs is defined as a syndrome of symptoms and as a mental disorder received after consuming a drug (ACMD, 2013). ACMD (2013) indicates that if the drug use does not result in harm and if the person is in control of its use, he or she may use it for many years without becoming dependent. Diagnosis of dependence can be made if three or more symptoms have been experienced at some time in the year preceding assessment. Douglas *et al.* (2011) and the ACMD (2013) indicated that there are various effects which combine to give a drug user a dependency syndrome; some of these include; i) a strong desire or compulsion to take the substance; ii) difficulties in controlling substance-taking behaviour; iii) physiological withdrawal state upon cessation of substance use; iv) evidence of tolerance to a substance; v) neglect of alternative interests due to time spent using the substance and vi) persisting with substance use despite evidence of harmful consequences.

In examining the literature that links Khat use and it's potential for dependency syndrome, the Corkery *et al.* (2011) notes that the current literature primarily consists of case reports and relatively poorly controlled surveys that only use self-report methods. They indicate that withdrawal symptoms after chronic/long term use of Khat include: lethargy, mild depression, slight trembling and recurrent bad dreams. Kassim & Croucher (2012) showed that although suggestive of dependency, such discontinuation effects do not necessarily imply a withdrawal syndrome and may be comparable to the morning after experience.

Reports on prevalence of dependence vary considerably. As noted by the ACMD (2013), physiological and psychological dependency is difficult to clearly ascertain and the research provides variable conclusions. A study in the UK by Griffiths *et al.*, (1997) showed dependence of 6% of Khat chewers self administering on a daily basis. A recent study by Kassim & Croucher (2012), presented self-report data from a non-random sample of 204 Yemeni Khat chewers residents in the UK and found that 61 (30%) satisfied the criteria for substance dependence syndrome. However, in these studies the diagnosis of dependence was not validated through structured clinical interview. These recent findings, contradicted some previous studies such as that of Alem & Shibre (1997) in which only 0.6% of Khat chewers reported continued use in order to prevent withdrawal symptoms. The assessment of Khat by the World Health Organisation (WHO) concluded that the abuse potential of Khat was low and that Khat dependence was mild and associated with consuming Khat on a daily basis (WHO, 2006).

Nevertheless, regardless of the existence of these findings on dependence, higher levels of Khat use appear to be a risk factor for poor general health and hence for symptomatic medical attendance (Kassim, 2010). In addition the ACMD (2013) reports other risk factors associated with use and drug dependency. The ACMD (2013) reports states that such people may face deprivation, disadvantage, racial discrimination, language barriers and so on in the society. The risk factors for drug use and disadvantage are established and are particularly relevant to black and minority ethnic communities in the UK (Bashford *et al.*, 2003).

Tolerance to Khat, which according to ACMD (2013) is the need to self administer increasing dosages to achieve the same desired psychoactive effects, does not typically occur and if it does seems to take a long time to develop. However, there is evidence that tolerance develops to the Khat-associated acute sympathomimetic effects in chronic users. Acute sympathomimetic effects include increasing levels in blood pressure, heart rate, respiratory rate and body temperature.

Khat and Cardiovascular effects

There is some weak evidence that Khat use may be associated with acute myocardial infarction, but other evidence does not support this. Ali *et al.* (2011) recently reported data from 7,399 Gulf consecutive patients with acute coronary syndrome (ACS), in which some were Khat users and others were not. Khat users were more likely to present with myocardial infarction followed by unstable angina. However, Khat chewers were less likely to have a history of diabetes mellitus, metabolic dysfunction/obesity, hypertension and renal impairment. Ali *et al.*'s study suggests there might be a potential link between Khat use and an increased risk of myocardial ischaemia. However, there is missing data regarding whether or not the Khat users continued to use upon admission and at follow up; and the increased prevalence of smoking in Khat users and differences in the prevalence of other risk factors for coronary artery disease such as diabetes and hypertension make it difficult to determine how much of this effect is due to Khat. The issue of chronic use appears to be entangled with associated and related complications in individuals with pre-existing or underlying medical conditions. The differences in health and lifestyle events of a Middle Eastern population compared to a UK based population has also not been captured in this study, in particular the potential differences in primary and secondary health care provision and facilities in these countries. (Ali et al; 2011)

Effects of Khat on Respiratory System

Many Khat users smoke tobacco during chewing sessions, which may contribute to the increased prevalence of respiratory problems in male Khat users. Tobacco smoking or exposure to second hand smoke is one of the established determinants of respiratory/cardiovascular disease thus the data of such research cause difficulties of interpretation (Birru & Di, 2012). The ACMD (2013) report suggested that some Khat cafes in the UK are not adequately ventilated, resulting in a potential risk of hazards in terms of both active and passive smoking. Thus the claimed potential respiratory system issues of bronchitis, tachypnoea and dyspnoea may be more related to issues of the Khat using environment and smoking rather than Khat use itself.

Disentangling the primary causes of health related harms, argued to be due to Khat, is complicated by, for instance, the use of water pipes and the sale of cigarettes at these cafes. A report by WHO (2005) states that smoking using a water pipe poses a serious potential health hazard and is not a safe alternative to cigarette smoking. The report indicates that smoke from a water pipe contains high levels of toxic chemicals, including high levels of carbon monoxide, metals and cancer-causing chemicals.

Effects of Khat on Oral and Gastrointestinal System

Since the process of Khat chewing has a drying effect on the oral mucosa, its users tend to consume a great quantity of fluids (Elmi, 1983). Some of the Khat users also supplement their chewing practice with smoking of the Nargila pipe (water pipe) simultaneously (Kennedy, *et al*., 1983). Although oral carcinogenicity is attributed primarily to the tobacco component of the betel quid, the mixture, even without tobacco, has carcinogenic potential and is classified by the International Agency for Research on Cancer as a class one carcinogen (Meir, *et al*., 2004).

Only a limited number of studies assess the potential impact of Khat use upon oral health (Meir, *et al.*, 2004). It is speculated that there might be an association between Khat chewing and oral malignancies (Soufi, et al., 1991). Macigo et al. (1995) reported that although they found oral leukoplakia in few of the Khat users examined in Kenya, and no significant association between chewing Khat and leukoplakia was seen. Meir, *et al.* (2004) reported that oral white lesions, resembling those of frictional keratosis, were noted in 50% of Khat chewers in Yemen. Since none of the lesions was suspected for malignancy, no biopsies were performed.

Al-Hebshi *et al.* (2010) assessed the effect of Khat chewing on major periodontal pathogens in subgingival plaque samples from subjects with chronic periodontitis comparing 10 Khat chewers with 10 non-chewers. Overall, there was a lower burden of pathogens in plaque samples of Khat users. It was concluded that the lower pathogen burdens were due to a potential probiotic effect of Khat on periodontal microbiota. The ACMD report (2013) put it that there is not enough evidence reporting increased oral cancer in Khat users. A few concerns relating to oral cancer raised by some health professionals could be associated with alcohol or tobacco intake and not directly linked to Khat use. These findings should also be placed in the context of those individuals from groups who may experience poor health and lack of access to health services, and also the lack of or limited levels of health care provision for immigrants whose status has not been regularized and asylum seekers.

Al-Motarreb *et al.* (2010) suggested that gastrointestinal side effects may be encountered with Khat use, including: stomatitis, oesophagitis and gastritis. Evidence however is based on a limited number of case reports. Other researches like that of Nasr & Khatri (2000) have suggested that Khat is a potential contributory factor to prevalence of head/neck/lip squamous cell carcinoma in the population of Yemen. However, it is difficult to understand the potential contribution of Khat toxicity, if at all, in regards to the occurrence of these medical issues taking into account the risks associated with specific contributory factors like regular/intense exposure to ultra-violent radiations in Yemen. Although some few articles have been published describing the effect of Khat chewing, no evaluation of the possible effect on the oral health has been conclusively reported. The purpose of the present study was therefore to assess the Khat chewing on oral and gastrointestinal system pathologies within in a chronic Khat chewing population of Daynile district in Moghadishu, Somalia.

Khat and Psychiatric Effects

Case reports have described the occurrence of Khat induced acute psychotic episodes in a small number of cases (Nielen, *et al.*, 2004). Odenwald (2012) and Warfa *et al* (2007) suggest that while Khat-induced psychiatric problems are frequently reported in case studies, the analysis of these evidences suggests that Khat alone does not directly cause mental disorders. Nevertheless, Khat use complicates the treatment of existing mental health problems. The ACMD (2013) also found no direct link between Khat and psychosis.

The further research of Bhui *et al* (2010) suggests that severe mental health problems such as psychosis, depression or Post Traumatic Stress Disorder in Khat using UK Somali immigrants are not associated with frequency of Khat use but rather were linked to earlier traumatic events (Douglas, 2011; Odenwald, 2012 & Odenwald, 2007). To give an indication of the potential numbers of Khat users in psychiatric treatment Tulloch *et al* (2012) reviewed the registers of 150,000 UK mental health patients of whom 240 were Somali patients. Of these Somali patients 172 (71.7%) reported a life time use of Khat and 80 (33.3%) were current users of Khat.

More recent research on small samples of Somali refugees in London UK and Minneapolis USA, showed how different country experiences may impact on such groups, suggesting that challenges to masculinity, thwarted aspirations, devalued refugee identity, unemployment, legal uncertainties and longer duration of stay in the host country account for poor psychological well-being and psychiatric disorders among this group (Nasir, *et al.*, 2012). While there is evidence to suggest that Khat could complicate treatment of existing mental health problems, there is no good evidence to suggest a direct link between Khat use and psychosis (Warfa & Bhui, 2012). The evidences from previous studies suggest that more research is required using larger samples to explore the relationship between common psychotic symptoms and the propensity to developing psychotic disorders.

Khat consumption induces mild euphoria and excitement, similar to that conferred by strong coffee. (Kirby, Alex, 2007). Individuals become very talkative under the influence of the plant. The effects of oral administration of cathinone occur more rapidly than the effects of amphetamine pills; roughly

15 minutes as compared to 30 minutes in amphetamine. Khat can induce manic behaviours and hyperactivity, similar in effects to those produced by amphetamine, (Kirby, 2007). The use of Khat results in constipation, reflecting the sympathomimetic effects of the drug, which are also reflected in increased heart rate and blood pressure, (Kirby, 2007).

Effect of Khat consumption on the socio-economic status

The Khat trade evolved over the last century, an indigenous crop commercialized at a time when other Kenyan farmers were planting more respectable seeming crops like coffee. It is cultivated on smallholder plots, often intercropped with other cash or subsistence crops, and is harvested frequently (every few weeks or so, depending on the season) (Kirby, Alex, 2007).

For much of the colonial era, Meru was the only district where khat was produced in great quantities, and the Meru had honed their expertise with the crop over centuries, creating a sophisticated inter-cropping system that prevented soil erosion and protected other crops. Furthermore, alongside Arabs and Somalis who have been involved in the trade in Kenyan khat for many decades the Meru innovated much in regard to marketing. The varying qualities and types of khat allowed it to be marketed for both wealthy and poor consumers, thus expanding its consumer base. (Kirby, Alex, 2007).

However, those campaigning against the crop might argue that its economic value for East African livelihoods is irrelevant to the khat debate if the substance itself is noxious to health and society. As mentioned above, opinions in this respect are polarised: some see it as a bane destroying health and the social fabric, while others extol its virtues as a mild stimulant whose consumption binds people together. What does the literature tell us about these harms?

Regarding social harms, it is linked with family breakups, as chewers the majority of whom are male, although there are many women chewers are said to spend long times away from the home, and unemployment, as khat is associated with idleness. Income diversion is also seen as a major problem in countries such as Djibouti where a large proportion of household income (around a third in some estimates) is spent on khat.

Indeed, the linking of khat with sexual impotence seems not just literal, but also figurative, alluding to male social and economic impotence, especially in the diaspora context where women have often taken on the breadwinner role. While there certainly are problem users who chew at the expense of sleep, making it hard for them to hold down work, assessing the extent of associated social harms is difficult as evidence in Africa and amongst diaspora populations of khat consumers is often mixed and contradictory. (Dickens, 1990)

Khat is therefore associated with many health and social harms, but at the moment evidence beyond the anecdotal is lacking. What research has been done suggests khat may be a contributory factor to various harms, but ascribing it as their cause is deeply problematic. Indeed, drug consumption always needs to be contextualized within the social settings where it occurs, and in the case of Khat, it is often consumed by marginalized communities facing far wider problems (Dickens, 1990).

Khat and Unemployment

In Khat producing countries Khat use is seen as functional; farmers, night watchmen, labourers, lorry drivers and students chew Khat in order to prolong periods of physical labour, wakefulness and to suppress appetite (Ledien & Brill, 2007a). For the Somali community, this functional use is qualitatively different from that experienced in the Khat cafes of the UK, where consumption is considered recreational. Long hours spent chewing, and then in the recovery phase, can become a barrier to obtaining employment (ACMD, 2013). Many commentators identify this as a key problem with Khat use in the diaspora (Patel *et al.*, 2005).

The quantitative evidence on Khat consumption and Somali employment in the UK gives an unclear picture. In 1998, Griffiths reported 47% of the sample as unemployed, with only 17% in formal employment (Anderson & Carrier, 2011). In 2005, Patel *et al.* found no evidence that people in this sample were using Khat more in England and, secondly, a smaller proportion of those who were unemployed compared with those in employment reported using Khat. In their sample, 38% were in employment and 68% of those who were unemployed did not chew Khat. A study by Warfa *et al*. (2012) comparing Somali migrants in London and Minneapolis, identified higher employment levels as a key determinant of well-being among migrants in Minneapolis, where only 26% of the respondents in their survey were unemployed compared with 90% in the London sample. The authors identified higher employment levels as a key determinant of well-being among migrants in Minneapolis. The study reported that Somalis in the US were more likely have organised support on arrival and for a period of up to five years. They proposed that adaptation and integration can best be achieved through policies which seek to enhance employment opportunities, and thus reduce psychological problems.

Recent research shows that the majority of users moderate their consumption to fit in with work patterns, although for some who are heavy users consumption does adversely compromise their lifestyles (Anderson & Carrier, 2011).

4. Methodology

Study design

This was use a descriptive cross sectional design was adopted with both quantitative and qualitative approaches

Study area

The study was carried out among non school going youth in Daynile district in Mogadishu. Daynile district was chosen

because it is one of the areas with most of the non school going youth compared to other districts in Mogadishu.

Study Population

The target population of this study was all the non school going youth in Daynile district Mogadishu, Somalia. The total number of non school going youth in Daynile district is not well known. However, this study targets around 5276 youth. Thirty percent of all these youth are non school going, so the study targets this particular group. A sample size of 107 was used.

5. Results

Table 1: Descriptive statistics

Sex	Frequency	Percent
Male	73	68.2
Female	34	31.8
Total	**107**	**100**
Respondents' Age group	**Frequency**	**Percent**
18-25 years	40	37.4
26-29 years	41	38.3
30-35 years	12	11.2
36-39	8	7.5
39- above	6	5.6
Total	**107**	**100**
Highest education level	**Frequency**	**Percent**
None	64	59.8
Primary	26	24.3
Secondary	12	11.2
College/university	5	4.7
Total	**107**	**100**
Marital statuses	**Frequency**	**Percent**
Single	48	44.9
Married	35	32.7
Divorced	14	13.1
Widow/widower	6	5.6
Separated	4	3.7
Total	**107**	**100**
Respondents' parental status	**Frequency**	**Percent**
Both parents	22	20.6
Only father	21	19.6
Only mother	25	23.4
No father no mother	39	36.4
Total	**107**	**100**

According to the results in Table 1, majority of the respondents (68.2%) were male as compared to females who were only 31.8%. Also the results indicate that most of the youth in the study sample were aged between 26-29 years (38.3%) followed by those between 18-25 years (37.4%) and then those between 30-35 (11.2%). Only 13.1% were above 35 years. This indicates that most of the respondents in the sample were in their early adulthood age (20 - 39). The results also indicate that more than 75% of the youth were in their 20s or below. With respect to education level of the youth, results indicated that, most of them (59.8%) had not gone to school so they had no any defined level of education and these were followed by those who ended in primary (24.3). Only 4.7% had reached university and only 11.2% had completed secondary level of education. These results imply that most of the youth in Daynile District are still illiterate.

The results also indicate that the majority of the youth in the sample were still single (44.9%) while 32.7% were married, 13.1% were divorced, 5.6% were widowed and 3.7% had separated.

The results also indicated that, most of the respondents (36.4%) were complete orphans (have no father no mother) and these are followed by those whose fathers died (have only mother, 23.4%), while 19.6% had lost a mother. Only 20.6% of the respondents had both parents. These results are scaring that over 60% of the youth had lost their fathers, implying that the family may not be active. The results indicate the alarming political situations in Somalia which has claimed a lot of lives, putting a negative impact on family existence and child upbringing. These results indicate that such orphaned children may easily resort to drug trafficking as a way of consoling themselves, to avoid remembering their lost parents. The other implication is that parents who would have guided them on not taking drugs are not with them, so it is so easy for them to use drugs.

5.1 The level of Khat consumption among non school going youth in Hodan District

The first objective of this study was to determine the level of Khat consumption among non school going youth in Hodan District. The Khat consumption concept was broken down into four elements, with four 13 questions on frequency of consumption, six questions on quantity usually consumed, five questions on time when Khat is usually consumed and five questions on the reasons for consuming Khat. Most of the questions in this section were based on a four point Likert scale, while a few were open ended and others asked for facts to be selected from options given. Analysis of the data was done using frequency counts and means, computed using the SPSS software package. The results on Khat consumption are presented in table 2.

Frequency of Khat Consumption

The following results indicate the level of Khat consumption in terms of frequency of consumption;

Table 2: Khat Consumption rate by the Youth in Daynile District, Mogadishu,Somalia

Is Khat consumed by	Not at all	Very rarely	Some times	Usually	Total	Mean
Male youth	2 (1.9)	10 (9.3)	47 (43.9)	48 (44.9)	107 (100)	3.32
Many of your villagemates	7 (6.5)	13 (12.1)	41 (38.3)	46 (43)	107 (100)	3.18
Is Khat consumption at home	7 (6.5)	13 (12.1)	46 (43.0)	41 (38.3)	107 (100)	3.13
How often do you eat Khat.	19 (17.8)	35 (32.7)	36 (33.6)	17 (15.9)	107 (100)	2.48
Khat consumption, growing and selling in your area is regulated by law	44 (41.1)	36 (33.6)	21 (19.6)	6 (5.6)	107 (100)	1.9
Is Khat consumed at places of work	42 (39.3)	48 (44.9)	10 (9.3)	7 (6.5)	107 (100)	1.83
Is Khat consumed in market places	45 (42.1)	44 (41.1)	12 (11.2)	6 (5.6)	107 (100)	1.8
Is Khat consumed by female youth	49 (45.8)	39 (36.4)	15 (14.0)	4 (3.7)	107 (100)	1.76
Is Khat consumed around the mosques	59 (55.1)	33 (30.8)	10 (9.3)	5 (4.7)	107 (100)	1.64
Average mean						2.34

The results in Table 2 reveal that the consumption of Khat is most frequently done by male youth (mean=3.32) as compared to female youth (mean=1.76). Actually these results indicate that female youth consume Khat very rarely. The findings indicate that out of the 107 male youth, majority (44.9%) acknowledged that they usually consume Khat, while only 4.7% among the female usually consume it. This is an indication that female youth do not usually consume Khat. The findings further revealed that on average, majority of the respondents agreed that there are many Khat users at their respective villages, an indication that the level of Khat consumption is relatively high. These results indicated that 43% of the youth confessed that they usually see Khat users at their villages, while 38.3% also indicate that they sometimes see Khat users at their villages, which means that over 81% of the youth see Khat users at their respective villages. This implies that Khat consumption is very common and it is difficult for the youth not to take it since it is being taken by the majority at the village.

Similar results were found with respect to Khat consumption at home (mean=3.13), where over 81% usually see Khat consumption at theirs or other people's homes. Still this confirms that Khat consumption is at a high rate even if one considers the consumption that takes place at home. This implies that it is very difficult for the youth not to take Khat, since it is being taken even at home.

When asked on whether they themselves take Khat, still majority confessed that they take it, with only 17% who said that they do not take it. Considering those who said no, the level of Khat chewing can be taken to be high according to self confessions. This is not surprising, since Khat consumption is very common at villages and in homes.

When asked how often they participate in growing and selling of Khat, majority indicated that they do not do so, an indication that they are mainly consumers and not dealers, save a few (like 25%).

The following Khat consumption practices were found not to be common; Khat consumption at places of work (mean=1.83), Khat consumption in market places (mean=1.80) and Khat consumption around the mosques, with the lowest practice (mean=1.64), almost corresponding with not at all on the Likert scale, suggesting that despite the practice of Khat consumption, the youth still respect their religion and so they do not take drugs in the mosques. This also implies that the youth know that Khat chewing is not embraced by their religion Islam.

The researcher also asked respondents how long do they take while chewing Khat in a day, in terms of number of hours taken. Their responses are summarised in table 3

Table 3: Time taken, Number of times, Selling and Awareness

Hours taken chewing Khat each day	**Frequency**	**Percent**
Less than 2 hours	17	15.9
2-5 hours	58	54.2
More than 5 hours	32	29.9
Total	**107**	**100**
Number of times Khat is Chewed	**Frequency**	**Percent**
Less than 2 times	26	24.3
2-5 times	48	44.9
More than 5 times	33	30.8
Total	**107**	**100**
Selling or Growing Khat		
Participation	**Frequency**	**Percent**
Selling	70	65.4
Yes	37	34.6
No	**107**	**100**
Growing	30	28
Yes	77	72
No	**107**	**100**
Awareness	**Frequency**	**Percent**
Yes	49	45.8
No	58	54.2
Total	**107**	**100**

The results in Table 3 indicate that majority of the respondents take more than two hours each day while consuming Khat. As indicated in the table, more than 54% of the respondents indicated that they take 2 – 5 hours in a day consuming Khat, while almost 30% agreed that they take even more than five hours doing the same. The results imply that Khat chewing is at a very high level and is very common among the sampled youth. When asked the number of times they chew Khat a day, majority (over 75%) indicated they chew it more than two times a day, as indicated in table

The results in Table 3 do not deviate from those of Table 4. Very few youth chew Khat less than two times a day (24.3). Majority (44.9) chew it 2 – 5 times in a day, while over 30%

chew it more than five times a day. This confirms that the level of Khat chewing is high in terms of frequency of chewing. The researcher also asked respondents whether they usually participate in selling and growing Khat. Their results are summarized in table 3;

The results indicate that while selling is relatively common among the Somali youth (over 64% sell), growing is not common (only 28 grow). This is an indication that Somali youth are more of consumers than dealers in terms of selling and growing.

The results indicate that while majority are participating in selling Khat at their home (74.8%), few (24.3%) participate in growing Khat at their homes. This is suggests that Somalis are more of consumers than producers of Khat. The results in Table 3 indicate that close to half of the youth are aware that Khat chewing has some negative effects on their health. Although results indicate that majority (54.2%) are unaware of such effects, but a good number of them are aware (45.8%).

Time of chewing Khat

The researcher asked respondents the part of the day they usually chew Khat, using five Likert scaled questions, with four points, where 1 = Not at all; 2 = Very rarely; 3 = a few times (sometimes); 4 = Usually (many times). The respondents were give different parts of the day when Khat is consumed and were asked to indicate how often they chew Khat in each. Their responses were analysed using frequency counts as well as means as indicated in table 4

Table 1: Time of chewing Khat by the Youth in Daynile District, Mogadishu, Somalia

Time	Not at all	Very rarely	Sometimes	Usually	Total	Mean
In the morning	53 (49.5)	33 (30.8)	14 (13.1)	7 (6.5)	107 (100)	1.77
In the afternoon	7(6.5)	12 (11.2)	37 (34.6)	51 (47.7)	107 (100)	3.23
In the evening	5(4.7)	9(8.4)	36 (33.6)	57 (53.3)	107 (100)	3.36
At night	13 (12.1)	28 (26.2)	32 (29.9)	34 (31.8)	107 (100)	2.81
Any time of the day	25 (23.4)	22 (20.6)	29 (27.1)	31 (29.0)	107 (100)	2.62
Total	103	104	148	180	535	

The results in Table 4 show that majority of the youth do not take Khat in the morning, instead they take in the afternoon (mean=3.23) evening (mean =3.36) and in the night (mean =2.81). This implies that the youth have some time they give to work before they begin chewing the Khat. It may also imply that they sleep for so long and wake up late to start chewing again for the next day. All in all, the results indicate that Khat consumption is high in most parts of the day and that it is consumed up to night, although on good point, less of it is consumed in the most productive hours of the day, that is in the morning.

5.2 Reasons that drive the youth to chew Khat

Respondents were also asked for the reasons why they chew the Khat. Several reasons were provided to them in form of Likert scaled statements and were asked to indicate the extent to which each of them was driving them towards consuming Khat. Their responses were analysed using frequency counts as well as means as indicated in table 5

Table 2: Reasons that Drive the Youth in Daynile District to chew Khat

Reasons	Not at all	Very rarely	Sometimes	Usually	Total	Mean
Reducing physical fatigue	9(8.4)	17(15.9)	30(28.0)	51(47.7)	107 (100)	3.15
Reducing hunger	8(7.5)	15(14.0)	41(38.3)	43(40.2)	107 (100)	3.11
Promoting hard work	8(7.5)	19(17.8)	37(34.6)	43(40.2)	107 (100)	3.07
Reducing headaches	6(5.6)	12(11.2)	36(33.6)	53(49.5)	107 (100)	3.27
Reducing body pains	8(7.5)	16(15.0)	43(40.2)	40(37.4)	107 (100)	3.07

The results in Table 5 indicate that several reasons drive the youth towards taking Khat, with almost all of them playing quiet a big role. However, the results indicate that the youth are most driven by the desire to reduce headache (mean=3.27) followed by desire to reduce fatigue (mean =3.15), then the need to reduce hunger (mean =3.11) and finally to promote hard work and reduce body pain both with a mean score of 3.07. These results imply that the youth are driven by various factors towards chewing the Khat and all of them are strong contributors.

5.3 Health problems experienced by the youth in Daynile District

The third objective of the study was to assess the health status of the non school going youth in Daynile District, Mogadishu. This objective was investigated upon by asking for the health problems experienced by of non school going youth in Daynile District, Mogadishu. To achieve this objective, 25 questions were asked in the questionnaire. Most of these questions were closed ended based on a four point Likert scale, ranging from 1- 4, where 1 = Never; 2= Rarely; 3 = a few times (sometimes); and 4 = Usually (many times). Respondents were asked to indicate whether they had ever experienced each of the health problem mentioned and the extent to which they had experienced each. Their responses were analysed using means and frequency counts (as well as percentages) as indicated in table 6.

5.3.1 Knowledge of adverse effects of Khat

Respondents were asked whether they were aware of the adverse effects of Khat chewing on their health and if yes to mention some of them. Their responses are summarized in table 6

Dependence Syndrome

Dependency syndrome is the filling a drug user gets that every time he or she wants to use that particular drug. In terms of Khat, dependence means that the youth feels that every time they want to chew that Khat, so that before they eat it, they are not comfortable. The youth indicated the extent to which they are addicted in table 4.16;

Table 6: Extent of Dependence Syndrome among the Youth

Items on Dependence syndrome	Never	Rarely	Usually	Very high extent	Total	Mean
Feeling Khat that consumption is part of your life	9 (8.4)	22 (20.6)	28 (26.2)	48 (44.9)	107 (100)	3.07
You feel a high desire to spend more time eating Khat	15 (14.0)	30 (28.0)	32 (29.9)	30 (28.0)	107 (100)	2.72
Average /mean						**2.9**

The results in Table 6 indicate that majority of the youth experience this dependence syndrome. This is indicated by the fact that more than 70% indicated that they at least have the feeling that Khat consumption is part of your life, with a mean of 3.07. Almost 60% of the respondents indicated that they fill they have a high desire to spend more time eating Khat, with a mean of 2.72, an indication that the dependence syndrome is highly experienced among the youth. The overall average mean on the two items suggest that most of the youth in the sample usually experience the dependence syndrome.

Cardiovascular effects

Respondents indicated the extent to which they experience health problems related to blood flows and blood pressure. Their responses are presented in table 7

Table 7: Extent of Cardiovascular problems among the Youth

Items on Cardiovascular effects	Never	Rarely	Usually	Very high extent	Total	Mean
Blood pressure	11 (10.3)	21 (19.6)	31 (29.0)	44 (41.1)	107 (100)	3.01
Heart problems	14 (13.1)	24 (22.4)	31 (29.0)	38 (35.5)	107 (100)	2.87
Losing body fitness	11 (10.3)	26 (24.3)	32 (29.9)	38 (35.5)	107 (100)	2.91
Average/ mean						2.93

The results in Table 7 indicate that over 70% of the youth usually experience the problem of blood pressure and the mean score confirm this (mean=3.01). Results also indicate that almost 65% of the respondents experience heart problems with a mean of 2.87 and still majority of them (over 65%) at least usually lose body fitness, with a mean of 2.91. On the overall, the average mean of 2.93, confirm that the youth usually experience cardiovascular related problems, implying that cardiovascular health problems are usually experienced by the youth.

Oral and gastrointestinal system pathologies

These have to do with problems of the mouth and stomach. Respondents were asked to indicate the extent to which they experience mouth and stomach problems, to which they responded as per the results in table 4.22;

Table 8: Extent of oral and Gastrointestinal Pathologies

Pathologies	Never	Rarely	Usually	Very high extent	Total	Mean
Dried mouth, lips, mouth wound & pains	11 (10.3)	22 (20.6)	46 (43.0)	28 (26.2)	107 (100.0)	2.85
Desire to drink a lot	4 (3.7)	9 (8.4)	40 (37.4)	54 (50.5)	107 (100.0)	3.35
Stomach pain	22 (20.6)	24 (22.4)	29 (27.1)	32 (29.9)	107 (100.0)	2.66
Constipation	13 (12.1)	19 (17.8)	37 (34.6)	38 (35.5)	107 (100.0)	2.93
Average / mean						**2.95**

The results in Table 8 indicate that majority, close to 70% of the respondents were found to at least be usually experiencing the problem of dried mouth, lips, mouth wound and pains, with a mean score of 2.85, suggesting that this problem is common among the youth. The problem of desire to drink a lot was found to be more commonly experienced among the youth, with almost 88% at least usually experiencing it, with a mean score of 3.35. The problem of constipation (mean=2.93) and stomach pain (mean=2.66) were also found to be highly experienced among these youth.

Psychiatric effects

These have to do with problems of the brain and mental stability. Respondents were asked to indicate the extent to which they experience these brain and mental problems, to which they responded as per the results in table 9

Table 9: Extent of Psychiatric effects among Youth

Psychiatric effects	Never	Rarely	Usually	Very high extent	Total	Mean
Little or no sleep	11 (10.3)	21 (19.6)	43 (40.2)	32 (29.9)	107 (100.0)	2.9
Desire to live in-house (isolation)	25 (23.4)	36 (33.6)	27 (25.2)	19 (17.8)	107 (100.0)	2.37
Conflict with others	10 (9.3)	15 (14.0)	35 (32.7)	47 (43.9)	107 (100.0)	3.11
Reduce sexual power	14 (13.1)	50 (46.7)	25 (23.4)	18 (16.8)	107 (100.0)	2.44
Quickly getting angry or annoyed	4 (3.7)	35 (32.7)	43 (40.2)	25 (23.4)	107 (100.0)	2.83
Average/ mean						**2.73**

The results in Table 9 indicate that psychiatric problems are usually experienced by most of the youth in the sample. Close to 70% of the respondents were found to at least usually experience the problem of little or no sleep, with a mean score of 2.90, suggesting that the youth also usually experience a problem of little or no sleep. The problem of desire to live in-house was also found to be usually experienced among the youth, with almost 60% at least usually experiencing it, with a

mean score of 2.37. The problem of conflict with others (mean=3.11) was most experienced with over 76% usually experiencing it and quickly getting angry or annoyed (mean=2.83) was also found to be highly experienced among these youth.

Effect of Khat consumption on Heath status of non school going youth in Daynile District

The fifth and last objective of this study was to determine the effect of Khat consumption on the health status of non school going youth in Daynile District, Mogadishu, Somalia. To achieve this objective, the data collected on Khat consumption level was correlated with the data on the health status of the youth using Linear Regression Analysis, results of which are indicated in table 10.

Table 10: Regression analysis results for Khat consumption effect on Health status of non school going Youth in Daynile District

Variables Regressed	Adjusted R^2	F	Sig.	Interpretation	Decision on H_o
Khat consumption Vs Heath problems	0.164	7.916	0	Significant Effect	Rejected
Coefficients	**Beta**	**t**	**Sig.**		
(Constant)	2.26	9.149	0	Significant Effect	Rejected
Frequency of Khat Use	0.327	3.352	0.01	Significant Effect	Rejected
Time of Khat Use	0.07	0.771	0.443	Insignificant Effect	Accepted
Reasons for Khat Use	0.439	4.702	0	Significant Effect	Rejected

The results in Table 10 indicate that on the overall, Khat consumption has a significant effect of health status of all the youth under study's sample. This is indicated by a significant F-value (7.916) which is greater than the critical value, as indicated by the sig. or p-value (.000) which is less than 0.05. The regression analysis results indicate that on the overall, Khat consumption accounts for 16.4% towards variations in life status of the youth (Adjusted R^2 =0.164). Considering the coefficients section of this table, results indicate that out of the three elements of Khat consumption, only two were found to have a significant effect on the health status of the youth and these were frequency of use (Beta =.327, Sig. = 0.010) and Reasons for Khat use (Beta= .439, Sig. = 0.000). Results suggest that reasons for Khat use affect the youths' health more than frequency of use. These results imply that because the youth have strong reasons for using Khat, they are strongly attached to this practice and so they take more Khat because of that. Results indicate that for each reasons the youth attach to justifying their practice of Khat chewing, their chances of getting any of the diseases discussed above increase by 0.439.

6. Discussions, Conclusions and Recommendations

Discussions of findings

This study was intended to explore the health effects of Khat consumption among the non school going youth in Hodan district, Somalia. It was based on five specific objectives, which included to; 1) determine the level of Khat consumption among non school going youth in Daynile District, Mogadishu, Somalia; 2) identify the reasons of Khat use among non school going youth in Daynile District, Mogadishu, Somalia; 3) assess the health status of non school going youth in Daynile District, Mogadishu; 4) identify determine effect of Khat consumption on the socio- economic of non school going youth in Daynile District, Mogadishu, Somalia; and 5) to determine effect of Khat consumption on the heath status of non school going youth in Daynile District, Mogadishu, Somalia.

The level of Khat consumption among non school going youth in Hodan District

The level of Khat consumption in terms of frequency of use was relatively high (average mean =2.34), majority of the youth take long hours (2 – 5) every day chewing Khat, majority (44.9%) chew Khat 2 – 5 times a day, more people participate in Khat selling (65.4%) than those who participate in Khat growing (28.0%), an indication that Somalis are more Khat consumers than Khat dealers. These findings are in line with those of Krikorian (1983), who indicated that Somalia is one of the two most prominent countries for Khat chewing, the first being Yen. The findings also agree with Odenwal (2006) who showed that cultivation of Khat is more common and pronounced in Ethiopia and Yemen than in Somalia.

Regarding quantity of Khat consumed, majority take 2 – 5 bundles (46.7%), few families participate in Khat growing (24.3%), while more families participate in Khat selling (74.8%) something that confirmed that Somalis are more consumers than producers. Odenwal et al (2007), in their cross sectional study revealed that the level of Khat consumption in Somalia was generally high, more specifically in Mogadishu. Their study showed that Khat use was more frequent in southern Mogadishu compared to other areas. Contrally to the findings of this study, Odenwal *et al* (2007) study revealed that consumption of more than two bundles per day was less frequent in northern Mogadishu than in central and south.

As for time of Khat chewing, most youth consume Khat in the evening (mean=3.36) and in the afternoon (mean=3.23), an indication that Khat consumption is high among the Somali youth in most parts of the day, leaving few hours for developmental works. Fatumo & Maja (2011) indicated that Khat is chewed at specific times, after work or for several hours at the weekend.

Most youth are forced to consume Khat in order to reduce headache (mean=3.27), reduce physical fatigue (mean = 3.15),

to reduce hunger (mean= 3.11) and to promote hard work and reduce body pains (mean=3.07). Regarding the reasons for consuming Khat, Odenwal (2006) indicated that people chew Khat as a habit (casual workers) and to reduce physical fatigue while travelling or working. Marshall (2010) and Morgan (2012) also indicated that Khat is used by farmers and laborers for reducing physical fatigue or hunger, and by drivers and students for improving attention and also counter the effects of hangover, something which this study also proved. Erica (2010) adds that high-school students use Khat to improve attention in class. How far this is true is questionable. He adds that traditionally, Khat is used as a socializing drug, an indication that the consumption of Khat is also culturally rooted in Somalia.

Health effects of Khat Chewing experienced by the youth in Daynile District

Although majority (54.2%) of the youth are unaware of the negative effects of Khat chewing on their health, close to half are aware (almost 46%). This study also found that Khat consumption has a significant effect of health status of all the youth (F = 7.916, sig. = 0.000). Odenwal *et al* (2007) indicated in their study that there was a problem with people's awareness and knowledge about the dangers of Khat chewing. They recommend that to address this problem of Khat chewing, there is need to strengthen both regulation mechanisms inherent to the Somali culture and consumer awareness of the dangers of drug abuse to their health. It is possible that, because it is common, the youth may have wrong information about the importance of Khat. The truth is that chewing has got more harm than good and so it needs to be discouraged.

This study found out that majority of the youth experience the dependence syndrome as a result of this Khat chewing. Substance abuse and dependence have been identified as risk factors for different aspects of youth life (Odenwal *et al*, 2007). In particular, the youth who have been exposed to ongoing traumatic stress from war may have resulted in post-traumatic stress disorder (PTSD), were frequently found to have high dependency syndrome. Further, the findings strongly support the hypothesis that in Somalia, a subgroup of individuals show excessive (Khat/drug) abuse patterns and severe impairment in everyday functioning; these people may suffer from severe forms of drug dependence and related psychiatric problems (Blows, *et al*, 2005). This finding parallels some studies among Somali immigrants in the UK where a proportion of the respondents showed severe forms of Khat addiction and comorbid abuse of other drugs Patel *et al* (2005). Thus, it is possible to assume that these severely addicted, multiple drug users are not solely found among the youth but also in other vulnerable groups.

This study also found out that more than 70% of the youth usually experience the problems related to cardiovascular effects such as high blood pressure, heart problems and loss of body fitness. Other studies have revealed similar findings; for example Griffiths (1998) indicated that the major effects include those on the gastrointestinal system and the nervous system. Highlighting other problems, Erica (2010) pointed out problems like constipation, urine retention and acute cardiovascular effects may be regarded as peripheral, autonomic nervous system effects; increased alertness, dependence and to a lesser extent cathine are held responsible for the effect of Khat on the nervous system. The effects of the many other constituents of the plant are either overlooked or even unknown (Bersani, *et al*, 2002). Erica (2010) went ahead to indicate that the desired euphoric effects of Khat start after about an hour of chewing. Blood levels of cathinone start to rise within one hour and peak plasma levels are obtained 90 - 120 min after the onset of chewing. It seems that metabolism is rapid and occurs during the first passage through the liver.

Balint *et al*. (2009.) indicate that Khat use affects almost the whole human organism. They indicated that the main toxic effects include: increased blood pressure, tachycardia, insomnia, anorexia, constipation, general malaise, irritability, migraine and impaired sexual potency in men. According to Raja'a *et al* (2000), Khat chewing appears to be a risk factor for duodenal ulcer. This finding is in conflict and contradiction with Balint *et al*. (2009) works because according to their previous data all the sympathomimetic agents (such as amphetamine and the similar cathine and cathinone) act against gastric and duodenal ulceration. In addition, Khat affects the nervous system and can induce paranoid psychosis and hypomaniac illness with grandiose delusions.

The current study found out that more than 60% of the youth experience problems in breathing, 65% experience immune system problems and over 63% experience problems related to Pneumonia. Previous researchers like Nencini et al. (1984) have indicated that acute sympathomimetic effects of Khat include increasing levels in blood pressure, heart rate, respiratory rate and body temperature. It was also found to be true that many Khat users smoke tobacco during chewing sessions, which may contribute to the increased prevalence of respiratory problems in many Khat users. Tobacco smoking or exposure to second hand smoke is one of the established determinants of respiratory/cardiovascular disease thus the data of such research cause difficulties of interpretation (Birru & Di, 2012). Researchers also indicate that there are many ways in which respiratory diseases can be acquired. For example, it has been suggested that some Khat cafes in the UK are not adequately ventilated, resulting in a potential risk of hazards in terms of both active and passive smoking. Claimed potential respiratory system issues of bronchitis, tachypnoea and dyspnoea may be more related to issues of the Khat using environment and smoking rather than Khat use itself. Disentangling the primary causes of health related harms, argued to be due to Khat, is complicated by, for instance, the use of water pipes and the sale of cigarettes at these cafes. A 2005 WHO report states that smoking using a water pipe poses a serious potential health hazard and is not a safe alternative to cigarette smoking. Smoke from a water pipe contains high levels of toxic chemicals, including high levels of carbon monoxide, metals and cancer-causing chemicals (WHO, 2005).

This study revealed that majority of Khat chewers experience oral and gastrointestinal problems, such as dried mouth/lips, desire to drink a lot, stomach pain and constipation. There are some contradicting evinces on this. For example, Al-Hebshi *et al* (2010) in assessing the effect of Khat chewing on major periodontal pathogens in subgingival plaque samples from subjects with chronic periodontitis, they compared 10 Khat chewers with 10 non-chewers and found out that overall, there was a lower burden of pathogens in plaque samples of Khat users. It was concluded that the lower pathogen burdens were due to a potential probiotic effect of Khat on periodontal microbiota. The ACMD is not aware of any robust evidence reporting increased oral cancer in Khat users. Anecdotal concerns relating to oral cancer raised by some health professionals could be associated with alcohol or tobacco intake and not directly linked to Khat use. These findings should also be placed in the context of those individuals from groups which may experience poor health and lack of access to health services, and also the lack of or limited levels of NHS provision for immigrants. On the other hand, Al-Motarreb et *al.* (2010) suggested that gastrointestinal side effects may be encountered with Khat use, including: stomatitis, oesophagitis, and gastritis. Evidence however is based on a limited number of case reports, hence a need for more empirical evidences.

7. Conclusions

The results of research show that the level of Khat consumption among the youth is at an alarming level and it is worse that Khat consumption is high among the youth which is considered as a drug abuse. The study shows that if nothing is done the level of drug abuse among young people in Somalia may increase. Given the health effects such drugs have on especially young people, the future of the country is in danger. As per this study, there is enough evidence of the adverse health effects are already prevalent among the youth.
In more conclusive remarks, we must take into consideration not only the severe medical and public health problems but undoubtedly consider the customs and traditions of the societies where Khat chewing is common. It is clear that although Khat use has been said to have negative consequences, we need to consider how these effects tamper with the economic development of a country, through effects on the health, time and finances of the most productive section of human resource, the young people.

Finally, there are clear of concerns by professionals and communities which is recognised by the researcher, although further robust research is required. While a number of evidences were revealed by this study about the potential health harms, most were in the form of opinion rather than experimental evidences. In particular, more evidence needs to be collected in terms of potential association between long term Khat consumption and occurrence of acute/chronic adverse health conditions, especially among the youth.

8. Recommendations

It is recommended that Commissioners and Directors of Public Health from Local and national Health Boards, should include Khat in local needs assessments, particularly where there are population groups of vulnerability.

Khat use is found to be present in most local communities of Somalia and so this substance should be included in local generic substance misuse education and prevention initiatives.
Khat use should be declared unacceptable by the commissioner of culture in the country. This is to prevent those people who promote Khat use hiding in culture and showing that it is a custom to which people should stick.

It is recommended that there is a need for Local authorities, police and crime commissioners to discourage the consumption of Khat in the community and to declare it as illegal for consumption, production and trade. Special licenses need to be given for those few individuals who may be allowed to grow Khat needed for other purposes.

Security agencies at the beginning need to issue laws prohibiting the selling of Khat to young people. Places or cafes where Khat is commonly chewed from should be monitored so that if young people are there, they should be reprimanded and the adults involved should be punished.

The ministry of trade needs to put up laws to reduce the importation of Khat into the country. This will reduce the supply and or availability of Khat to young people and in the end it will reduce its consumption.

There is a need by medical and health personnel to increase tests of Khat users and publish the results to the community. This will force parents to prevent their children from consuming Khat.

Health education programs disseminated by the mass media to raise the public awareness should focus on the real impact of the habit on the youth and the misconception that Khat enhanced productivity and achievement. More studies are needed to explore other social and educational prospective issues so that more comprehensive preventive strategies could be established. There is therefore a need for health education and promotion programs to increase the awareness of the problem in the population.

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