# CANNABIS USE AMONG YOUNG PEOPLE IN DAR ES SALAAM, TANZANIA: A QUALITATIVE STUDY

# Alphonce T. Kalula

Department of Clinical Nursing Muhimbili University of Health and Allied Sciences
Dar-Es-Salaam, Tanzania

### **ABSTRACT**

The aim of this study was to explore the factors associated with initiation and continued use of cannabis among youths in Dar es salaam, Tanzania. The study employed an explorative qualitative design, using in-depth interviews. Purposive sampling and snowball techniques were used to obtain the study participants. The collected data was subjected to content analysis and the study involved a sample of twelve participants whereby eight of them were cannabis users and four were parents. The findings revealed that loss of parents, having peers who smoke cannabis, being raised in broken family, as well as choosing a career the child did not like were among the factors linked to initiation of cannabis use. Furthermore, the study revealed delinquency behavior in school as well as lack of interest in school life, disregard to religious and parental could be strong indicators for the use of cannabis among youths. Further more the study highlighted issues related to cannabis use like readiness to quit and challenges anticipated and factors associated with continuing use of cannabis.

The study concludes that, there are many factors in families and communities that predispose youths to engage in cannabis use. The majority of those factors seem to emanate from within families and the society at large.

**KEY WORDS:** cannabis use, Dar-es-Salaam, substance abuse, delinquency behaviour

# INTRODUCTION

The prevalence of lifetime and regular use of marijuana (as cannabis is more commonly known) has increased in most developed and developing countries. However, cumulative evidence highlights the risks of dependence and other adverse effects, particularly among people with pre-existing psychiatric disorders (Arsenault et al., 2004).

Cannabis produces changes in the brain so that the individual using it may experience sensations or perceptions not based on external stimuli. He/she may hear or see things that are not there. These effects and others depend on the amount taken and the experience and expectations of the individual. The social environment and the immediate setting or circumstances may also influence an individual's response when cannabis is taken (Mbatia & Kilonzo, 1996).

Corresponding author: Alphonce Kalula, Department of Clinical Nursing, Muhimbili University of Health and Allied Sciences, Dar-es-Salaam, Tanzania. Email: alphoncekalula@yahoo.com; Tel. +255 732 614524

The question of why people use cannabis, and the potential risks associated with this use, has long been a subject of interest for policymakers, the public, and population scientists. Many presumed explanations for cannabis use have emerged, encompassing host, environment, and agent. Risk factors identified include genes, psychological and behavioural problems, the tendency to seek sensations or take risks, and prior use of 'gateway' drugs (Kendler et al, 2005; Boden et al, 2006). Alternative possible explanations have their basis in parental behaviour and other aspects of family and friendship dynamics, and still more are based on wider socio-environmental adversity and material deprivation (Merikangas et al., 1998; Rhee et al., 2003).

Tanzanians have traditionally cultivated and used cannabis for many years. Cannabis is grown locally almost everywhere in the country and remains the most abused illicit drug in the country. However, its use in the past it was restricted to older men and traditional healers but today its use has spread to the young generation. Today however, there is a disturbing trend among youth and school aged children of increased interest in the use of cannabis. Youth may try cannabis under peer pressure (the influence of friends) or just because of curiosity or for the relief of tension, frustration, boredom or depression (Mbatia & Kilonzo, 1996).

#### Statement of problem

Cannabis is by far the most widely cultivated, trafficked and abused illicit drug worldwide. Half of all drug seizures worldwide are cannabis seizures. The geographical spread of drug seizures is global encompassing practically every country of the world. About 147 million people, 2.5% of the world population, consume cannabis. In Africa, some early studies have estimated the magnitude of cannabis use to be around 3% (Samuel, 2003; Driss & Nadia, 2008).

In Tanzania about 1% of adults abuse cannabis regularly and in some communities this number is as high as 5% (Kaaya et al., 1992). Most of the users are marginalized people who

are also experiencing other socio-economic stresses of rapid socio-technological change.

Many studies have been done focusing on the effects of cannabis use and its association with mental illness and many have focused on quantitative approaches to elucidate statistical significance of the risk factors associated with the initiation and persistent use of cannabis. While there are many studies that have dealt with substance abuse, most have focused on the extent and the type of drug abuse and have ignored the complex nature of its occurrence in communities as well as its underlying causes and how these interplay in Tanzanian youth communities. A majority of published studies on cannabis use have been conducted in developed countries whose cultures and socioeconomic environment differ with the one of developing countries, like Tanzania.

This study was designed to explore the nature of cannabis use among youth in Tanzania. Ultimately, the study will influence research agendas and inform the public on ways to tackle the problems associated with cannabis use among youth based on evidence.

The objective of the study was to explore the factors associated with initiation and continued use of cannabis among young people.

Arrest of people dealing with cannabis has become more frequent and has been involving the younger age groups. Young people in Tanzania are increasingly involved in abuse and trading of illicit drugs (Mbatia & Kilonzo, 1996).

A household survey (N=905) in four regions of Tanzania showed ed that cannabis and khat (commonly known as Mirungi) are the two major drugs that people have experimented with (3.8% and 3.7% of the informants admitting to have ever tried or used the drugs respectively). The study also showed that most of the experimenters were males (57%) and a large proportion of them was between the ages of 21-30 years (Kilonzo, 1992).

Many studies have shown that there is a sequence of drug use from alcohol to cigarette smoking and ultimately leading to cannabis use. This indicates an influence of cigarette use on later use of cannabis. Not only the sequence

of use but also the sequence of age as those who are more likely going to be cannabis users start using alcohol at lower ages, then become cigarette smokers and ultimately become the cannabis users which could be the 'gate way' to the use of other drugs like cocaine and heroin (Green, 1980; Golub & Johnson, 1994; Galanti et al., 1998; Tarter et al., 2006).

Another study was conducted to investigate the role of genetic and environmental factors in adolescent tobacco, alcohol and other substance use in a sample of 327 monozygotic and 174 like-sex dizygotic twin pairs born in Minnesota and aged 17-18 years at time of assessment. The findings revealed that the heritability for the liabilities to tobacco, alcohol and other drug use was estimated to be 59%, 60% and 33% respectively among males, and 11%, 10% and 11% respectively among females. However, the gender difference was not found to be statistically significant. Estimates of shared environmental effect were substantial andhigher among females (71%, 68% and 36%, respectively) than among males (18%, 23% and 23%, respectively). Therefore the study findings indicated that adolescent initiation to substance use is influenced principally by environmental factors rather than genetic factors (Han et al., 1999).

Additional studies have identified early initiation of cigarette use, deviant behaviour, poor parent-child communication, being offered drugs as well as pro-drug attitudes and intentions as predictive factors of initiation of cannabis use. Poor communication with parents was particularly important for Hispanic and Asian adolescents, whereas doing poorly in school was a key predictor only for Asians (Ellickson & Morton, 1999). High family conflict, low family bonding, high peer anti-social behaviour, lack of early parental support wer shown by a number of studies to play a role (Galaif et al., 2007).

A study conducted in Dar es Salaam among drug users also found that drug use by young people was associated with the following parental characteristics: divorce, separation, and widowhood, frequent change of parental figures, lack of parental understanding, lack of

parental awareness of youth behaviour and lack of parental consistent rules (Mndeme, 2004).

A cohort study revealed that wide ranges of academic and social difficulties that occur during elementary school years (ages 7-9) predict the use of substances observed at ages 14-15. This study, among others highlights the effects of parental care and early school life on use of cannabis and other psychoactive substances (Hops et al., 1999).

Another study showed that, the initiation of cannabis use was predicted mainly by availability of drugs, peers' drug use, a more 'positive' attitude towards future drug use, and regular previous use of licit drugs like alcohol, tobacco and coffee. In that study cannabis dependence was predicted primarily by parental death before age 15, deprived socio-economic status, and baseline use of other licit drugs (Sydow et al, 2002)

#### **METHOD**

This was a qualitative survey based on individual interviews in order to obtain a thick description of the perceptions and experiences of young cannabis users.

This study was conducted in Kinondoni municipality of Dar es Salaam Tanzania. Dar es Salaam was chosen because it is the country's commercial capital with a cultural diversity due to in/out migration of people with both urban and suburban context. The Kinondoni municipal was chosen at random among three municipalities in Dar es Salaam city.

According to the 2002 census, the population of the Kinondoni municipality was 1,083,913. This study involved a sample of 12 participants including eight youths between ages 15 and 25 years who were using cannabis and four parents whose youths were cannabis users.

The leader of an NGO working with youths in the area assisted the researcher to locate the first participant to be involved in the study. Thereafter the researcher managed to get other informants purposively through snowball

technique. The interviews were conducted at the nearby primary school by the investigator and each interview ranged from one hour to one and half hours.

Practically, once the researcher was introduced to a person of interest, he sought consent from the interviewee and an appointment for interview was made. After each interview the interviewee was asked to help in identifying other youths with the prerequisite characteristics of being 15-25 years and experienced in cannabis use.

After reaching the eighth participant the researcher asked the participant to assist in locating a parent who qualified to be a study participant by having a child who was known to be a cannabis user. Thereafter a snowball technique was used to get the remaining informants. The same semi-structured interview guide was used for both youths and parents as indicated in Appendix A.

In each interview session, probing openended questions were used. The probe questions were outlined prior to the interview sessions; however, questions were improved upon during the interview and episodes were used in consecutive interviews thereby making the interviews semi structured. Kiswahili language was the principal language used to conduct the interviews because it is the common language used by the majority of Tanzanians. The interviews were tape recorded after seeking consent from the interviewees. The data collection was done for one a month period from February to March, 2009. The content analysis approach was used as described by Graneheim and Lundman (2004).

Data analysis for this study began at the commencement of the very first conversation and interview and continued concurrently throughout the data collection period implying continuous clarification, feedback and revisions.

The ethical approval was granted by Muhimbili University of Health and Allied Sciences and the permission to conduct a study was granted from Kinondoni municipal authorities.

Study participants gave verbal consent to participate in the study because signing a

paper or a contract between the researcher and a participant regarded as risky by participants. All participants were assured of anonymity and confidentiality.

### **RESULTS**

The study participants were 12 in total, including eight youths and four parents. Before embarking into a full discussion with the study participant, the sociodemographic characteristics of the study participant was asked by the interviewer in line with making an informant at ease. For the part of youths, none of them was married but three of them declared to have long time sexual partners. All of them have completed standard seven level of education. Among youths six of them were boys and only two were females.

With regard to employment status, none of them have formal employment but they all claimed to be involved in casual work. The two female participants declared to depend on their boyfriends for day to day living because they did not have any other source of income.

Three of the parents were women and only one was a man. All women were housewives and the man is a retiree of Tanzania Railway Authority.

### Initiation of cannabis use

#### Low interest in school life

Lack of interest in general school life shown to be associated with initiation of cannabis use in future. And on top of lacking interest it was perceived that even if the parent exerts force on the child it does not generate interest in the child as parents would wish. This was noted in the following quote:

"When I was at school as a pupil I used to like the school life but sometimes I refused to go at school, and if forced by the parents in normally move from home showing that i am going to school but in real sense I do not reach there." [A male 18 years]

### Family conflict or loss

Rejection of the child was among the potential initiators of cannabis use as revealed in the study. This aspect was identified by cannabis users as the contribution which parents and guardians play in perpetuating cannabis use among youth as shown in the following quote:

"My life now is nothing because everybody refused to stay with me. My aunts kept on saying that, they will only take care of my younger sisters whom we are sharing a mother because they are having their respective father and told me that, I am not supposed to be staying there anymore." [A female, 24 years old]

"When my mother was alive everything was okay, my mother started to die following with my grandmother. I remember their deaths events followed one after another; it was like ninety-four and five when she died. After death of my grandmother, I was told by the aunts who are younger sisters of my mother to vacate from that house which used to be our home". [A female, 24years]

"I was so interested in proceeding with a secondary education, but my father forced me to adopt the career of doing mechanical works at the garage, as a result we quarrelled with him then I fled from home and joined my friends in the 'ghetto'. And there at ghetto life went on well as usual and I didn't like even seeing my father until last year when I heard that he was admitted at Muhimbili Hospital then I met him after seven years of being away". [A Male, 25years]

# Upbringing in subcultures that support drug use

Several respondents mentioned in one way or another that lack of employment as among the initiators of cannabis use. One parent who said that also highlighted this characteristic: "Frankly speaking this street has got a lot of cannabis users. For youths of this street, it could be better if they are given jobs to do rather than being loose and idle. As you can see now many youths are roaming in streets aimlessly. The act of being in streets made them smoke more cannabis and they become more empowered to go and do many criminal offenses and they become ready to do any kind of task despite the risk associated with it.".

[A female parent, 44 years]

#### Lack of consistent social control

Early delinquency

It was revealed in the study that when a child is being delinquent in different settings including school and home, as characterized by the habit of beating friends this could be an indicative sign of the cannabis use behaviour later as shown in the following quotes:

"I used to quarrel with my friends at school now and then which made my parents to decide sending me back to the village. [a Male, 25 years]

"Also the baby becomes so disobedient to the parents, what ever you are telling him, he do not understand, and later on he joins that kind of gang.; whenever you assign him a task to do he refuses and sometimes he even cheats you many times.[a male parent 63 years old]

# Loss of religious influence

Many respondents touched the phenomenon of disobedience in following religious practices in one way or another as a predictor of becoming delinquent and ultimately being the cannabis user. This concept can be viewed in the following quotes;

"It is a long time now since the last time I visited the church, as we used to be led by parents, therefore since from the time they died I found my self in different direction. We used to pray at home.

In addition, it was necessary to go to the church every Sunday even if you miss the Morning Prayer you have to attend the evening one. But as for now you are just alone you feel tired and don't feel like going to the church; may be if it is during the night prayers following Easter day or Christmas day, but even that I rarely do." [A female Christian participant, 24 years]

# Dysfunctional family

This was observed to be among the factors playing a role in use of cannabis. One family for example comprised of six children, every child having his own father. This indicates that inconsistent parenting styles may be associated with cannabis use behaviour as quoted below:

"Our family comprised of six children, I have my elder brother who is having his own father, then I am the second born having my own father and then my young sister who is having his own father. My father used to stay just around this street and he used to have another wife somewhere there who is having the daughter whose name resemble mine as we inherited our late grandmother's name" [a female, 24 years]

# Cannabis use and strategies for quitting

# Lack of support for quitting

The study revealed that some cannabis users are willing to quit, but are so unsure of their abilities to do so. Among the study participants, interviewed majority of the participants indicated the desire to quit from the cannabis use. However, they are very unclear of the way to go to meet that desire as indicated in the quote below:

"...it is very true that I need to be free from using drugs but I do not know what I can do, and I heard that the government is in a process of constructing a rehabilitation centre for drug abusers in Dodoma[A region which is far from Dar es salaam city]. For my opinions, I think it could be better if it was done here in Dar es Salaam so that we can benefit from that. I am saying so because majority of us cannot afford travelling to Dodoma it is too far". [Male 25 years]

Anticipated challenges were an obstacle towards abstaining from cannabis use especially for those who have been using cannabis to the extent of being dependent on it. Therefore, those challenges in cessation prevent cannabis users from pursuing a course of abstinence due to anticipated side effects.

"May be let's say when I wake up in the morning before I have tea, I feel extraordinary stomach ache which we call it 'arosto'. But immediately after having it the stomach ache stops immediately and I become the same again. Therefore how can I manage to live without it, I think I am going to die." (Female, 23 years)

The study revealed that many cannabis users have given up all hope of having a good life and a successful future. Lack of hope plays a significant role in keeping them from stopping their cannabis use as shown in the following quote.

"...I have lost hope of being the good person in society. Much as I am the first born in our family and I am having three sisters, but as long as I am affected by drugs have withdrawn my self in the tasks of collecting house rent for my father's house in turn I have delegated that to my sister instead". [A male, 25 years]

# Availability of cannabis

This seems a challenge in attempts to abstain from cannabis use. This is because at those places you can get the drug of choice even if you do not have money to buy cannabis, you are likely to meet many drug abusers who are willing to offer you something you want. Availability of cannabis is so reliable that if a person tries to stop and starts experiencing unwanted

effects, they can easily obtain cannabis to relieve the symptoms as quoted below:

"...Whenever you go there at maskani (ghettos) you rarely miss people, if you are not there, others are there. Actually "maskani" never dry even during the night unless if is beyond midnight. Even if you wake up at four in the morning, you will find some people out there. I mean even though you do not find the 'pusha' you will find the users who has gone there to get some" (Female, 23 years)

# Behaviour change as a result of cannabis

Another participant commented as follows regarding perceived behaviour change as a result of cannabis use.

"Every body is individual and unique, one may smoke and refuse to eat meanwhile another person can eat excessively. Another one can decide to quarrel with people and others are so cool and live peacefully. Therefore all in all it depends on individual's mind". [Female, 23years]

Another individual commented that:

"Following cannabis use, your brain becomes dormant you can even forget to clean up your own body". [Female, 24years]

One respondent related cannabis to sexual life experience when he associated cannabis use with the total loss of interest in friends of the opposite sex as indicated in the following quote:

"May be there is a behaviour change as before starting using cannabis, I used to be interested with girls and even used to approach them sometimes for sexual act , but after being a cannabis user from the time I was in standard seven, I stopped having any love affairs with women at all. So up to this moment I do not have a girlfriend and I don't even think of getting married in future. "[Male, 21years]

The aspect of visiting places where youths meet for taking drugs which are locally labelled as *maskani* seems a challenge in attempts to abstain from cannabis use. This is because at those places you can get the drug of choice even if you do not have money to buy cannabis, you are likely to meet many drug users who are willing to offer you something you want. Availability of cannabis is so reliable that if a person tries to stop and starts experiencing unwanted effects, they can easily obtain cannabis to relieve the symptoms as quoted below:

"Whenever you go there at maskani (ghetto) you rarely miss people, if you are not there, others are there. Actually maskani never dry even during the night even if is beyond midnight. Even if you wake up at four in the morning, you will find some people out there. I mean even though you do not find the 'pusha' [pusha is the local name for someone who sells cannabis at ghetto] you will find the users who has gone there to get some" (Female, 23 years)

# Cannabis use is an acceptable and affordable habit

This was revealed in the study that public perceive the cannabis users to be different in terms of behaviour secondary to cannabis use. This aspect is reflected in the following quotes below:

"In most cases my relatives become angry as a result of my cannabis using behaviour, but our relationship remains good as i am their child I keep on doing my businesses."

He also went on by saying that,

"Actually your behaviour do not change so much as long as you are having a task to perform but the money you get from what ever you are doing can not be saved as you need to spend now and then for drugs; therefore you have to look for more by any means" [Male, 24 years]

The study revealed that some cannabis users choose to use that addictive substance because of cost as cannabis is more affordable than other drugs like cocaine. Some participants expressed this as quoted below,

"Cocaine is so expensive so you need to have more money, so if you do not have such, you will need to use cannabis instead". [Male, 25 years]

# Another respondent added that

"Because when you want cannabis it cost two hundred shillings, so by having one thousand you can have five pieces which are enough for the day. However, for the case of cocaine the dose you get for one thousand it just stay for an hour or so and then you need another dose while you do not have money for that. Therefore, you can take anything coming close to you and go to sell it including your own properties. So you need to have another one thousand or two that is why most people prefer cannabis over cocaine." [Male, 22 years]

#### DISCUSSION

During the whole process of data collection, some challenges were observed and one of them is that many informants were less willing to share information openly with the awareness of being tape-recorded. Sometimes it was so difficult to write during the interview, as the discussion required the full attention of the researcher. The content was then as carefully as possible written down afterwards in attempts to cover the main aspects dealt with in the interview.

A particular valuable aspect of this method was the manner in which it facilitated closeness and private talks with the informants. The sensitivity nature of the research topic and the ways in which the informants who were cannabis users lived in society while exhibiting that behaviour were well explored via this methodological approach as it was emotionally rewarding while offering freedom of expression of individuals inner feelings and perceptions.

There are number of factors which seem to have contributed to initiation of cannabis use among them are a child being rejected, lack of interest in school life, a child exhibiting delinquent behaviour, being forced to choose undesirable career, lack of employment, loss of parents/guardians as well as being raised in broken families.

The findings of the study correlates with many studies like the one by Ellickson and Morton (1999) whose study revealed that early initiation of cigarette use as well as deviant behaviour and poor parent-child communication are among the initiation factors of cannabis use among youths (Ellickson & Morton, 1999).

Concerning the role of school life, the study revealed that cannabis use behaviour started after completion of primary school. This tells that being at school is an opportunity to be safe and protected from using any illicit drug. Therefore this gives indication that having more opportunity for primary education scholars is likely going to protect enormous number of youths who happen to be roaming around in streets and be easily trapped in cannabis use and use of other illicit drugs.

It seems that many youths, at some point in time, experience the desire to quit cannabis use, but they seem to face many challenges, which put them retard them from taking action. These calls for targeted intervention that can motivate them understand the addiction and what to expect in the dual course of treatment of addiction to cannabis. Therefore, this stands as an opportunity towards assisting youths who are motivated to quit from addictive behaviour to given opportunity.

It is so unexpectedly that some respondents didn't associate their behaviour in relation to cannabis use despite all changes happening to their day to day life and they kept on believing that a behaviour someone portrays usually comes from learning from people you meet with at 'maskani' (ghetto) but is not associated with chemical component of cannabis. This calls for targeted health education to cannabis users and society at large on the mechanism and how behaviour is changed as a result of physical and psychological impact of smoking cannabis . this is important due to the fact from health belief model that for a person to change he/she should perceive to be at risk of health problems as a result of his unhealthy behaviour (Glanz et al., 2002).

Another important element picked up during the interviews is the element of cost, as youths prefer cannabis to other substances due to the fact of cost difference. They said they would prefer cocaine if they had enough money and currently are using cannabis because of inability to buy adequate doses of cocaine per day. Public perceptions in relation to cannabis use vary as some people deny or downplay bad effects of cannabis use like what is demonstrated in United States. (Tanzanian Daily News of 2 March 2009).

#### Conclusion and recommendation

The study concludes that there are many factors, which interplay to predispose youths be engage in cannabis use and use of other illicit drugs. Majority of those factors seem to originate within families and at society level. In addition, parental care should be emphasized in all circumstances starting from a religious point of view. In addition, I can conclude that if emphasis is put on having stable families and better parenting the society is likely to have better and morally sound youths.

Additionally society has all potentials of shaping the culture, which will enable children to be brought up in conducive social environments. If all people could take the role of advocating for better nurturing of children in totality by reviving to our African style of caring for children whereby the role of controlling unwanted behavior was vested to the whole community if not a specific clan. More over the most vulnerable group of children

who are usually also very disadvantaged, like orphans should be given special care by the society rather than abandoning them.

#### REFERENCES

- Arseneault, L., Cannon, M., Witton, J., & Murray, R. (2004). Causal association between cannabis and psychosis: examination of the evidence. *The British Journal of Psychiatry*, 184, 110-117.
- Boden, J., Fergusson, D., & Horwood, L. (2006). Illicit drug use dependence in a New Zealand birth cohort. *Australian NZ Journal of Psychiatry*, 40, 156-163.
- Clayton, R., & Ritter, C. (1985). The epidemiology of alcohol and drug abuse among adolescents. *Advances in Alcohol and Substance Abuse*, 4(3-4), 69-97.
- Driss, M., & Nadia, K. (2008). How prevalent are mental disorders in developing countries? *Annals of General Psychiatry*, 7 (suppl 1), 31.
- Ellickson, P., & Morton, S. (1999). Identifying Adolescents at risk for hard drug use: Racial/ethnic variations. *Journal of Adolescent Health*, 25 (6), 382-395.
- Galaif, E., Newcomb, M., Vega, W., & RD, K. (2007). Protective and risk influences of drug use among a multiethnic sample of adolescent boys. *Journal of Drug Education*, 37(3), 249-276.
- Galanti, L., Manigart, P., & Dubois, P. (1998). Tobacco smoking and alcohol and drug consumption in a large, young healthy population. *Archives of Environmental Health*, 53(2), 156-160.
- Glanz, K., Rimer, B.K. & Lewis, F.M. (2002). Health Behavior and Health Education. Theory, Research and Practice. San Fransisco: Wiley & Sons.
- Golub, A., & Johnson, B. (1994). The shifting importance of alcohol and marijuana as gateway substances among serious drug abusers. *Journal of Studies on Alcohol*, 55(5), 607-614
- Graneheim, U., & Lundman, B. (2004). Qualitative content analysis in nursing research:

- concepts, procedures and measures to achieve trustworthines. *Nurse Education Today*, 24, 105-112.
- Green, B. (1980). Sequential use of drugs and alcohol: A reexamination of the stepping stone hypothesis. *American Journal fo Drug and Alcohol Abuse*, 7(1), 83-99.
- Han, C., McGue, M., & Iacono, W. (1999). Lifetime tobacco, alcohol and other substance use in adolescent Minnesota twins: Univariate and multivariate behavioural genetic analyses. *Addiction*, 94(7), 981-993.
- Hops, H., Davis, B., & Lewin, L. (1999). The development of alcohol and other substance use: A gender study of family and peer context. *Journal of Studies on Alcohol Suppl*, 13, 22-31.
- Kaaya, S., Kilonzo, G., Matowo, A., & Semboja, A. (1992). Prevalence of substance abuse among secondary school students in Dar es salaam. *Tanzania Medical Journal*, 7(1), 21-24.
- Kendler, K., Gardner, C., Jacobson, K., Neale, M., & Prescott, C. (2005). Genetic and Environmental influence on illicit drug use and tobacco use across birth cohorts. *Psychological Medicine*, 35, 1-8.
- Kilonzo, G. (January 20-24, 1992). Reduction of demand for dependece producing drugs: Tanzanian experience. A paper presented at the international conference on drug abuse control in Eastern and Southern Africa. Arusha International Conference Centre, Arusha.
- Martino, S., Ellickson, P., & McCaffrey, D. (2009). Multiple trajectories of peer and parental influence and their association with the development of adolescent heavy drinking. *Addictive Behaviours*, 34(8), 693-700.
- Mbatia, J., & Kilonzo, G. (1996). *Drug abuse prevention, a Handbook for educators in Tanzania* (1st ed.). Dar es salaam, Tanzania: Health Education Unit, Ministry of Health.

- Merikangas, K., Stolar, M., & Stevens, D. (1998). Familiar transmission of substance use disorders. *Archives of General Psychiatry*, *55*, 973-979.
- Mndeme, E. (2004). Parental Factors Associated with Drug Use among youths Atteding the Psychiatric Unit at Muhimbili National Hospital. Unpublished MMed Thesis: University of Dar es Salaam.
- Moussaoui, D., & Kadri, N. (2008). How prevalent are mental disorders in developing countries? *Annals of General Psychiatry*, 7(Suppl 1):S31.
- Regoli, R., & Hewitt, J. (2000). *Delinquency in society* (4th ed.). Boston, USA: Hill Co.
- Rhee, S., Hewitt, J., Young, S., Corley, R., Crowley, T., & Stallings, M. (2003). Genetic and environmental influence on substance initiation, use and problem use in adolescents. *Archives of general psychiatry*, 60, 1256-1264.
- Samuel, A. (2003). The prevalence of Alcohol, Cigarette and marijuana Use among Ghanian Senior Secondary Students in an Urban Setting. *Journal of Ethnicity in Substance Abuse*, 2(1), 53-65.
- Tanzanian Daily News (2009, March 2nd). US states mull weed to ease deficit pain. p. 12
- Tarter, R., Vanyukov, M., Kirisci, L., Reynolds, M., & Clark, D. (2006). Predictors of Marijuana use in adolescents before and after licit drug use: Examination of gateway hypothesis. *American Journal of Psychiatry*, 163(12), 2134-2140.
- Von Sydow, K., Lieb, R., Pfister, H., Hofler, M., & Wittchen, H. (2002). What predicts incident use of cannabis and progression to abuse and dependence? A 4year prospective examination of risk factors in a community sample of adolescents and young adults. *Drug and Alcohol Dependence*, 68, 49-64.

#### APPENDICES

# APPENDIX A: Interview guide for cannabis users

- 1. How can you describe your life when you were at the primary school? In terms of relationship with your friends and teachers. Did you like school life?
- 2. Please can you explain to me the frequency and belief towards religious issues? frequent?
- 3. Did you live with both parents when you were the child? if not can you describe a bit what happened to make you stay with a single parent or none of them? If your parents were separated, can you describe the phenomenon that led to that?

Can you please tell about the life you father and mother used to have when you were young including their level of education and occupation?

4. Do you smoke cigarette and if so can you describe the pattern of your smoking behaviour? If so what started first cigarette of cannabis? In addition, if you are smoking cannabis can you please describe the pattern you take in cannabis use the amount and other issues associated with?

5. Can you please describe in brief the general behaviour you had before starting using cannabis and after starting using it, is there any difference if so can you please describe it in short?

Among those descriptions of behaviour deference you have described do you associate with cannabis use or not?

- 6. Can you tell the reasons that made you start using cannabis? Did you have friends who smoke cigarette and drink alcohol in the past? And did you have siblings and other elders who smoke cigarette and cannabis at the homestead where you were raised? Do you have neighbours who smoke cigarette and/ or cannabis and other substances of abuse
- 7. How can you describe the use of cannabis including their effects and what people say about it? Do you think it is good for you or bad and how do you perceived it to be in your life?
- 8. What opinion do you have on use of cannabis and other illicit drugs? What should be done? If you are given the opportunity to give your advice to the government, what could you say in relation to your knowledge and perception towards it?

### Thank you!