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Review Article

Why Illicit Drug Use Is Increasing in Ethiopia? From Economics Perspective of Drug Use Control Policy

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Abstract

Background

Use of psychoactive substances is playing a great role for increased disease burden and decline in socioeconomic status in Ethiopia. Drug control policy should address demand, supply and risk of drug use related problems. Despite the implementation of comprehensive national drug control master plan since 2017, the trend of licit and illicit drug use is increasing in Ethiopia. The purpose of this review was to answer the question why illicit drug use is increasing in Ethiopia from Economics perspective of drug use control policy.

Methods

We have reviewed PubMed with search term ("narcotics" OR "narcotics"[MeSH Terms] OR "narcotics" OR "narcotic" AND ("psychotropic drugs"[Pharmacological Action] OR "psychotropic drugs"[MeSH Terms] OR ("psychotropic"[All Fields] AND "drugs") and we also reviewed available policy options and guidelines of nine countries from developed and developing regions and United Nations Office on Drugs and Crime manuals for basic terms and definitions. For basic economics principles we have used Gregory Mankiw. Principles of economics, 7th edition.

Results

Decriminalization approaches addressing demand, supply and risk of drug use have reduced drug use associated problems in selected countries except Ethiopia. Total budget allocated for demand reduction is only 34.2% of total national drug control budget.

Conclusion

National drug control policy movement towards 2030 goal is challenged by commercialization of khat and low budget allocation to Demand reduction measures.

Recommendations

Based our review we forward the following recommendations to the responsible authorities to; increase investing in demand reduction measures; develop long term plan for substituting khat with alternative revenue source for the country.

Introduction

Background

Ethiopia is landlocked country bordered by Kenya in South, Sudan in West, Eritrea in North, and Somalia in East. Ethiopia is a second largest country in Africa second to Nigeria with a population of 112, 078,730. The majority of Ethiopian population is young, about 47% are below 15 years of age [1,2].

Drug misuse and abuse is a major public problem globally. World Health Organization estimated that third of the world population above the age of 15 years, use tobacco. Among these 63% were from developing countries [3,4].

The use of illicit drugs is contributing to the increased prevalence of diseases and associated socioeconomic problem in Ethiopia. Commonly used illicit drugs include; Khat, alcohol, tobacco, cannabis and inhalants. Khat, alcohol and tobacco are easily available and accessible at a low cost. A large segment of economically active population consumes khat and alcohol on a regular basis. The prevalence of tobacco use in Ethiopia is 4.2% (Males 7.3% and Females 0.4%). Tobacco is the drug first experimented by children and youth population in the country [5,6].

A cross sectional study conducted among high school students in Dire Dawa showed that, life time prevalence of chat chewing is 15.36% [7]. Another study from Aman Poly technic reported high Prevalence of substance abuse (42.5%). The commonly used substances by students were, chat (65%), Alcohol (28%) and cigarette (4.8%) [8]. Reported prevalence of chat chewing from study done among high school adolescents in Eastern Ethiopia was 24.2% [9]. Similarly a reported prevalence of cigarette smoking among school adolescents in eastern Ethiopia, Addis Ababa and Nazareth town were 12.2%, 10.1% and 23.4% respectively [10-12].

Ethiopia is one the main illicit drug trafficking routes to Europe and some Asian countries. The country is serving as a transit point as well as entrance some illicit drugs local market particularly heroin. According to Federal Police Commission, Anti-Narcotic Service report in 2016, 821.050kg of Cannabis and 36.060 kg of cocaine were seized at Addis Ababa Airport during long direct flights from Brazil and West Africa [5].

Ethiopia has launched comprehensive national drug control master plan with vision of achieving drug free society by the year 2030 [5]. However the drug use pattern is increasing in direction against this vision. Therefore this review was conducted to explore global policy options and economics perspective of drug use control.

Impact of Drug Use

Illicit drug use can start at any age but usually at age of adolescence. It is closely related to risks of premature death, acquiring infections such as (hepatitis B and C and HIV), overdose, respiratory failure, mental health problems, unemployment, poor school performance, increased accidents, increased suicide and decreased life expectancy [13-16].

An Integrated Survey conducted among people who inject drugs (PWID) in Addis Ababa in 2014-2015 showed that, 30% of People who inject drugs (PWID) reported sharing syringes and needles. Prevalence of HIV, HBV, HCV, and Syphilis among PWIDs were 6%, 5.1%, 2.9% and 5.1% respectively. Five percent of PWID were living with HIV and HBV, 12% were living with HIV an HCV and 27% were living with HIV and Syphilis [5].

Risk Factors for Substance Abuse

The abuse of psychoactive substances is a complex problem involving simultaneous impact of various interconnected factors [17]. Studies explored that exposure to media on alcohol advertising and promotion alters adolescent's attitudes, perceptions and expectations about alcohol [18,19].

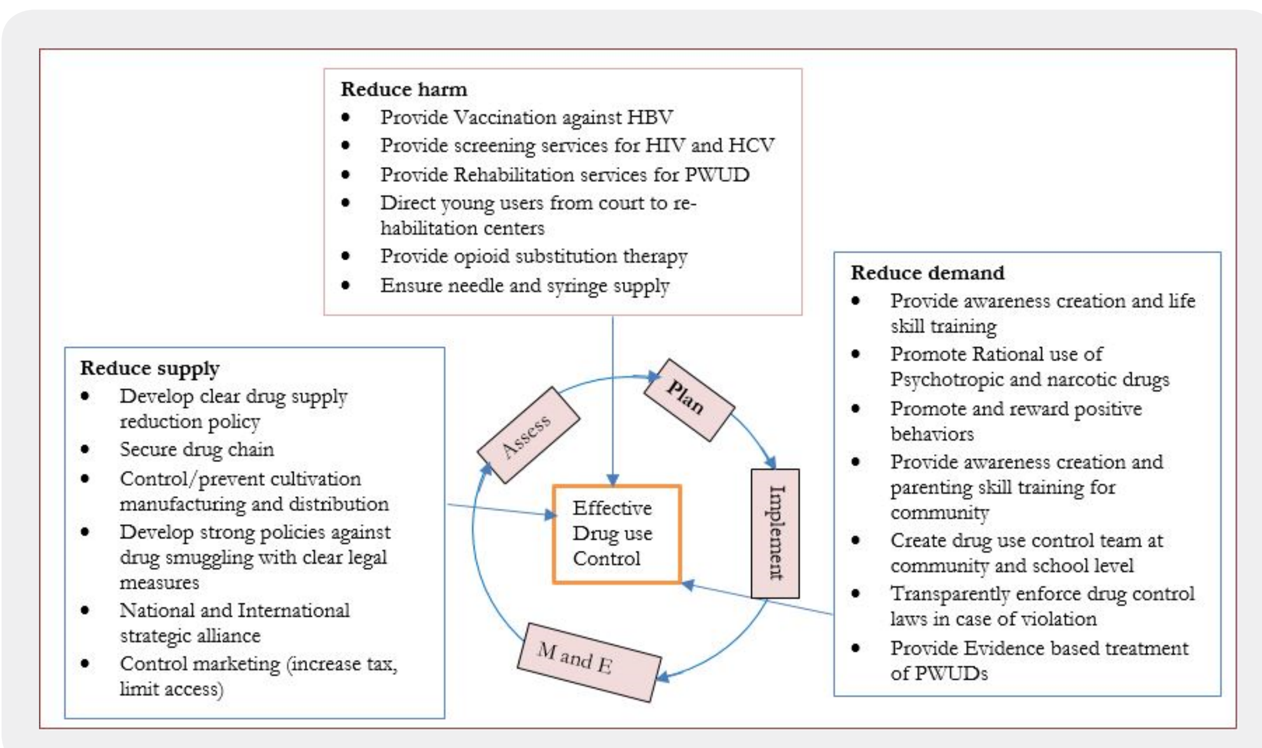
Abuse of psychoactive substance can start at any age, but majority of cases are at adolescence. This is associated changes that takes place during this period including; biological (puberty), social (peer pressure and responsibility), and cognitive (brain development) changes [20-26].

Adolescents are not well adjusted to foresee and plan for a better future and they enjoy current gratifications and living for today. Occurrence of Substance use disorder involves the following eight steps; emotional immaturity to handle personal problems or discomfort; turn to drugs to relieve discomfort; gradually increases use; loss of ability to control; failure to fulfil major obligations; ability to get "high" from the drugs gradually decreases; Continued use and tolerance (Drug craving) and Crossing an invisible and intangible line (addicted) [24-26].

Other Factors which are believed to increase risk for adolescent and substance use include, Substance abuse by a parents, peer pressure, lack of parental guidance, or a disruptive, abusive family, school failure, early experimentation with drugs and living in a community where substance abuse common and weak public policy. Risk of getting addicted increases with number of risk factors [27-29].

Prevention Strategies

Being a highly complex problems illicit drug use prevention requires multi-sectoral involvement. Generally, policy options should address the demand, supply and harm reduction. Demand reduction should be the priority agenda, because it is demand that induces production, cultivation, manufacturing and supply of drugs. "Harm reduction" the concept of reducing the harms associated with people unwilling or unable to stop using drugs (Figure 1) [5,14,16,29].



Note: PWUDs: People who use drugs; HBV: Hepatitis B virus; HCV: Hepatitis C virus; M and E: Monitoring and Evaluation

Figure 1: *Framework for effective drug control based on supply and drug demand reduction principle adapted from Different literatures*

Drug Control Policy Options

There are two broad policy strategies for drug use control. The first one is war one drugs (i.e. banning drugs or zero tolerance). The second is taking drug use problem as disorder and managing it by using appropriate interventions (decriminalization). Researches confirmed that the first approach is failing to reduce drug use related problems in society. While alternative approaches adapted by different countries are proven to have better effect on drug use control. Alternative world on drug report showed number of harms related to war on drugs. These include; threatening public health, spreading infectious diseases; disturbing peace and security; undermining development; ignoring human rights; creating crime and enriching criminals; wasting billions; promoting stigma and discrimination; harming children and young people and causing deforestation and pollution [30-32].

Social and health harms are almost equal in society where there is ultra-drug prohibition and commercial promotion. While decriminalization with strict legal regulation is the best policy option to reduce societal health harms from illicit drug use. Decriminalization is elimination of criminal sanctions for possession of small quantities of illegal drugs for personal use. It is not complete removal punishments against drug crimes but controlled provision drugs to people who need them most (addicted) (Figure 2) [30].

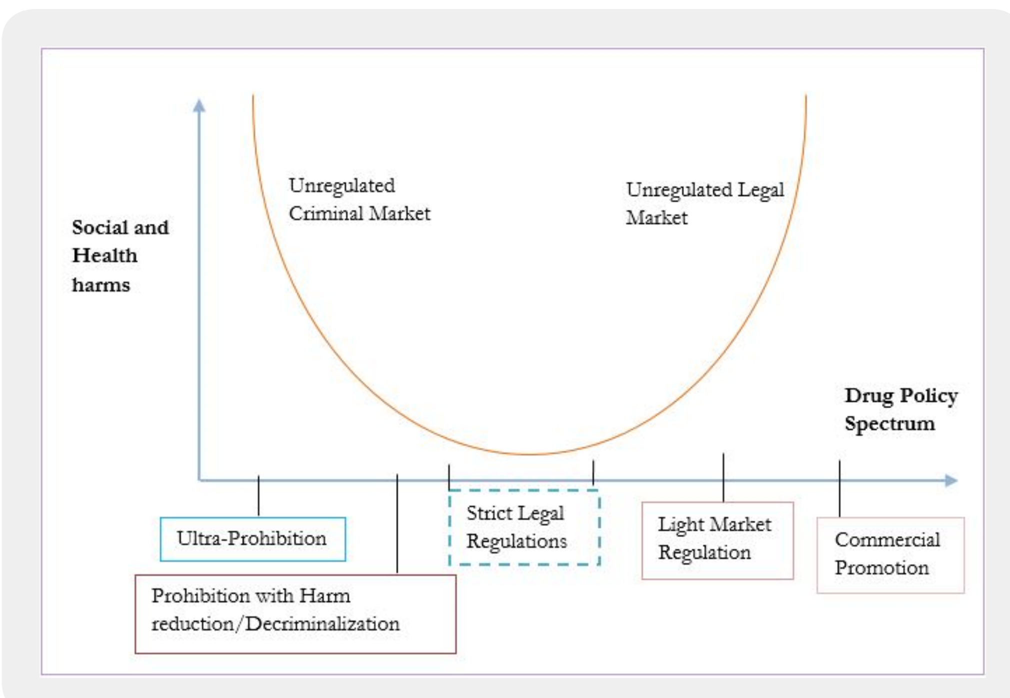


Figure 2: *A graphical representation of the argument for legal drug regulation options: Adapted from The Alternative World Drug Report, 2nd edition: Count the Costs initiative sign-on statement*

Overview of Ethiopian National Drug Control Policy

Ethiopia has developed national comprehensive drug control master plan addressing demand, supply and risk reduction to strengthen prevention and treatment of substance abuse problems in the country. National drug control master plan (NDCMP) has identified nine national priority areas: Legal Framework, Crime Prevention and Drug Supply Reduction; Drug Demand Reduction; Harm Reduction; Implementation, Monitoring & Evaluation and Strategic Information. Other priority areas include; capacity building for health professionals, legal practitioners, prison authorities, trade sectors on human rights of PWUD and Empowering and supporting Populations at higher Risk to Drug Use (Youth and other Vulnerable Groups) and ensuring availability, Rational Use and Control of licit NPS for medical purposes [5].

Where Are We Spending?

Assessment of national drug use problem and policy gaps is important for developing goals and action strategies. These objectives and actions strategies should direct specific action plans and corresponding budgets. The program implementation should be monitored periodically to excel best practices and improve poor performances. The following table shows national drug control budget of Ethiopia in 2017 (Table 1). Total of $ 980, 000 USD budget was allocated to national drug control master plan and 34.2% ($ 335,000 USD) was allocated to demand reduction and harm reduction [5].

Table 1: *Ministry of health Ethiopia Budgeting for National drug control Master Plan 2017*

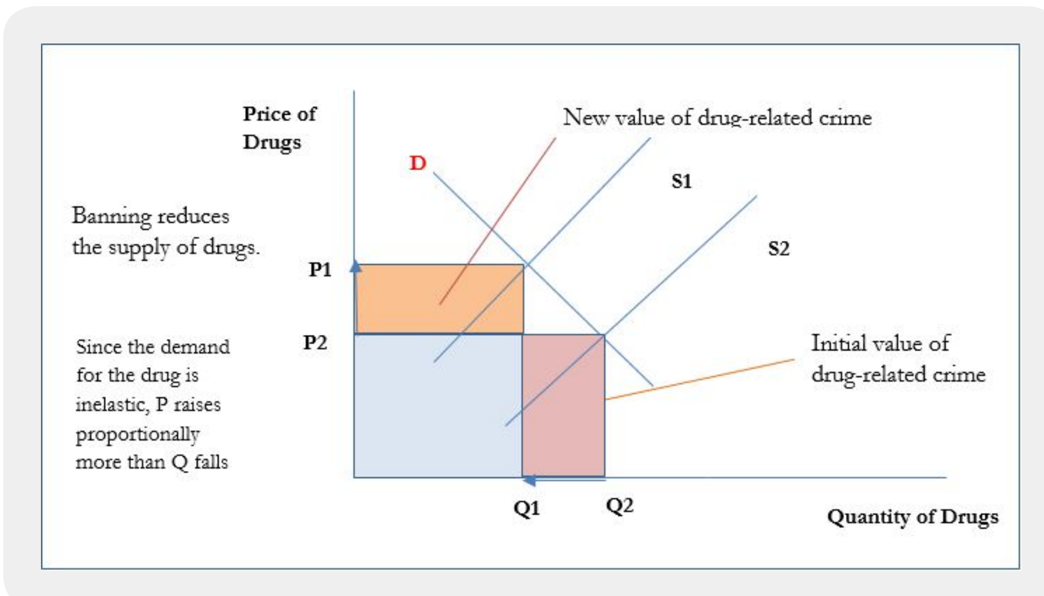
S.No	National drug control Objectives	Estimated cost in USD	Percent
1	National budget for Legal Framework, Drug Crime Prevention and Supply Reduction	250,000	25.51%
2	National budget for Drug Demand Reduction	335,000	34.18%
3	National budget for Harm Reduction	200,000	20.41%
4	National Budget for Coordination Mechanism, Implementation Framework, Monitoring & Evaluation and Strategic Information	195,000	19.90%
	Total	980,000	100%

Economics of Drugs as Policy

As we have described earlier effective drug control policy should address demand reduction, supply reduction and harm reduction measures. A policy that doesn't incorporate these three approaches may not bear satisfactory fruits in reducing drug related harms [30,33].

The following example provides hypothetical scenario of drug and two policy options to reduce drug use related crime in society. Drug-related crime, which is committed on both the supply and demand side, falls into the following categories; Crime committed by people who use drugs to sustain their drug-taking habit; Crime committed under the influence of drugs and Crime related to the cultivation, manufacture, possession, trafficking, and sale of drugs [33].

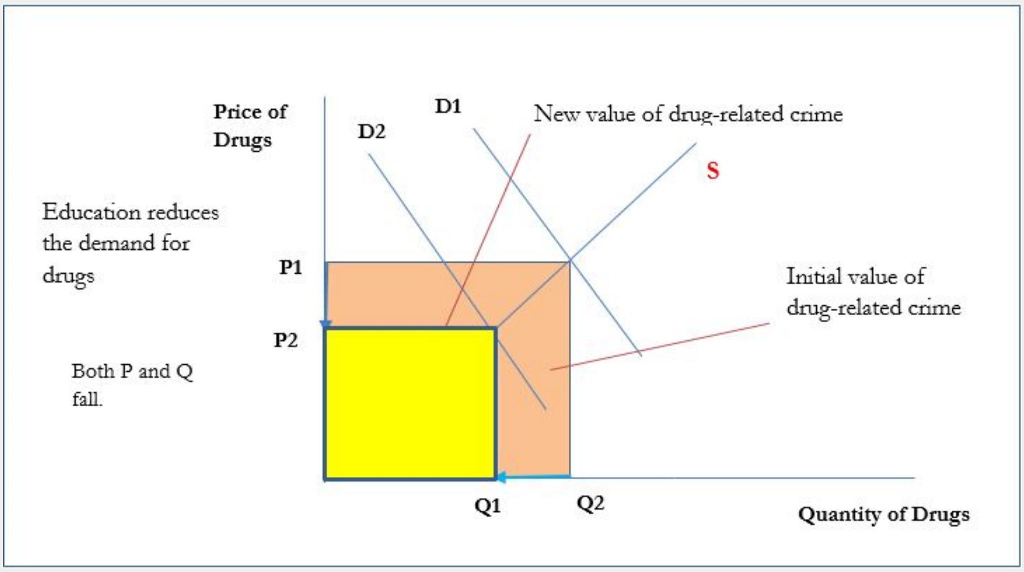
From economics point of view, demand for illegal drug use is inelastic (i.e. drug use does not respond significantly to change in price or availability) due to addiction related issues. This is because using drug becomes necessity for the person and there is no close substitute to replace it. Banning decreases the availability of drugs and increases the price of it. Therefore if banning (zero tolerance) is used as only policy strategy to control substance use, users often turn to crime to finance their habit. Which increases total spending on drugs and drug related crimes (Figure 3) [33].



Note: P= Price of drugs; Q= Quantity of drugs; D= Demand; S= Supply

Figure 3: *The effect of banning drugs on drug use related crimes adapted from N. Gregory Mankiw. Principles of economics, 7th edition*

The second alternative approach is using behavioral change education as policy option. Education decreases the demand for drugs and reduces price of drugs. Reducing price of drugs will finally reduce the crime related to financing their habits and indirectly reduce supply of drugs because suppliers will not be interested to supply at lower price. This indicates that behavioral change education with controlled drug supply for special populations (i.e. addicted or dependent) will reduce drug use and related societal consequences (Figure 4) [33].



Note: P= Price of drugs; Q= Quantity of drugs; D= Demand; S= Supply

Figure 4: *The effect of education drugs on drug use related crimes adapted from N. Gregory Mankiw. Principles of economics, 7th edition*

Practical Evidence Form the Rest of the World

We have reviewed policy options of nine countries from developed and developing countries. Countries using decriminalization as policy options by targeting three intervention areas (demand, supply and harm reduction) have reduced both substance use and harms related to drug use. These countries include; Portugal, Spain, Netherlands, Turkey, Uruguay and Switzerland. However countries with repressive or punitive (zero tolerance) policy like Sweden have faced increased drug use and associated harms. Despite low prevalence of substance in Sweden, their repressive policy is increasing drug related harms to level above European average. From Colorado experience, we have observed that decriminalization to extent of free commercialization have negative outcomes like increasing accidental exposure of children to illicit drugs. Despite the availability of comprehensive national drug control policy the trend of both licit and illicit drug is increasing in the county (Table 2). [5,30,34-54].

Table 2: *Main options for drug control policy, strategy, target of influence and impact*

County	Drug control policy	Policy strategy	Target influenced	Impact
Portugal	Drug decriminalization	Allowing possession of all drugs for personal use	Demand and supply side	• Decreased Drug use among 15-24 years • Decreased incidence of HIV cases among PWIDs • Significant reduction in Deaths due to drug use • Decreased drug-related crimes to fund drug habits • Rates of problematic drug use and injections were decreased
Spain	Controlled Legalization of Cannabis without	Providing Cannabis for registered members, membership is granted only upon invitation by an existing member or doctor's confirmation	Supply and demand side	• Reduce availability of cannabis in commercial market • Reduces cannabis promotion • Restricts cannabis use only addicted users • Reduce drug related offences to fund drug consumption
Netherlands	Cannabis policy	Decriminalization of personal possession and use of cannabis for adults, tolerates the existence of outlets for low-volume cannabis sales, outlets	Supply and demand side	• Reduced the percentage of cannabis users (14%) compared to 52% in Sweden • Rates of cannabis use is lower than many nearby countries and US
Turkey	Opium trade	Transition from illicit production to a legally regulated production and market	Supply and demand	• Progressively reduce illicit global demand through; • Regulated supply of opiates to dependent users (such as opioid substitution therapy and heroin-assisted treatment (HAT)

				• Consideration of underlying social and economic drivers of dependence
Colorado	Cannabis regulation	Legally regulated market for the production and supply of cannabis for non-medical use (2014)	Supply side	• Cannabis use increased Slightly • Increased hospitalization due to cannabis abuse • Accidental ingestions of cannabis by children increased • Arrests for cannabis possession decreased
Uruguay	Cannabis legalization	Provides medical users with access to the drug, as well as the option for any adult user to either cultivate cannabis in their own home	Supply and demand	• Reduce the illicit marketing and promotion of cannabis • Reduce cannabis use among adolescents • Reduce drug related crimes to fund for drug needs • May increase the accidental exposure of children to cannabis
Switzerland	Heroin-assisted therapy (HAT)	Regulating the supply and use of a high-risk injectable drug and providing HAT for long term users resistant to other treatment approaches	Supply and demand side	• Health outcomes for HAT participants improved significantly • Illicit heroin (and illicit cocaine) consumption was significantly reduced • Heroin from the trials was not diverted to illicit markets • Initiation of new heroin use reduced • Street dealing and recruitment by former "user-dealers" reduced

Sweden	Drug policy	A repressive or "zero-tolerance" to drug use	Supply side	• Drug use among the general population is rising • Rate of Lifetime amphetamine use among adults is increasing • Increased Lifetime use of inhalants and non-prescription use of tranquillizers and sedatives among young people • Rates of hepatitis C among injecting drug users is higher than Europe. • Drug-induced mortality rate was 62.6 deaths per million in 2012, more than three times the European average of 17.1 deaths per million.
Ethiopia	National drug control master plan	Punitive and harm reduction approach	Demand and supply reduction	• Use of licit and illicit drugs and drug trafficking is increasing • Use of psychoactive drugs like alcohol, chat and cigarette is increasing among adolescents

Discussion

We have reviewed drug control policy options of eight countries from developed and developing countries and compared with Ethiopian national drug control master plan from economics perspective of drug use control. Our review revealed that zero tolerance laws are not effective and decriminalization approaches addressing demand, supply and risk of drug use are effective. National drug control policy is comprehensive and addresses demand, supply and risk reduction. However, movement of Ethiopia towards to 2030 goal requires vigilant look into the priority areas of focus.

Drug control policy of Portugal, Spain, Netherlands, Turkey, Colorado, Uruguay, Switzerland and Ethiopia are based on controlled commercialization (decriminalization). Countries who are implementing decriminalization have decreased illegal drug use and associated harms except Ethiopia and Colorado [5,30]. Drug control policy of Sweden is repressive or Zero tolerance to handling psychoactive substances without medical indication. Sweden is experiencing increased trend of substance and associated risks to level above European average [51-53].

Repressing or punitive measures are failing because of their focus on supply and availability of drugs without addressing the need and risk of addicted population. Demand for illicit drugs is inelastic and will not respond to decreasing availability which raises cost of drugs. From economics we know that goods or services with inelastic demand with no substitute will not respond to price changes. Decreasing availability with addressing demand increases the price of drug. This will lead addicted individuals to search of money to fund their habits. Finally drug related crime will raise. In addition to this serious punitive measure cause social and health problems. For example, serious punitive measures on drug smugglers may cause family financial problem that will increase number of uneducated children, increase unemployment and social crime. On other hand users may change dosage form to injection to escape from persecution, which will lead to increased risk of infectious diseases like HIV/AIDS, HBV and HCV. Therefore ultra-prohibition of drug use in countries with high prevalence of drug use problem will have negative impact on health, economy and security [30,33].

The Colorado trend difference is because of its tendency to over commercialization or less control [44,45]. However the Ethiopian cause is multidimensional (i.e. societal, economic and technical) and will be discussed below [5].

Effective drug control policy should integrate multiple stakeholders to address demand, supply and risk of addicted population and their families. Depending on the prevalence of drug use problem status priority areas may vary. For example, if the country has low prevalence of drug use problem focusing on supply reduction with clear polices are more effective in controlling drug use and reducing harms related with drug use. While in countries with high prevalence of drug use problem focusing on demand and risk reduction will have paramount importance. In this case controlled legalization (decriminalization) of possession of limited amount of illicit drugs for personal use, with vigilant regulation and control to avoid commercialization are effective in reducing drug use and associated problems as evidenced by Portugal experience [30].

National drug control policy of Ethiopia is comprehensively addressing supply, demand and risk reduction approaches by involving all relevant stakeholders. However there is no significant reduction drug pattern, rather increasing prevalence of addiction among youths [5-12]. This could be explained by societal, technical and economic reasons. Societal reasoning is that use of substances like khat and alcohol are socially accepted. Khat chewing is associated with religious practices. Alcohol production and consumption indigenous to the people of Ethiopia including the rural communities. Rural communities produce different forms of alcoholic drinks like 'Areqe', 'Tella' and 'Teji' by using fermentation of starch and traditional distillation mechanisms. These local products in addition to modern alcohols are freely marketed in the country [5].

Technical reasoning could be missed opportunity to address priority source of problem as evidenced by allocation of only 34.2% ($ 335,000 USD) to demand reduction. As we have described above the trend of drug use in Ethiopia is increasing both general population and youths [5].

The country has relatively high prevalence of injection drug users.5 Based on these data government drug control policy could benefit more from focusing on demand and risk reduction measures. Increased addiction among youths could be explained by lack of appropriate life skills to resist internal pressures from physiologic changes associated with puberty and external pressures from peers and added societal roles [14,16,27-29].

Economical reasoning is that khat is used as source of revenue generation for government and second export commodity after coffee. Locally it is a big employer of the working force and mainstay of income for millions of farmers and traders. It is grown almost everywhere in the country, especially in the eastern, western and southern regions and sold to consumers in public and in abundant quantities. Ironically, it benefits the Khat growers, traders and the government [5]. The ease access and availability of khat contributes to cascades of substance disorder. These is because, khat chewers, smoke while chewing and drink to antagonize excitation cased Cathine, Cathinone and Methcathinone. Individual who drink alcohol have decreased cognitive function secondary to alcohol induced Central nervous system depression. Impaired judgment ability will lead host of problems including; accidents, unsafe sexual activity.

The other problem with drug control policy in Ethiopia is that the country has no clear policy against khat chewing and number of working age populations including students are spending their quality time on chewing. This could be antecedent or consequence of current large number of school failures and youth unemployment in the country. Empirical study revealed poor student engagement and energy to learn and wasting most of time in non-goal oriented activities (poor class attendance and delinquency) is reported as reason low outcomes of secondary/preparatory school students [2,55].

Finally, success of drug control policy of Ethiopia will be under pressure as far as khat used as source of economy for government. This is because addressing behavioral change of may not be successful in the presence of triggering factors in distance near to their door. Process behavioral modification requires; Make a personal commitment; Mind and Body (think what to stop); Reasons why to stop; Get help friends or health care providers; setting the right time to stop; avoiding triggers; Stating intention to stop others; changing environment; Start changing your habits; Stopping substance abuse and staying drug abuse free [56,57].

In conclusion, National drug control policy of Ethiopia is comprehensive and addresses demand, supply and risk reduction. However, movement towards 2030 goal will be challenged by commercialization of khat, which is serving as initiator of cascades of substance use problems in the country. Budget allocation to demand reduction is relatively low. Careful consideration of budget allocation for each intervention areas (i.e. demand, supply and risk reduction) is important. Demand reduction should be the first priority for successful reduction of drug use problems. This should be supported by long term plan for substituting khat and tobacco cultivation with alternative economic sectors. However, the drug policy lacks long terms strategies to reduce decrease khat and alcohol production and use.

Based our review we forward the following recommendations to the responsible authorities; (1). For Ministry of Health: investing in demand reduction is more important for the country since number of youths are getting addicted to one or more drugs. Therefore, reconsidering the budget allocation for each intervention areas is important. (2). Ministry of Finance and economic development: Developing long term plan for substituting khat with alternative revenue source for the country and individuals is important, because preventive programs including behavioral modification education are not effective in presence triggering agent in door youths. (3). Ministry of education: Creating attractive teaching learning environment including recreational centers for students in school is important to retain students in school during school hours and reduce exposure time to triggers of unhealthy behaviors.

Contribution of Authors

Mende Mensa Sorato is senior researcher and lecturer from Arba Minch University, PhD scholar at Tehran University of Medical Sciences; conceived the project, reviewed the articles, designed the format and developed the manuscript for publication. Dr Majid Davari participated in literature review and format design Dr Akbar Abdollahi Asl and Dr Fatemeneh Solymani participated in literature review and polished the language of the model.

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