Lifetime prevalence and risk factors of drug use in North Cyprus: 2003-2015

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Abstract: Drug use has become widespread with very high prevalence recorded globally and studies on psychoactive substance use have become more prevalent throughout the world. The purpose of this study is to determine the characteristics and prevalence of cigarette, alcohol and other psychoactive drug use among adults in North Cyprus (NC). A random multi-staged, stratified sampling quota was used for sampling in May-June 2015. Household survey interviews were conducted with 994 people within the 18-65 age group. A survey questionnaire was used, namely the Model European Questionnaire of Council of Europe which had been adapted to the Turkish language. The prevalence data are given in comparison with surveys conducted using the same questionnaire in 2003 (825 people), 2008 (804 people) and 2013 (1040 people). The survey shows that the lifetime prevalence of smoking is 62.7%, alcohol use is 72.1% and illicit drug use is 8%. Lifetime cannabis use is 4.5%, synthetic cannabinoid is 3.5%, ecstasy is 1.5%, sedatives/hypnotic drugs is 5.7% and volatiles was found to be 1.4%. The prevalence of cocaine, heroin, amphetamines, LSD and codeine syrups use were between 0.6 and 1.3%. Compared to previous studies, it has been observed that the lifetime cigarette/alcohol use is decreasing among adults in NC; however, the lifetime use of other psychoactive drugs is increasing. NC has a higher prevalence of cigarette use than Asian, European and African countries. The prevalence of alcohol and substance use is increasing rapidly throughout the world and yet the importance given on increasing drug use prevalences is still not enough. The aim of this study is to examine the prevalence of cigarette, alcohol and psychoactive drug use and to investigate its relationship with sociodemographic factors. This article is not just an ordinary prevalence research, it also points out some important common socio-demographic characteristics of the societies who have high prevalence rates. The study also compares the four survey results which have conducted with the same methodology and the same questionnaire. In addition to this, study illustrates which drug types are preferred commonly among adult population. The results of the study show that there is a need for government policies and systematic prevention programs about the increasing substance use.
similar to the high prevalence in the United States. NC needs efficient prevention programs in order to combat drug use.

**Subjects:** Drugs and Alcohol; Addiction - Drugs - Adult; Addictions and Substance Use  
**Keywords:** psychoactive drug use; prevalence; risk factors; adult survey

1. Introduction

The countries on the substance transit routes are at increased risk of substance use because, although though the final destination may be outside the country, drugs have become increasingly available to consumers within the transit countries (Affinnih, 2002; Madi, 2004). Besides the geographic region, drug use patterns are also affected by religion, economic conditions and cultural characteristics (Mason et al., 2004). Studies on the prevalence and patterns of drug use show various different epidemiological characteristics in Eastern countries compared to Western countries, besides similarities such as risk factors (Lau et al., 2005). Illegal psychoactive drug use varies in terms of trade as well as the different gateways in several countries in the world (United Nations Office on Drugs and Crime—UNODC, 2012). In Europe, North America and Oceania, cannabis use is dominant, while opiate and amphetamine type stimulants are prominent in Asia, and cocaine use is prevalent in Latin America (Lee et al., 1998; UNODC, 2015). As personal spending power increases, cannabis use is found to increase and gender differences decrease in Western countries (Bogt et al., 2006).

Cyprus lies in a location at the eastern end of the Mediterranean Sea, on a migration and trading route linking west to east over centuries. Turkey, its nearest neighbour, is just 75 km to the north and Syria 97 km to the east. Cyprus is on the substance transit route that runs from Afghanistan, Pakistan, and Iran to Europe, which is called the “Golden Crescent”. The route that passes from Turkey to Bulgaria, Romania, Hungary, and the Czech and Slovak Republics is called the “Balkan Way” (United Nations Office on Drugs and Crime—UNODC, 2014). The southern section of the route also passes through Cyprus (Booth, 1996). According to the UNODC, the Balkan Route, which was established in the 1980s, is one of the largest heroine routes. More specifically, it was determined to have been an active route for the last 20 years that Turkish and Balkan ethnic groups have used for trafficking heroine (UNODC, 2012). Furthermore, it was reported that the incoming synthetic cannabinoid “bonsai” in Turkey is brought from North Cyprus (NC) as well as Europe and China (TUBIM, 2012).

Cyprus, as a strategic region between the East and West, is at an important intersection point for drug trafficking (Boyiadjis, 2004). Since the military intervention by Turkey in 1974, Cyprus has been divided by the so-called “Green Line” separating the Turkish Cypriot North and Greek Cypriot South (Dodd, 1998). During the war and following the division of the island in 1974, more than 150,000 Greek Cypriots and 55,000 Turkish Cypriots were forcefully uprooted. The Turkish Cypriot community migrated to the North part and Greek Cypriot community moved to the South part of the Cyprus. The Greek Cypriot community follows the Autocephalous Greek Orthodox Church of Cyprus, and the Turkish Cypriot community follows Islam (Volkan & Itzkowitz, 1994). The Turkish part—North Cyprus—remains internationally unrecognized and is exposed to political and economic embargos. Being internationally unrecognized renders the northern part of Cyprus a riskier region in terms of drug trafficking.

Studies on drug use among Turkish Cypriots have shown similarities to both Turks in Turkey, who have similar historical and cultural bonds, as well as to Greek Cypriots, who have similar geographic features. Illicit drug use prevalence shows similarities to Turkey, but the high alcohol consumption and low smoking prevalence show more similarities to the geographic neighbours—Greek Cypriots. Although the Qur’an prohibits the consumption of wine, there is no such prohibition against cannabis or opium, as these substances had not been discovered at the time the Islamic holy book was written (Hamarneh, 1972). In Islamic Turkey, alcohol use by high school
students is significantly lower (about 50–60%) (Ögel & Başterzi, 2010; Ögel et al., 2001) than European countries (European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2011); however, even though Turkish Cypriots are also Islamic, alcohol use is about 90% among high school students (Çakıcı et al., 2017a). This may be the result of living on a touristic island where alcohol is frequently consumed in restaurants, discos and bars as a form of social activity and also as Turkish Cypriots may be less conservative about the practice of Islamic rules than the Turks in Turkey (Çakıcı et al., 2017b).

Marijuana is the most commonly used illicit drug by Turkish Cypriot drug addicts (Çakıcı et al., 2003; E. Çakıcı et al., 2014; Çakıcı et al., 2000), in a similar manner to Turks in Turkey, who have similar historical and cultural backgrounds (Ögel, 1997). Marijuana is also the most commonly used drug among their neighbours—Greek Cypriots (Boyiadjis, 2004). The results of studies conducted on all Turkish Cypriot high schools in 1996, 1999, 2004, 2011 and 2015 not only showed the characteristics of drug use, but also an increasing tendency (Çakıcı & Çakıcı, 2000a; 2000b; Çakıcı, 2005; Çakıcı et al., 2017a). The ratio of illicit drug use has increased from 2.2% to 5.6% from 1996 to 2015 among high school students (Çakıcı & Çakıcı, 2000a; Çakıcı et al., 2017b). Cannabis and ecstasy use have increased approximately threefold (A. Çakıcı, 2005). Few studies have been conducted on the prevalence of substance use among the adult population in NC. The only studies conducted to represent the general public until this point are the household studies conducted in 2003, 2008 and 2013 that the same questionnaire and the same methods. From 2003 to 2013, smoking prevalence was reported to have decreased from 65.4 to 62.1%, while alcohol use decreased from 82.3 to 68.5%, and the frequency of using any OPD (Other Psychoactive Drugs) increased from 3.9 to 8.5% (Çakıcı et al., 2003; E. Çakıcı et al., 2014; Çakıcı et al., 2017a). These studies suggest that the most commonly used substance is cannabis. However, it is observed that synthetic cannabinoid, ecstasy, codeine syrup and sedative drugs are also among the commonly used substances (Çakıcı et al., 2003). It is particularly noteworthy that the use of synthetic cannabinoid has spread throughout NC in recent years (Çakıcı et al., 2017a). It has also been reported that as NC is a small country, this increases the accessibility of psychoactive substances and causes new substances to spread rapidly (Çakıcı, 2000a).

Among the Turkish Cypriot community, there are no systematic and well-planned prevention programs against drug use. The aim of this study is to investigate the drug use prevalence and characteristics of drug use among Turkish Cypriots in order to compare with other countries and to form a database for systematic prevention programs. Also, this research is a follow-up study on those conducted in 2003, 2008 and 2013, as it uses the same methods, stratification sampling and the same survey forms as in the previous studies. Therefore, this adult survey will give more detailed information about the drug characteristics have changed over a period of 12 years.

2. Methods

2.1. Sample

The study population consisted of people living permanently in NC who speak Turkish and are within the 18–65 age groups. Turkish Cypriots and people who born in Turkey, England or other countries but permanently live in NC are randomly included in the present study. Household interviews were conducted with 994 people. The sample size was calculated by the sampling formula of known population \( n = \frac{Nt^2pq}{(N-1) + t^2pq} \) (Yazıcıoğlu & Erdoğa, 2004) where \( n \) was the sample size, \( N \) was the Population size (294,906); and \( t \) was the value for selected alpha level of 0.025 in each tail = 2.58 (the alpha level indicates the level of risk the researcher is willing to take that the true margin of error may exceed the acceptable margin of error). Additionally, \( p(q) \) was the estimate of variance which was 0.25 (maximum possible prevalence 0.5) * 1 (maximum possible prevalence 0.5), which produced the maximum possible sample size. Finally, \( d \) was the acceptable margin of error for prevalence being estimated at 0.05 (the error a researcher is willing to accept). The ideal sample size was 980 and the survey met the sample size requirement. To achieve a representative sample of the adult population, a random multi-staged, stratified
sampling quota was used. The different strata used were age (18–29, 30–39, 40–49, 50–65), gender (male/female), urban/rural, and geographical region (Nicosia, Famagusta, and Kyrenia), which were determined by data from the last national statistics and demographic census conducted on 4 December 2011 (Census of Population, 2011). These geographical regions were separated into quarters in the urban areas and into villages in the rural areas, and the research contact points were chosen from these randomly. Contact points are the places where the interviewers apply the survey. Random selection of the districts was done by using lottery method. Interviews were conducted in 16 quarters, 17 villages and 5 sub-district centres (Morphou, Lefka, Galatia (Mehmetçik), Trikomo (İskele) and Lefkoniko (Geçitkale).

2.2. Fieldwork
The study was conducted between April and May 2015 in NC. Interviews were conducted in 16 quarters, 17 villages and 5 city centres. At the contact points in the urban areas, interviewers started from a street determined at random, and for the rural areas, interviewers started from the centre of the village and went north, east, south and west. Interviewers covered squares, starting at the lowest number on the right-hand side of a street and entering every third house. At the first turn, they would turn right and would continue contacting households on the right-hand side until they had completed the square. Subsequently, they would cross to the next square and continue in the same process. This enabled a uniformity of “pacing”, thereby eliminating interviewer bias. The research covered every third household. In order to choose the person who would participate in the research, once the household chosen to participate in the survey had been contacted, a male-female quota was taken into consideration and a female in the first house and a male in the second house were chosen. Attention was paid to ensure that the age quotas were respected. If there was more than one suitable candidate for the research, the individual whose birthday was last was chosen. The most recent birthday method allows all household members to have an equal chance of being selected under the assumption that births are random (Salmon & Nichols, 1983). The term “nearest birthday” referred to the day and month, not the year of birth. As there were age quotas in every region, this procedure did not affect dispersion. Households were chosen by a random selection method, but one adult was selected according to nearest birthday if there was more than one appropriate person according to the quotas. Using this method enabled all the pollsters to follow the same procedure. In this study, not all participants were selected on the birthday basis. The nearest birthday was only selected if there were two or more people in the same age group or in the same sex group in a household. It was also aimed to reduce the systematic bias, since it was not known how many people lived in each house. Twenty-two interviewers were involved and in order to minimize interviewer bias, each conducted approximately forty-five interviews. The interviewers were selected from students attending the psychology department. All of the interviewers were trained about the data collection procedure. Finally, the sample had the same ratio of gender, urban/rural, age and geographic region distribution as in the 2011 census.

2.3. The questionnaire form
The questionnaire was prepared by using a European Council questionnaire called “The Model European Questionnaire” (Anderson, 2006). The questionnaire was based on the format developed by Çakıcı et al. (2003), who translated it into the Turkish language. The questionnaire includes an informed consent and socio-demographic form. The Model European Questionnaire includes questions related to alcohol, tobacco and drug use. Information about the age of drug initiation, frequency of use, reason of use, type of psychoactive drugs, frequency of drunkenness and where they prefer to use drugs. The Socio-demographic form consists of questions about age, gender, marital status, education, living status, birth place and work.

2.4. Ethical considerations
The study was approved by the Social and Science Institute Ethical Board of Near East University in NC and was conducted according to the ethical standards stipulated in the 1964 Declaration of
Helsinki and its later amendments. Written informed consent was also obtained from all participants.

2.5. Statistical analysis
Statistical analysis was performed using SPSS 21 for Windows. Chi-square analysis was used to compare the different characteristics of the groups. Significance levels of 0.05 were adopted. Multivariate logistic regression was used to determine the associations between the possible risk factors (independent variables) and illegal drug users (dependent variables). Independent variables were gender, age, length of time married, living status, education, children, employment and country of birth. In the logistic regression, variables which have statistical difference according to the chi-square analysis were included into the model. Since the table representation in the results section illustrates comparisons by year, statistically meaningless variables which are not added to the model are also represented.

3. Results
A total of 994 people participated in the survey. The demographic characteristics of the participants are presented in Table 1. In terms of gender, 49% of the participants were women and 51% were men. Furthermore, 30.9% of the participants were 18–29, 22.8% were 30–39, 19.3% were 40–49, 14% were 50–59 and 13% were over 60 years old. Those who had not attended school represented 2.9%, 21.5% were primary school graduates 11.9% were junior high school graduates 32.8% were high school graduates 31% of the total sample. In total, 62.3% of the respondents were born in Cyprus, 36.3% in Turkey, 0.7% in England and 1.7% in other countries. Additionally, 54.5% of the participants were living with their spouse, 17.8% with their parents, 10.1% lived alone and 5.8% with their children.

In the current study, it has been suggested that lifetime smoking use was 62.7%. The prevalence of smoking within the last 30 days was 42.2%, while the prevalence for the last 12 months was revealed to be 45.6%. For male participants, smoking at least once was 73.9%, while it was 50.1% for the female participants. In the present sample, it was found the proportion of children that started smoking cigarettes under 11 years was 4.3%. Although this was higher in males, the use of cigarettes in children under 11 years was also found in females. The prevalence of smoking under 18 years was 42.4%. In terms of intensive usage (more than 40 times), the rate for men (62.7%) was about twice the rate of women (33.3%) ($X^2(7) = 87.5, p < .001$).

This study found that the prevalence of lifetime alcohol use is 72.1%. In total, 44.8% of respondents reported that they had consumed alcohol within the last 30 days, while it was reported that 60.6% had consumed alcohol within the last 12 months. Lifetime alcohol use of male participants was 84.1%, whereas it was 59.7% for female participants. The prevalence of male participants who had used alcohol more than 40 times (67.7%) was more than double that of female participants (25.5%) ($X^2(6) = 168.98, p < .001$). It was indicated that the prevalence of becoming drunk when using alcohol was 46.1%, where 13.6% of the participants were reported to have been inebriated in the last 30 days. Individuals mostly consumed alcohol at home (28.8%) in comparison with restaurants (15.7%), bars-cafes (0.4%), streets and parks (8.3%), and discos (3.1%). Also, it has been stated that 74.0% of the individuals used alcohol for entertainment purposes, 6.9% of drank because of their friends, 5.6% of them consumed alcohol for relaxation and 3.4% of them said they drank alcohol for the purposes of trying it.

The majority of individuals stated that they first tried alcohol between the ages of 16 and 18. However, frequent use predominantly started at the age of 18 and above. A total of 43.5% of males and 23.5% of females started drinking alcohol before the age of 18 years. Alcohol use for women was 61% and it was 84% for men, while the amount of alcohol consumed at one time was significantly higher for men ($X^2(1) = 83.99, p < .001$). The results show that 64.4% of women reported they had never been drunk, in comparison to 35.6% of men. The ratio of being drunk 1–2 times was 30.6% for women and 69.4% for men ($X^2(1) = 110.11, p < .001$).
Table 1. Comparison of some socio-demographic characteristics of persons who use illegal substances and who do not use cases in studies conducted among adult individuals living in TRNC in 2003, 2008, 2013 and 2015

| Demographic Variables | 2003 User % | 2003 Non-user % | 2008 User % | 2008 Non-user % | 2013 User % | 2013 Non-user % | 2015 User % | 2015 Non-user % |
|-----------------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|
| Gender                |             |                 |             |                 |             |                 |             |                 |
| Male                  | 0.6*        | 99.4*           | 4.5*        | 95.5*           | 3.9*        | 96.1*           | 4.7*        | 95.3*           |
| Female                | 95.2*       | 4.8*            | 10.7*       | 89.3*           | 12.7*       | 87.3*           | 11.1*       | 88.9*           |
| Age (year)            |             |                 |             |                 |             |                 |             |                 |
| 25 and below          | 3.8         | 96.2            | 12.1*       | 87.9*           | 14.3*       | 85.7*           | 14.6*       | 85.4*           |
| 25 above              | 2.2         | 97.8            | 5.5*        | 94.5*           | 6.9*        | 93.1*           | 4.9*        | 95.1*           |
| Birth Place           |             |                 |             |                 |             |                 |             |                 |
| Cyprus                | 3.1         | 96.9            | 5.8*        | 94.2*           | 6.2*        | 93.8*           | 7.2         | 92.8            |
| Turkey                | 1.4         | 98.6            | 10.9*       | 89.1*           | 11.0*       | 89.0*           | 8.5         | 91.5            |
| Other                 | 0           | 0               | 17.1*       | 82.9*           | 17.4*       | 82.6            |             |                 |
| Living Status         |             |                 |             |                 |             |                 |             |                 |
| With family           | 3.0         | 97.0            | 6.5*        | 93.5*           | 6.9*        | 93.1*           | 6.9*        | 93.1*           |
| Not with family       | 2.8         | 97.2            | 19.2*       | 80.8*           | 24.7*       | 75.3*           | 14.6*       | 85.4*           |
| Education             |             |                 |             |                 |             |                 |             |                 |
| High school and above | 2.6         | 97.4            | 3.0*        | 97.0*           | 9.6*        | 90.4*           | 8.5         | 91.5            |
| High school below     | 3.0         | 97.0            | 10.2*       | 89.8*           | 6.5*        | 93.5*           | 6.5         | 93.5            |
| Live in Generally     |             |                 |             |                 |             |                 |             |                 |
| Rural                 | 3.7         | 96.3            | -           | -               | 6.5*        | 93.5*           | 3.8*        | 96.2*           |
| Urban                 | 2.0         | 98.0            | -           | -               | 9.8*        | 90.2*           | 10.8*       | 89.2*           |
| Suburban              | 2.5         | 97.5            | -           | -               | -           | -               | 15.4*       | 84.6*           |
| Religion              |             |                 |             |                 |             |                 |             |                 |
| Not Important         | 8.1*        | 91.9*           | 6.8*        | 93.2*           | 11.8*       | 88.2*           | 14.7*       | 85.3*           |
| Important             | 1.4*        | 98.6*           | 14.0*       | 86.0*           | 16.8*       | 83.2*           | 7.4*        | 92.6*           |

*p ≤ 0.05 significant level.
In the present study, the prevalence of use of any OPS other than alcohol and cigarettes by individuals was found to be 13.2% and the illegal substance use prevalence was 8%. Volatile substances and sedative drug use prevalence were observed to have the highest use prevalence among the legal drugs. Furthermore, cannabis and synthetic cannabinoid are the most frequently used illegal drugs. It has been determined that the use of illegal substances other than cannabis and synthetic cannabinoid is low. Table 2 shows the prevalence of changes according to the years and substance types in the household prevalence studies conducted since 2003.

In the present study, illegal drug use was found to be intensive in individuals under 25 years of age ($X^2 (4) = 36.91$, $p < .001$), while males (9.8%) were more likely to use illegal substances in comparison with females ($X^2 (1) = 12.36$, $p < .001$). Participants were found to learn most of their information about OPD from the media (75.2%), friends (7.2%) and the internet (5.6%). Additionally, when the participants were examined, it was found that men were more likely to use illegal psychoactive substances than women ($X^2 (8) = 17.08$, $p < 0.05$). The most common reasons for using OPD were reported as curiosity (5.0%), peer group use (2.0%) and loneliness (0.6%). It was also reported that 14.5% of respondents knew where to find an illegal psychoactive substance and 1.8% had experienced problems with the police because of an illegal psychoactive substance.

The current study has illustrated that most knowledge about OPD can be accessed via the media (75.2%) compared with newspapers/journals (4.2%) and information from friends (7.1%). When the prevalence of any drug use is compared among the age groups, a statistically significant difference can be found. Among the 18–29 age group, drug use prevalence was 16%, while in other age groups, it ranged between 4.8–15.8%. When the prevalence of using any drug is compared according to the importance given to religion, it is found that the drug use by respondents for whom religion is less important is significantly higher than for participants who give importance to religion ($X^2 (4) = 20.34$, $p < .001$).

The most common reason for taking drugs was curiosity (60%), followed by peer pressure (23.8%), and loneliness (7.5%). Drug-users mostly use drugs at a friend’s home (19%), alone at home (15.9%) at a pub/club (14.3%), in the street (14.3%) at home with friends (12.7%) or another location (7.9%). In terms of the age at which they started taking drugs, 61.9% of the participants

| Psychoactive Drugs       | 2003 NHSPDU (n = 825) | 2008 NHSPDU (n = 804) | 2013 NHSPDU (n = 1040) | 2015 NHSPDU (n = 994) |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Cigarette                | 65.4%                 | 66%                   | 62.1%                 | 62.7%                 |
| Alcohol                  | 82.3%                 | 77.1%                 | 68.5%                 | 72.1%                 |
| Sedative-hypnotics       | 2.2%                  | 2.0%                  | 1.9%                  | 5.7%                  |
| Cannabis                 | 2.9%                  | 6.0%                  | 7.7%                  | 4.5%                  |
| Amphetamine              | 0.5%                  | 1.1%                  | 0.3%                  | 1.2%                  |
| Extacy                   | 0.9%                  | 2.9%                  | 2.0%                  | 1.5%                  |
| Cocain                   | 0.1%                  | 1.1%                  | 1.0%                  | 1.3%                  |
| Heroin                   | 0.2%                  | 0.9%                  | 0.8%                  | 0.8%                  |
| LSD                      | 0.1%                  | 0.4%                  | 0.3%                  | 0.7%                  |
| Inhalest substances      | 0.6%                  | 1.0%                  | 1.2%                  | 1.4%                  |
| Bonzai                   | -0.6%                 | -                     | 3.0%                  | 3.5%                  |
| Codeine syrups           | -                     | -                     | 0.3%                  | 0.8%                  |
| Any Other Drugs          | 3.9%                  | 8.5%                  | 8.5%                  | 13.2%                 |
| Illicit Drugs            | 3.0%                  | 8.0%                  | 8.4%                  | 8.0%                  |
stated that they started taking drugs between the ages of 12–19, 35.7% between 20–29 and 2.4% started between 30–39.

It was observed that there is more illegal substance use in participants living in cities, those who do not give importance to religion, and those who do not live with their families (Table 1). Although the prevalence of illegal substance use varies from year to year, being a male and smoking is considered a possible risk factor for each period. In this study, the factors leading to illegal drug use were found to be being male, being under 25 years old, seeing religion as unimportant, smoking using alcohol and being drunk (Table 3). Birth place and living status were not found as a risk factor of illegal drug use although they were considered as a risk factor according to previous studies (p < .05).

4. Discussion
This study shows that the prevalence of psychoactive drug use has increased and the types of drug have changed between 2003 and 2015 in NC (Çakıcı et al., 2003; E. Çakıcı et al., 2014; Çakıcı et al., 2017a). The prevalence results should be carefully compared with the prevalence results of other regions around the world. Different studies may have different sampling methodologies, data collection techniques and psychoactive drug use screens, all of which can affect psychoactive drug use estimates. The prevalence results of this study should therefore not be used to definitively to compare the prevalence results of other regions around the world.

4.1. Cigarette use
In the present study, the lifetime use prevalence of cigarettes was found to be 62.7%, while the lifetime cigarette use prevalence was 65.4% in 2003 (Çakıcı et al., 2003) and 66% in 2008 (E. Çakıcı et al., 2014). In 2013, this prevalence was determined as 62.1% (Çakıcı et al., 2017a). Studies conducted on high school youths in NC indicate that the prevalence of smoking at least one time is between 26.8% and 47.2% (Çakıcı, 1999; Çakıcı et al., 2000; 2017a; Es, 2015). The results of a questionnaire survey conducted on university students in 2012 showed that the lifetime smoking prevalence of the students was found to be 69.5% (E. Çakıcı et al., 2014). These prevalence rates prove that the cigarette use doubles in the period in which high school students transition into adulthood. The current prevalence of cigarette use is 41.8% in NC. According to the World Bank, cigarette use in the South Asia and Pacific regions is 34%, while it is 35% in Europe and Middle Asia, 32% in Latin America and the Caribbean, 21% in the Middle East and North Africa, 20% in South Asia and 18% in Southern Africa (Anderson, 2006). NC values are very similar to Latin America countries such as El Salvador (42.7%), Guatemala (43.1%) and Honduras (43.8%) (Tong et al., 2011). However, there are countries like Ukraine (66.8%), Russia (63%) and Turkey (60.3%) that have significantly higher values (Andreeva & Krasovsky, 2007; Bobak et al., 2006; Ögel et al., 2003). It can be seen that cigarette use has decreased in recent years. It is possible that new legislation restricting smoking in enclosed areas, which was implemented on 1st of January 2010, could have led to this decline. In parallel, it was stated that legislation restricting cigarette use can decrease cigarette consumption by 4–10% (Karagöz et al., 2010). Nonetheless, cigarette use among adults in NC remains very high and the reasons for this can be the prevalence of cigarette advertising in the street and the low prices of cigarettes (Çakıcı et al., 2003). Studies that have investigated the impact of the price of cigarettes on usage levels revealed that if the price of the cigarettes increases, then the percentage of use consequently decreases (Chaloupka & Grossman, 1996; Chaloupka & Weschler, 1997; Emery et al., 2001; Grossman et al., 1983; Lewit et al., 1981; Ross & Chaloupka, 2003; Tauras & Chaloupka, 1999).

4.2. Alcohol use
The frequency of lifetime alcohol use among adults in the present study was found to be 72.1%. It has been determined that the prevalence of using alcohol at least once in a lifetime was 82.1% in the study conducted in 2003, 77.1% in 2008 and 68.5% in the study applied in 2013. When all these data are compared, it is seen that alcohol use in the NC has a high prevalence. Even though alcohol consumption has seen a recent decline, it can be said that people still use alcohol relatively
Table 3. Investigation of the factors affecting illegal drug use among adult individuals living in TRNC in 2003, 2008, 2013 and 2015 by multivariable logistic regression analysis

| Demographic Variables | 2003 | 2008 | 2013 | 2015 |
|-----------------------|------|------|------|------|
|                       | Odds Level | User/Non-user %95 GA | Odds Level | User/Non-user %95 GA | Odds Level | User/Non-user %95 GA | Odds Level | User/Non-user %95 GA |
| Gender (male/female)  | 8.559 | (2.024–36.538)** | 2.55 | (1.42–4.55)** | 3.612 | (2.134–6.114)* | 2.356 | (1.425–3.894)** |
| Age (25 and below/25 above) | 1.700 | (0.746–3.872) | 2.32 | (1.36–3.95)** | 2.255 | (1.404–3.621)* | 2.960 | (1.876–4.670)** |
| Birth Place (Cyprus/Turkey) | 2.252 | (0.531–9.563) | 1.98 | (1.14–3.42)* | 1.862 | (1.170–2.964)* | 1.202 | (0.719–2.011) |
| Living Status (alone/with family/others) | 3.41 | (1.77–6.57)** | 4.418 | (2.508–7.783)** | 1.491 | (0.769–2.890) |
| Education (high school and above/below) | 2.145 | (0.783–5.876) | 1.08 | (1.04–1.12)** | 1.562 | (0.961–2.540) | 1.338 | (0.778–2.303) |
| Religion(not important/important) | 6.034 | (2.493–14.604) | 2.24 | (1.82–4.24)* | 1.521 | (0.812–2.850) | 2.151 | (1.144–4.044)* |
| Smoking (user/non-user) | 1.045 | (1.026–1.064)** | 2.61 | (1.48–4.59)** | 10.045 | (5.126–19.682)** | 8.390 | (3.339–21.079)** |
| Alcohol Use (40 times and more/less) | 1.036 | (1.021–1.051)* | 1.54 | (0.15–15.1) | 9.425 | (5.142–17.277)** | 4.335 | (2.447–7.752)** |
| Drunkness (yes/no) | 1.041 | (0.786–1.377) | 4.39 | (2.33–8.27)** | 8.860 | (4.633–16.941)** | 6.705 | (3.466–2.970)** |

*p ≤ 0.05 and **p ≤ 0.001 significant level. CI = Confidence Interval.
frequently. Studies on high school students showed that the lifetime alcohol use prevalence was 80.8% in 1996 and 70.7% in 2015 (Çakıcı & Çakıcı, 1996; Çakıcı et al., 2017b), while the prevalence among university students was 81.0% (E. Çakıcı et al., 2014). Research that has been conducted in Turkey in 15 different districts shows that the prevalence of alcohol use is 51.2% among high school students (Ögel et al., 2006) and 30–76% for university students (Altındag et al., 2005; Yigitoğlu & Khorsid, 2006; Yılmaz et al., 2007). A comparison between the alcohol use prevalence in Australia and USA in 1995, 1998, 2001, 2002, and 2004 revealed that the Australian lifetime alcohol use prevalence was 87.8–90.4%, while this prevalence was reported to be 83.7–84.8% in the USA (Maxwell et al., 2006). When compared, these results show that recent alcohol use values in NC are very similar to those in Australia, USA and South Cyprus, which is a geographical neighbour. However, when NC is compared to Turkey (18.9%), which is a country that has similar cultural and historical values, it is found that the prevalence is higher (World Health Organization, 2004). Cyprus is a touristic island where alcohol advertising is widespread in the visual media and there is also a lack of legislative regulations, which has resulted in a high prevalence of alcohol consumption. Furthermore, the young population in universities, the easy accessibility of alcoholic products, attractive presentation, low prices and cultural causes may be the other reasons for the increased alcohol use (Çakıcı et al., 2003; 2010). Alcohol is mostly consumed for enjoyment purposes in entertainment venues and the majority of users are males, because the male dominant NC community has a negative perception of women drinking alcohol.

4.3. Other psychoactive drug use

In this research, the lifetime use of any drug was revealed to be 13.2% and illicit drug use was found to be 8%. Illicit drug use was 3.0% in 2003, 8% in 2008 and 8.5% in 2013. Illicit drug use prevalence in NC is higher than in countries like Cambodia (4%), China (6%), Hong Kong (0.5%), Indonesia (2.5%), Macao (0.1%), Malaysia (2.1%), Myanmar (0.9%), the Philippines (2.1%) Vietnam (0.2%), while it is similar to countries like Egypt (9.6%) and the USA (10.3%) (Compton et al., 2007; Hamdi et al., 2013; Madonna et al., 2007). The prevalence of illegal substance use in New Zealand (77.3%) was significantly higher than in NC (Boden et al., 2006). It is estimated that approximately 185 million adults are using illicit drugs globally (Anderson, 2006). It has been proven that the majority of illegal drug use occurs between the ages of 18–29. These values demonstrate that preventative measures that are being implemented with young individuals are not working effectively. When the age increases, the drug use prevalence decreases. It is observed that the increase in the use of illicit substances in Northern Cyprus still continues today. It is understood that as Northern Cyprus is on the Balkan Road, which is one of the most important means of illegal traffic, is still affected by this traffic. The fact that Northern Cyprus is an internationally unrecognized region is an obstacle to international cooperation in the prevention of this international illegal trade traffic and weakens the fight against illegal substance use in Northern Cyprus. Even the lack of cooperation between the Turkish Cypriots and the Greek Cypriots ensures that the fight against substance use throughout the whole of Cyprus is not effective and allows an escape route for smugglers.

Although lifetime cannabis use was found to be 4.5% in this research, it was 2.9% in 2003, 6% in 2008 and 7.7% in 2013 (Çakıcı et al., 2003; E. Çakıcı et al., 2014; Çakıcı et al., 2017a). As in this study, other high school and university studies in NC show that cannabis is the most frequently used illegal substance (Çakıcı et al., 2010; E. Çakıcı et al., 2014; Çakıcı et al., 2017b). This result is similar in most countries all over the world. According to the world drug use report, the percentage of cannabis use was 14.5% in Oceania, 12.6% in Middle and Western Africa, 10.5% in North America, 8% in Africa, 6.9% in Western and Middle Europe, 3.6% in East and Near East Asia, 2% in Asia, and 0.9% in East and Southeast Asia (UNODC, 2008). According to these results, the cannabis use in NC is very similar to Europe, although it is lower than Oceania, America and Africa. However, it is higher than the Asian countries. Cannabis use in male individuals has been found to be 12%, while for females, this value is 3.2%. There is a significant difference between male and female individuals. This difference shows similarities to the values from the United States and Canada (Harrington et al., 2011; Lev-Ran et al., 2013; Merline et al., 2004; Wu et al., 2012).
Synthetic cannabinoid is ranked second in terms of usage after cannabis use in NC. The lifetime synthetic cannabinoid use of individuals was found to be 3.0%. The results also show that individuals start to use synthetic cannabinoid between the ages of 15–20 and it is predominantly used by male individuals. In recent years, synthetic cannabinoid has become very popular and was not declared to be illegal until 2011 in NC. Ecstasy use significantly increased from 2003 to 2008, with a percentage increase from 0.9% to 2.9% (Çakıcı et al., 2003; E. Çakıcı et al., 2014). However, in 2013, its use decreased to 2.0%, and dropped further to 1.5% in 2015 (E. Çakıcı et al., 2014). Studies that have been conducted in high schools and universities also show that ecstasy use increased threefold between 1996 and 2004 (Çakıcı et al., 2010; E. Çakıcı et al., 2014).

In this research, lifetime amphetamine, cocaine, heroin and LSD use were found to be between 0.6–1.3%. These were slightly above the prevalence rates reported by other household surveys conducted in NC (Çakıcı et al., 2003; 2017a). Similar to this study, the use of these substances in high schools and universities was also low (Çakıcı et al., 2010; E. Çakıcı et al., 2014; Çakıcı et al., 2017b). These values showed that the use of amphetamine, cocaine, heroin and LSD is much lower in NC than in other countries (Hamdi et al., 2013; Lev-Ran et al., 2013; Merline et al., 2004; UNODC, 2009).

There has been a significant increase in the use of sedative drugs in recent years. Although the usage of sedative drugs is controlled by green prescriptions, there is a high level of use of these drugs, which signifies insufficient control. The use of volatile substances in Turkey, America, Canada and Egypt (Boztaz & Arsoy, 2010; Hamdi et al., 2013; Lev-Ran et al., 2013; Merline et al., 2004) is found to be lower than that obtained from the research results, although the volatile substances seem to have increased. Volatile substances are very common after cigarettes and alcohol among young individuals (Çakıcı et al., 2010). The fact that these substances are not expensive, are easy to find and there is a lack of legislative regulations, can explain the prevalence among young individuals (Çakıcı et al., 2010). When volatiles are compared with other substances, it is evident that people start using them at very young ages (Ögel, 1997). In a similar manner in Turkey (Boztaz & Arsoy, 2010), volatile substance use is seen in very young ages, especially in street children, and is more prevalent among adolescents in NC.

This research has shown that when the education level increases, the substance use also increases. This result is parallel to the studies conducted in 2003, 2008 and 2013 (Çakıcı et al., 2003; 2017a). In recent years, the level of education has increased in line with the increase in the number of universities in Northern Cyprus. Illegal substance use is higher among educated people as there is an increased young population with high educational levels. It is observed that being highly educated or raising the level of education does not prevent the use of illicit substances. It is understood that training and prevention programs for substance use are needed to prevent the use of illicit substances. The place of birth does not show a significant effect on the illicit substance use of individuals. However, individuals that were born in NC use less drugs than those that were born in Turkey. In research that was conducted on immigrants, it was revealed that immigrants use more drugs than the local residents of the country (Borges et al., 2009; Hernandez et al., 2009). The reason behind the high prevalence among immigrants is that they experience challenges when attempting to acclimatise to the local conditions and cultural harmony (Havaçeliği, 2013). Illicit substance use in cities in NC was found to be higher than in villages. There are many studies that have proven that illicit substance use in large cities is significantly higher than in more rural areas (Hamdi et al., 2013; Lai et al., 2012; Maxwell et al., 2006). It is known that the reason why drug use is higher in cities is because they are more accessible (Lai et al., 2012; Maxwell et al., 2006). Individuals who claimed that religion has no important place in their life revealed higher illicit substance use prevalence, as expected. Moreover, there is research that shows that religion prevents drug use (Geppert et al., 2007; Koenig, 2009; Kulis et al., 2012; Michalak & Trocki, 2006; Rat et al., 2006), which is similar to the results in NC.
5. Conclusion

This study concluded that although alcohol and cigarette use prevalence in NC has decreased in recent years, those substances still show a higher prevalence compared with the average prevalence in different regions of the world. However, illegal substance use has increased in Cyprus. It is evident that cannabis, ecstasy and synthetic cannabinoid use among adults is very common. These results show that there should be prevention programs related to cigarettes and alcohol for the whole society. Prevention programs on illicit substance use should predominantly focus on marijuana and synthetic cannabinoid usage and associated preventative measures. The government should implement policies against these substances in order to combat this social threat. Furthermore, every institution should work according to a multidisciplinary approach.

6. Limitations

In this study, psychoactive drug status was self-reported and was not validated by biochemical testing. A self-report study may also include over-reporting or under-reporting related to social desirability bias and recall bias. Selecting every third house and choosing a female in the first house and male in the second house may have affected the results. Psychoactive drug users may have a tendency to declare that they partake more often than they actually do in order to present themselves in a more favourable light. Because this survey does not include institutionalized populations and persons in the military, results are not generalizable to these groups.

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Declaration of interest

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