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EVALUATION OF THE CANNABIS AS A GATEWAY DRUG: GATEWAY HYPOTHESIS

CİHAN ESİRGEMEZ
20071269

SUPERVISOR
PROF. DR. MEHMET ÇAKICI

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ÖZET

BİR GEÇİŞ MADDESİ OLARAK ESRARIN DEĞERLENDİRİLMESİ: GEÇİŞ HİPOTEZİ

Hazırlayan: Cihan Esirgemez

Geçiş hipotezi, uyuşturucu kullanımında birbirini izleyen ve birbirlerinden farklı psikoaktif madde bölümlerinden oluşmaktadır. Kişilerin sigara kullanması, ardından alkol kullanımına geçmesi, ardından esrar kullanması ve esrar kullanımından sonra daha sert (kokain, eroin vb.) maddelere geçmesidir. Bu hiyerarşik sıraya "Geçiş Hipotezi" adı verilmektedir. Literatür çalışmalarına bakıldığında; geçiş maddeleri arasında en önemli konuma sahip olan madde olarak esrar göze çarpmaktadır. Bu bağlamda, bu projenin amacı, esrarın geçiş hipotezi üzerindeki rolünü araştırmak ve esrarın bu geçiş sırasında bir köprü görevi görüp görmediğinin incelenmesidir. Çocukluk dönemindeki aile ile ilişkiler, akran ilişkileri, çocukluk dönemindeki travmalar, psikoaktif maddelere ulaşılabilirliğin kolaylığı ve madde kullanımına yatkınlık gibi bazı risk faktörleri de esrarın geçiş hipotezi üzerinde etkili bir rol oynamaktadır. Bu çalışma için toplanan verilerin çoğu esrarın bir geçiş maddesi olduğunu ve geçiş sırasının sigaradan esrara, esrardan ise daha sert uyuşturuculara doğru olduğunu destekler niteliktedir. Fakat bu konuya ilişkin yapılan çalışmaların yetersizliği "esrar bir geçiş maddesidir" önermesini kesin bir dille söylememizi engellemektedir. Literatür çalışmalarından yola çıkarak esrarın bir geçiş maddesi olduğunu göz önünde bulundurduğumuz zaman "esrar" üzerine yoğunlaşan önleme çalışmaları hem esrar kullanımını azaltacağı hem de daha sert uyuşturucu kullanımını engelleyeceği kanaatindeyim.

ABSTRACT

EVALUATION OF THE CANNABIS AS A GATEWAY DRUG: GATEWAY HYPOTHESİS

Prepared by: Cihan Esirgemez

Gateway hypothesis consists of sequencing of different psychoactive substance stages. Cigarette use is followed by alcohol use and eventually usage of cannabis and harder substances (cocaine, heroin etc.). This hierarchical order is called as “Gateway Hypothesis”. Literature reveals that cannabis had the most important place in this process. In this context, this Project aims to evaluate the role of cannabis on gateway hypothesis and to examine if the cannabis served as a bridge in this transition process. Certain risk factors such as family relations, childhood trauma, and accessibility to psychoactive drugs and tendency to substance use play a key role on the gateway hypothesis of cannabis. Most of the findings obtained by this study support the idea that assumes cannabis as a gateway substance and gateway or transition process began by cigarette use, went on by cannabis use and ended up by usage of harder drugs. However, very few studies were conducted about this issue. So it is not possible to say that cannabis is definitely a gateway substance. Since the studies in literature support the idea that accepts cannabis as a gateway substance, it can be said that preventive studies focused on cannabis would decrease the rate of cannabis use and prevent usage of harder substances.

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1. INTRODUCTION

There is an ongoing struggle in the whole world for understanding, identifying and also coping with the psychoactive substance use which became an enormous problem for the whole humankind. Campaigns against psychoactive drug use have become an international issue that requires cooperation. Despite some countries benefit from psychoactive drugs, it became a risk factor that social order in the same countries.

All countries take precautions against psychoactive drugs which threatens their own cultural structure. This struggle process is generally focused on the fields like law, economy and education. However decreasing substance using age and increasing prevalence among the adolescents in recent years, gave priority to develop preventive programs to protect young people. In other words, young people who form the most important risk group are the main target of preventive studies (Çakıcı, 2000).

Bad habits like alcohol, cigarette, psychoactive drug use and gambling are the growing problems which constitute serious risk and threaten the whole world and our country as well. Studies investigated high school and college students and other youngsters revealed that beginning age for smoking and alcohol use had decreased below age 20 years old and a significant increase at prevalence rate was interpreted as a result of certain cultural factors (Kasatura, 1998).

A possibility is also being thought that if those bad habbits could lead to severe problems by triggering each other. In this case, it is possible to observe a gradual transition process that begins by smoking, proceeds by alcohol consumption and ends with substance use.

Some studies revealed that tobacco use was a risk factor that triggers to begin alcohol consumption. Emergence of alcohol and tobacco use constitutes a serious risk factor for cannabis use. Cannabis use at early ages (especially among frequent users) is an obvious risk factor that increases the likelihood of using harder drugs in future (Valenzuela and Fernandez, 2011).

Studies revealed that cannabis was the most prevalently consumed substance which is more obtainable and which has milder effect when compared with other substances. Cannabis is known as the most prevalently preferred illicit drug in Europe, Australia and Northern America. Recent studies revealed that 321 millions of people used cannabis and it was also found that in last decade, cannabis was the most prevalent illicit drug among the countries (World Drug Report, 2013). Since cannabis has lower effect when compared with other drugs, it is classified as a mild drug. Individuals discover cannabis after a gradual process of cigarette and alcohol usage and this gradual process provide a basis for using harder drugs such as cocaine, heroin. As seen in this process transferring from cannabis to harder drugs follows a hierarchical order. This order is called as "Gateway hypothesis".

So many epidemiological studies had been conducted on gateway hypothesis. One of those studies described gateway hypothesis in two orders. The first one claims that tobacco use increased the risk of alcohol and cannabis use; the second one claims that cannabis use increased the risk of using harder drugs such as cocaine and heroin (Maldonado- Molina et al. [13.04.2014]). Another explanation defined gateway hypothesis as a transition process from a less effective substance to a more effective, more frequently consumed and more harmful substance (Bretteville-Jensen et. al., 2005). In this process, cannabis serves as a bridge that enables to drug use and usage of harder drugs in future. In this context, "examining accuracy of the transition process and if cannabis served as bridge that enables transition" is one of the objectives of this study.

Very few amounts of studies about drug use have hitherto been conducted in our country. Lack of adequate number of experts, ignorance of this issue, general opinion that assumes drug use would not constitute a big problem, general disregard about studies are the reasons that might bring logical explanations about this incidence (Ögel, 1997).

Because of those reasons, it can be told that stating importance of drug use, adding a new study to the literature related with drug use and providing a basis for the future studies were the other important objectives of this study.

2. HISTORY OF PSYCHOACTIVE DRUGS

It is known that people has been used psychoactive drugs during the whole history for having pleasure, killing pain and seeking for recovery. In early ages, opium and cannabis were accepted as a gift that sent by God in order to provide health and happiness to humankind. Primitive communities used psychoactive drugs to reach a different consciousness state in religious ceremonies which is unlike their usual, daily consciousness state. Psychoactive drugs such as opiates, coca leaves, and cannabis were used for coping with hunger, thirsty, insomnia, pain and they also played a key role at the mystic rituals such as dance, meditation, devotions and mesmerism (Ögel, 1997) .

Sumerian inscriptions dated as 4000 B.C. reports that ancient Sumerians who lived in Southern Mesopotamia cultivated opium poppy and indiani hemp plants. They also produced syrups, pills and powders for using as medicine. Homeros who lived in 9th century B.C. mentioned some kind of substances that derived from opium used as pain killer and he added that this substance would make people to remain insensitive and disregardful even they witnessed to murder of their parents or children. Throughout the history of humankind, so many poets, authors from different countries, including ours as well, had used opium and cannabis and they had also reflected those experiences to their works. Famous French author Pierre De Ronsard who lived between the years of 1525 and 1585 used opium for coping with somatic complains and eventually he became an addicted. Thomas De Quincey who lived between 1785 and 1859 became addicted to an opiate called as Laundaum and he mentioned his experiences and praises about opium in his book named as “Confessions of an English Opium-Eater”. Turkish rover Evliya Çelebi who lived between 1611 and 1682 travelled through the territory of Otoman Empire territory and he mentioned his observations about excessive prevelance of cannabis and opium consumption in İstanbul. He also noticed handicraftsmen working as cannabis dealers in İstanbul. Meliki, Helaki, Sünbülzade, Vebi, Nefi and Fuzuli are

the Ottoman poets who used cannabis. Some documents dated as 19th century, reports excessive alcohol consumption in USA and those documents also reports that prevalent alcohol consumption among adolescent population who take adults as models. Alcohol had been a pioneer substance in USA; however cigarette became more popular in colonization period because of easier accessibility. Despite the usage of marijuana in Colonization period, alcohol and cigarette still remained as the most popular substances. It is thought that opium was brought to USA by Chinese railway workers. Cigarette usage spread like an epidemic disease between the years of 1920 and 1950. Substance usage and dependency became a sociological problem in the years of 1960s. In those years, substance usage first appeared in big cities and then spread to rural. Popularity of substance usage gradually changed according to the age in this period. At first, popularity of drugs spread among adults and then popularity reached to young adults, adolescents even children (Çakıcı, 2000).

3. PREVALENCE OF PSYCHOACTIVE DRUG USE

Psychoactive drug usage constitutes a problem in all countries in the world. Because it is a spreading habit day by day. USA is the country which has the highest prevalence of drug usage. Studies reported that 37% of American people tried psychoactive drugs at least once. Substance usage rate in last year was found 13% and substance using rate in last month was found as 6%. 30% of students reported that they tried at least one substance except alcohol in their life time and 16% of them reported usage of substances except alcohol, cannabis. Cannabis was found as the most frequently consumed substance. 33% reported cannabis use at least once and 5% reported that they were still using cannabis. Cocaine takes the second row after the cannabis. Life time use prevalence of cocaine was found as 11.5% and cocaine usage in last month was found as 0.9%. It was also found that 9% of American people used heroine at least once in their life time. Those prevalence rates are lower in Europe when compared with USA. However most of the European Countries has higher prevalence rates than general average. Life time drug usage prevalence rates of Dutch students were found as 40% cannabis, 2.5% cocaine, amphetamines and 0.9% for heroine. In Ireland, prevalence of using at least one substance in life time was found as 21%. Life time prevalence of substance usage was found as 4% cannabis, 2.5% opiates, 5.8% inhalants in Norway. A study conducted in 1991 , reported that prevalence rates were very low in our country.

Prevalence of general substance usage was found 3% where as it was found as 4% for cannabis. In the year of 1995, a study was conducted with 2800 second grade high school students in Istanbul. Study revealed that 6.9% of students tried a substance at least once in their life time. This rate was calculated as 4% for cannabis, 3.8% for inhalants, 0.8% for heroine. In this study, inhalant usage prevalence was found significantly higher whereas cocaine usage prevalence was found less than other countries. Finally, a survey study conducted with 6800 students in the year of 6800 reported that prevalnce of cannabis use increased to 4.2% (Ögel, 1997) .

A limited amount of young people from various European countries such as UK, Switzerland, Norway, Iceland, Finland and Denmark reported they were acquinted with substances like ecstasy, amphetamines. However a considerable majority of high students from TRNC reported that they were acquainted with cannabis, heroin, cocaine and inhalants. 5.5% of high school students in TRNC used at least one substance in their life. Prevalence of inhalants use was found as 4.6% among those students (Çakıcı, 2000) .

4. REASONS FOR PSYCHOACTIVE DRUG USE

Reasons for beginning drug use may be influenced by so many factors. The most obvious motives are as curiosity, personal disposition and desire for feeling more energetic (Kasatura, 1998).

People who defend their own realities against traditional rules and those who have lack of emotional stability and anger management skills experience difficulties at keeping company with environment. As a result of those problems, they tend to use substances that they matched with their own personality. Individuals may use substances because of passion they had for the effects of substances and they may identify those effects with their own life experiences. Peer relations play a key role either as a risk or as a protective factor for the emergence of substance use. A youngster who acquired certain values in family and has self-trust may keep himself away from substance use despite he lives in negative environmental conditions (Kasatura, 1998).

5. PSYCHOACTIVE DRUGS AND THEIR EFFECTS

5.1 Cigarette

Cigarette is made by processed and dried up leaves of tobacco plant (nikotina tabacum). It is also used in the form of cigar, dust and chewing gum. Tobacco rolled in paper is the most common form of the cigarette. 4000 toxically substance had been discovered ever in the smoke of cigarette. Those substances are very harmful for human body. They cause serious health problems such as organic dysfunction, gastritis and ulcer, lung cancer and heart attack (Özyazıcı, 2001).

5.2 Alcohol

From early prehistoric periods to until 500 years ego, list of alcoholic drinks only consisted of fermented drinks such as beer and wine which contain 14% level of alcohol. By discovery of distillation method in 15th century, new alcoholic drinks were found which contain 50% or more levels of alcohol. Drunkenness and related behaviours are depended to creative speed, digestion; individual's drinking experience and desires. Impairment in cerebral area that controls judgement and thinking is the first effect of alcohol. By this way, alcohol prevents to operate normal mental functions such as memory, comprehension, making decision. Alcohol also effects the cerebral area that controls muscular system balance
(Kasatura, 1998).

5.3 Amphetamine and Similar Stimulant Drugs

These are the synthetic substances that provide energy, happiness, strength feelings and they also cause insomnia and loss of appetite. However those feelings replace with fatigue and depressive thoughts when the effect of drug came to the end. They are found in the form of pills or white powder. They are taken by oral or nasal way

and intravenous way. Accelerated respiration, pupil dilatation, loss of appetite, vertigo, rapid increases in blood pressure, irritability, anxiety and moodiness are the effects of amphetamines (Çakıcı,2000) .

5.4 Caffeine

The most popular drinks that contain caffeine are coke and coffee. People obtain caffeine from different sources such as various drinks, nutrition, prescribed or non-prescribed medicines. Caffeine amount in a cup of coffee varies between 100 and 120 mg. In developed western societies, the most prevalently consumed psychoactive substances are coke among the youngsters, coffee and tea among the adults (Çakıcı, 2000) .

5.5 Cannabis

Cannabis is derived from a plant known as cannabis sativa. Leaves or seeds of this plant is dried up by various methods, then dry parts are rolled as cigarette and consumed by smoking. Euphoric effect of cannabis has been known for thousands of year. Scientists discovered it's hypnic and analgesic effect in 19th and 20th centuries and they used it in the field of medical science. It was used in cancer treatment for avoiding disgorgement and in AIDS treatment as an appetizer in order to increase the appetite of patients with AIDS. There is a general opinion that claims cannabis use did not lead addiction since it has not the risk of physiological addiction. However cannabis is a substance that involves psychological addiction. Anger, irritability, insomnia, inappetence are the symptoms that occur after quitting cannabis usage (Ögel, 1997).

5.6 Cocain

Cocaine is a crystalline tropane alkaloid that is obtained from the leaves of thecoca plant. It is a stimulant, an appetite suppressant, and a nonspecific voltage gated sodium channel blocker, which in turn causes it to produce anaesthesia at low doses. Continued high-dose cocain can result in anxiety, agitation and gross distruption behaviour. A person who is profoundly intoxicated with the drug will not be in state to conduct their bussiness (Edwards, 2004).

5.7 Heroine

Heroine is a very dangerous substance which is derived from opium poppy. This substance is frequently taken by nasal way, but also consumed by smoking. Another method that used for heroine intake is intravenous way that requires injection. Excessive dose of heroine intake may result in death. Main symptoms of heroine are listed as slower respiration, decrease in body fever, decreased blood pressure, deceleration of heartbeat rhythm (Ögel, 1997) .

5.8 Inhalants

Unlike pure substances, inhalants are the compounds produced by blended various chemical substances which have psychoactive effects. Inhalants are occasionally used substances in daily life, especially in the field of industry. Materials which can be provided easily such as dye, thinner, glue etc. are the most common forms of inhalants. Easier accessibility of those materials provide basis for the increased inhalant consumption rate among the young population. Nausea, cough, sneezing, fatigue, feeling exhausted, lack of coordination and inappetence are the symptoms that observed after breathing inhalants (Çakıcı, 2000).

6. ROLE OF CANNABIS IN GATEWAY HYPOTHESIS

6.1. Definition of Gateway Hypothesis

Gateway Hypothesis is consisted of sequential episodes and a different kind of drug is predominant in each episode. This consecutive process begins with initiation into alcohol use by drinking beer or wine, goes by increasing consumption of liquor and cigarette and finally ends with usage of harder drugs such as cocaine and heroin. This hierarchical order is called as transition hypothesis (Tarter et al., 2006).

The stage before the cannabis use is called as licit substances stage. Alcohol and cigarette are classified as licit substances. In this context, illicit substances other than cannabis that used before cannabis usage were evaluated in the category of illicit substances usage stage. By this way, licit drugs that used before cannabis were classified under the same title.

A big majority of findings obtained by the studies conducted on gateway hypothesis indicated that individuals who use hard drugs have a milder drug use in the past that gradually increase to hard drugs from alcohol to cannabis (Melberg et al., 2007).

Kandel (2003) explains gateway hypothesis in 3 phases. The first phase is *"sequencing"*. This phase points out a constant relationship between two substances and emergence of one kind of drug use gives way to start using a different kind of drug. Second phase is known as *"association"*. This phase claims that usage of one kind of drug would increase the risk of using a different kind of drug. Third phase is called as *cause-effect phase*. According to this phase beginning of one kind of substance use will cause to use of second kind of drug.

Findings of the studies that investigated gateway hypothesis are generally related with those three phases. Vanzula and Fernandez (2011) conducted a study in South

America to test "gateway hypothesis order". In this study which was conducted on individuals with serious addiction and the ones who used drugs rarely revealed that both of those participants followed the same route at drug using process.

Beenstock and Rahav (2002) conducted a study in Israel and they examined gateway hypothesis in two stages. They focused on “sequencing” at the first step and they examined if cigarette use would cause cannabis use and if cannabis use would cause usage of harder drugs. At the second step they focused on “association” and they examined if cigarette use at early ages would predict cannabis use. Findings of this study revealed that causal effects of gateway hypothesis in terms of sequencing and association. However, the same findings did not reveal such kind of influence on promoting harder drug usage from cannabis usage.

6.2 Cannabis As a Gateway Drug

Euphoric effect of cannabis has been known for thousands of year. Desire for getting away from fatigue, sadness and restlessness by the way of euphoric effect of cannabis is the one reason that motivates individuals to start using cannabis. Same individuals who experienced euphoric effects of cannabis later on look for more effective substances to feel themselves happier and more peaceful.

It is thought that cannabis served as a bridge at transferring illicit substances from licit substances (Ögel, 2000). Since the cannabis has lower physiological effect and more prevalent usage when compared with other substances are the factors that increase the availability of cannabis. Individuals who have opportunity to get cannabis easily are more likely to transfer using harder drugs. So, it can be said that licit drugs provided a basis for cannabis use and cannabis functions as a step at the process of transferring to use harder drugs.

So many epidemiological studies support the idea that considered cannabis as a gateway substance. Kandel and Yamuchi (1984) conducted a study in New York by using a sample consisted of 1325 students with 24.7 mean age. Finding revealed that existence of current usage cannabis use or cannabis usage history among school girls and school boys, strongly predicted risk of using harder drugs. This risk was found very lower for the participants who had never used cannabis before. By the way of those findings, they claimed that cannabis usage in the past significantly increased the risk of using harder drugs. They also claimed that cannabis use at earlier ages was also related with harder drug use in future and they added that cannabis use had an indirect effect on the progression of drug using process.

Another study indicates that individuals who used cannabis have 85 times more risk for using harder drugs than those who had never used cannabis. It was also found that individuals who used some part of hard drugs experienced more cannabis use (Moraral et al., 2003). Bretteville-Jensen et al., (2005) investigated possible effects of shifting from alcohol use to cannabis and from cannabis to more severe illicit drugs such as amphetamine and cocaine. Findings supports the idea that assumes milder substances such as cannabis came before the hard drugs such as cocaine, amphetamine. 10.9% of the whole population reported cannabis usage before they had started using hard drugs. Only 1.5% of whole population reported hard drug use without cannabis usage history. In the sane study, it was also found that 77% of 503 amphetamine users reported that they had cannabis usage experience. 14% of those substance users reported that they used amphetamines in the year that they began to use cannabis. Another gateway substance observed as alcohol that came before the cannabis.

In another epidemiological study, opinions of 51 participants about cannabis as a gateway substance were investigated. 10 participants (19.6%) evaluated cannabis as a gateway substance. 18 participants (35%) reported that they did not accept cannabis as a gateway substance. 23 (45%) participants (13 of them were using

cannabis at that time, 10 of them had cannabis use experiences in the past) reported contradictious opinions whether the cannabis was a gateway drug or not (Shukla, 2013).

Maldonado-Molina et al., [13.04.2014] conducted a study on a sample consisted of high school students. They divided 2073 students into two group according to the mean age which was determined as 15.5 for the first and 17.4 for the second group. Findings revealed that cigarette user participants had significantly higher risk for cannabis use in future than non-users. The same study also revealed findings that supports the idea of cannabis was a gateway substance. Cocaine usage rate of the people who had never used cannabis was found less than 0.2%. So it can be said that cannabis use occurred before cocaine usage and increased the risk of using cocaine.

Melberg et al., (2007) conducted a study on cannabis users. They found that cannabis users also had life-time alcohol and other illicit drug using history. It was found that almost all of the cannabis users (99%) used alcohol, 30% user amphetamines and 26% used cocaine. Bretteville-Jensen and Jacobi (2011) conducted a study in Norway between the years of 2002 and 2006 on a sample consisted of participants between 21 and 30 years old. İllicit Substance acquisition rates of cannabis users other than cannabis were found as 62% amphetamine, 57% cocaine, 33% heroine and 48% ecstasy. Substance using rates of those who had never used cannabis were found as 31% amphetamines, 23% cocaine, 19% heroine and 29% ecstasy.

It is possible to observe that cannabis using individuals have higher risk for using harder drugs than the ones who had never tried cannabis. However, this incidence is not enough to prove that people who use hard drugs began using with cannabis (Beenstock, Rahav, 2002). Beenstock and Rahav (2002) conducted a study in Israel and findings of this study supported this incidence. 12.2% of cigarette users used cannabis after cigarette and 2.9% used harder substances but they had never tried

cannabis.

In many articles, it is written that if how cannabis followed typical gateway order (using cigarette and alcohol at first, then cannabis and finally severe drugs) and increased the risk of using more severe substances. However it was observed that there were cases that cannabis did not follow this typical order. Mackesy-Amiti et al., (1997) conducted a study with 285 people (152 males, 133 females) who had substance using history. They investigated typical order (using cigarette and alcohol at first, then cannabis and finally severe drugs) and atypical order (lack of hierarchical order in substance using process) of gateway hypothesis. 36% of male participants and 30% of female participants reported that they followed typical order (alcohol-cigarette, cannabis and severe drugs). 64% of male participants and 67% of female participants followed a atypical order. It was also found that atypical order found more related with severe substances rather than cannabis and they noticed that cannabis did not play a significant role in gateway hypothesis.

It was observed that cannabis usage which does not follow typical order gives way to start licit substances such as cigarette, alcohol instead of harder substances. Vaughn et al., (2008) conducted a study on a sample consisted of 723 (400 white) Afro-American, Latin, Biracial youngsters. They found that 1/3 of Afro-American participants (%37.9) used cannabis before the cigarette. This rate was found less than ¼ among other ethnicities (21.7% Latinas, %17.3 white, 20.8% Biracial). Those findings supports the idea of that assumes cannabis was a transition substance for cigarette usage.

It was also thought that ethnic origins were related with gateway hypothesis. Masckesy- Amti et al., (1997) found a meaningful relationship between ethnic origins an atypical order of substance usage. It was observed that black people followed atypical order more than white people .

Nowadays, it is thought that if how legalization of cannabis in the field of medicine would influence the role of cannabis in gateway hypothesis. We need to have empiric findings to support the idea that claims medical usage of cannabis would increase the risk of using harder drugs. However, we have limited amount of studies conducted in this field (Kandel, 2003). Chu (2013) investigated criminal records of the people who were arrested because of carrying illicit substances and he found that medical usage of cannabis increased cannabis use about 10-20%, but he did not find any evidence for heroin and cocaine. Namely, those findings support the existence of a relationship between the cannabis use for medical purposes and cannabis, heroin, cocaine use.

6.3 Risk Factors of Cannabis as a Gateway Drug

Every single factor that contains variables such as psychological, familial, peer group, school and neighborhood are conspicuous risk factors that plays role in cannabis use and transition to using harder substances.

Individuals discover cannabis when they experience sadness feelings and conflicts with families and this discovery gives way to consumption of harder substances in future. This discovery process shows variations according to the socioeconomic conditions, peer group and social environment. Discovery process develops faster in locations with lower socioeconomic and cultural conditions.

Tarter et al., (2006) reported that only three factors were effective on gateway hypothesis which are listed as having conflicts with family, bad peer group and living in a poor socioeconomic conditions. In another study, Milberg et al., (2007) divided participants in two groups that named as following: Troubled Youths (people who experienced problem at school, peer group and family) and Most Youths (people who slightly carried the effect of cannabis using experiences in the

past). Finding indicated that Troubled Youths had two times more risk for using other drugs after they started to use cannabis. This incident was not observed for Most Youths. Underlying reasons that contributed to severe substance using risk of Troubled youths were identified as childhood trauma, negative influence of peer group, inadequacy of beneficial genetic resources and other factors. It was also observed that Troubled Youths were less resistant to substance use.

Both genetic tendencies and willingness to provide substance are directly related with substance use and transferring from one substance to another. When risk factors combined together with tendency of the people, drug using probability increased inevitably. It was thought that increase in drug using might be related with gateway hypothesis. In addition to tendencies, accessibility to substances is also an important factor for the gateway hypothesis. If the individuals who had never been used any substance lives in the places where the substances were more accessible or their interaction with drug dealers will motivate them to meet and use drugs. This incidence is also valid for the people who use milder substances such as cannabis. For a cannabis user, it is easier to acquire hard substances, because every substance is sold in the same place.

Bretteville- Jensen and Jacobi (2011) examined the influence of accessibility and tendency on beginning to use hard drugs. It was observed that factors of accessibility and tendency increased hard substance using rate to 36%. It was also found that those factors were more effective on cannabis using individuals.

Hence, tendency and accessibility to substance are distinguished as two important factors about cannabis and harder substances. Tendencies related with individual factors form the “problematic behaviors”. Tendencies to exhibit deviant behaviors motivates individuals to use cannabis which is cheaper and more accessible than other illicit or harder drugs (Bretteville- Jensen and Jacobi., 2011). “Accessibility” supports that kind of cannabis using rate quantitavely. Ögel et al., (2000) conducted

a study on a sample consisted of high school students between 15 and 17 years old. They found that 34.6% of those who had tried cannabis ever reported that it was easy to access heroine. This rate was found as 10.1% for those who had never tried cannabis. Similar with those findings, 33.9 of those who had tired cannabis reported easier accessibility for cocaine while only 9.3% of those who had never tried reported the same thing. A study conducted in Norway revealed that cannabis using prevalence among the youngsters at 19 years increased to 28.6% in the year of 2000 from 16.6% in the year of 1991. Problems with family, peers, police and school in childhood increase the risk of using substances that mentioned in gateway hypothesis (Bretteville-Jensen et al., 2005). However, it is not possible to maintain a cause-effect relationship between cannabis and other hard drugs, if individuals experienced a traumatic in childhood period and if they had dangerous genetic disposition (Bretteville- Jensen and Jacobi., 2011).

Van Ours (2001) studied gateway hypothesis on a sample consisted more than 20000 participants between the years of 1987 and 1997. He obtained findings that supported the role of cannabis on gateway hypothesis. However, he reported that the role of the cannabis on gateway hypothesis was derived from individual differences, not by triggering the usage of harder substances.

7. CONCLUSION

Substance use is an ongoing issue that increase and spread day by day. Inabilities to take preventive precautions and accessibility to substances are the main reasons of this issue. Since cannabis is a gateway drug that gives way to usage of harder drugs; priority should be given to preventive studies about cannabis use. If milder substances like cannabis can be prevented then it will be possible to prevent the usage of harder drugs indirectly (Van Ours, 2011). Preventive and intervention programs about drug use should be operated in efficient level. Those programs should be constructed according to the situations that motivate young ones to use substances, finding an alternative solution for social issues, keeping youngsters away from substances and preventing drug use by beginning from milder substances (Kandel, 2003).

It is not clear yet whether cannabis was a gateway drug or not. Main reasons of this uncertainty are listed as inadequacy of the studies conducted in that field, lack of emphasizing important issues and difficulty to determine variables. Most of the data collected by the way of current study supported the idea that accepts cannabis as a gateway substance. However, those findings are not enough to support that every cannabis users would use harder substances eventually. Ögel et. al., (2000) reported that prospective studies should be made for understanding if cannabis was a gateway substance and they also added that it was very hard to conduct prospective studies about illicit drugs. In this context, they suggested that studies about risk rate would be more useful for testing gateway hypothesis.

Animal experiments are another useful way to test gateway hypothesis. Animal experiments contribute to evaluation of substance use in terms of past experiences. Despite animal experiment do not provide opportunity to test variables specific to human being such as culture, norms, age differences, personality traits they provide

opportunity to test if a certain substance increased risk of using another kind of substance (Kandel, 2003). An animal study revealed that pharmacological influence of regular cannabis use on brain increased the probability of using other substances in future (Hall and Lynskey, 2005).

Another way of understanding role of cannabis on gateway hypothesis is focusing on genetic samples. A twin study is the best method that enables to explain the effect of genetic factors. Twin studies are important since twin siblings lived in the same household and they share the same genetic risk. This approach involves limited amount of studies to test gateway hypothesis (Kandel, 2003). Lynskey et al., (2003) studied with 311 Australian participants who had never used cannabis at 17 years old and they found that cannabis use at early ages was even more efficient than the common variables. Those studies will provide more evidences to understand the role of cannabis in gateway hypothesis.

Reducing prevalence of cannabis use, harsh punishment of drug dealers can be listed as important steps that could be taken for cannabis use. Netherlands has certain legitimations that separate the marketing of cannabis and harder drugs (Van Ours, 2001). By this way cannabis users stay away from risk of meeting someone who use harder drug which is a risk factor for transferring to harder drugs from milder ones.

Usage of cannabis for medical purposes may provide information about the role of cannabis on gateway hypothesis. However, very few amounts of studies had been conducted yet. It is also known that morphine which is used for medical treatment has the risk of addiction. So cannabis use for medical purposes triggers the risk of using other drugs (Kandel, 2003). We need studies to examine the validity and accuracy of this idea.

In general, improvement of socioeconomic and socio-cultural status of the countries, providing information to the people about substances, frequent emphasize on

harmful effects of substances can be efficient for preventing substance use.

Determining youngsters with problems and decreasing the effect of risk factors to the minimum level can be effective method for decreasing the number of hard drug users (Melberg et al., 2007). Improvement of social and environmental conditions will enable to keep individuals away from risk factors.

Almost every finding obtained by current study support the idea that assumes cannabis as a gateway substance and that order of this gateway begin by cigarette use, goes on by cannabis use and finally ended by usage of harder drugs. It is observed that this order which began by cigarette and cannabis use and ended up by the usage of harder substances increase the usage of psychoactive drugs. In this context, preventive studies should be highlighted in order to reduce or exterminate the usage of psychoactive substances. In my opinion preventive studies should be focused on preventing cannabis use, since cannabis is a gateway drug. By this way cannabis use can be prevented and usage of harder substances can be controlled.

8. REFERENCE

Akgül, Arif, Faruk Aşıcıoğlu. 2011. Uyuşturucu Maddelerde Yeni Trendler ve Erken Uyarı Sistemi. **Örgütlü Suçlar ve Yeni Trendler**. ed. Oğuzhan Ömer Demir, Murat Sever. Ankara: Polis Akademisi Yayınları: 29-56.

Beenstock, Michael, Giora Rahav. 2002. Testing Gateway Theory: Do Cigarette Prices Affect Illicit Drug Use? **Journal of Health Economics**. s.21: 679-698.

Bretteville- Jensen, Anne Line, Hans Olav Melberg, Andrew Jones. 2005. Sequential Patterns of Drug Use Initiation- Can We Believe in the Gateway Theory? Working Paper. The University of York.

Bretteville- Jensen, Anne Line, Liana Jacobi. 2011. Climbing the Drug Staircase: A Bayesian Analysis of the Initiation of Hard Drug Use. **Journal of Applied Econometrics**. s.26: 1157-1186.

Çakıcı, Mehmet. 2000. **K.K.T.C. Araştırmaları İle Uyuşturucu Madde Kullanımı.** Lefkoşa: KKTC Devlet Basımevi.

Chu, Yu-Wei Luke. 2013. **Do Medical Marijuana Laws Increase Hard Drug Use?**, Department of Economics Michigan State University. https://www.msu.edu/~chuyuwei/harddrug.pdf [19.05. 2014].

Cohen, Peter, Arjan Sas. 1997. **Cannabis Use, A Stepping Stone to Other Drugs? The Case of Amsterdam**. http://w.cedro-uva.org/lib/cohen.cannabis.pdf [13.04.2014].

Edwards, Griffith. 2004. **Matters of Substance. Drugs- Why Everyone' s a User.** London: Penguin Group

Hall, Wayne, Michael Lynskey. 2005. Is Cannabis a Gateway Drug? Testing Hypotheses About the Relationship Between Cannabis Use and the Use of Other Illicit Drugs. **Drug and Alcohol review**. s. 24: 39-48

Kandel, Denise. 2003. Does Marijuana Use Cause the Use of Other Drugs? **American Medical Association**. c. 289. s. 4: 482-483.

Lynskey, T. Michael, Andrew C. Heath, Kathleen K. Bucholz, Wendy S. Slutske, Pamela A. F. Madden, Elliot C. Nelson, Dixie J. Statham, Nicholas G. Martin. 2003. Escalation of Drug Use in Early-Onset Cannabis Users vs Co-twin Controls. **American Medical Association**. c. 289. s. 4: 22-29.

Kasatura, İlkay. 1998. **Gençlik ve Bağımlılık.** İstanbul: Evrim Yayınevi.

Mackesy- Amiti, Mary Ellen, Michael Fendrich, Paul J. Goldstein. 1997. **Drug and Alcohol Dependence**. s. 45: 185-196.

Maldonado-Molina M. M, L. M. Collins, S. T. Lanza. [13.04.2014]. Using Latent Transition Analysis to Test the Gateway Hypothesis of Drug use Onset in the Add Health Data. The Pennsylvania State University Methodology Center. 02-54.
http://methodology.psu.edu/media/techreports/02-54.pdf

Melberg, Hans Olav, Anne Line Bretteville-Jensen, Andrew Jones. 2007. Is Cannabis a Gateway to Hard Drugs? **Empirical Economics**. s. 38: 583-603.

Morral, Andrew, Daniel McCaffrey, Susan Paddock. 2003. Reassessing the Marijuana Gateway Effect. **Psychology Society Bulletin**. c.1. s.1: 61-65.

Ögel, Kültegin. 1997. **Uyuşturucu Maddeler ve Bağımlılık.** İstanbul: İletişim Yayınları.

Ögel, Kültegin, Defne Tamar, Cüneyt Evren, Duran Çakmak. 2000. Bir Geçiş Maddesi Olarak Esrar. **Türk Psikiyatri Dergisi**. s. 2: 21-29.

Özyazıcı, Alparslan. 2001. **Alkollü İçecekler, Sigara ve Diğerleri**. 3. bs. Ankara: Diyanet İşleri Başkanlığı Yayınları.

Shukla, Rashi K. 2013. Inside the Gate: Insiders' Perspectives on Marijuana As a Gateway Drug. **Humboldt Journal of Social Relations**. s. 35: 5-23.

Tarter, E. Ralph. Michael Vanyukov, Levent Kirişçi, Maureen Reynolds, Duncan B. Clark. 2006. **Predictors of Marijuana Use in Adolescents Before and After Licit Drug Use: Examination Of the Gateway Hypothesis.** *American Journal Of Psychiatry, 163: 2134-2140*

UNODC. 2013. World Drug Report. New York.

Valenzuela, Eduardo, Matias Fernandez. 2011. The Sequence of Drug Use: Testing the Gateway Hypothesis in Latin America. **The Journal of International Drug: Alcohol and Tobacco Research**. c. 1. s.1: 1-8.

Yamaguchi, Kazuo, Denise B. Kandel. 1984. Patterns of Drug Use From Adolescence to Young Adulthood: 3. Predictors of Progression. **American Journal of Public Health**. c. 74. s. 7: 673-681.

Vaughn, Michael, John Wallace, Brian Perron, Valire Copeland, Matthew Howard. 2008. Does Marijuana Use Serve As a Gateway to Cigarette Use For High-Risk African-American Youth**? The American Journal of Drug and Alcohol Abuse**. s. 34: 782-791.

Van Ours, Jan C. 2001. Is Cannabis A Stepping- Stone For Cocaine. Discussion Paper. Department of Economics and CentER. Tilburg University.