

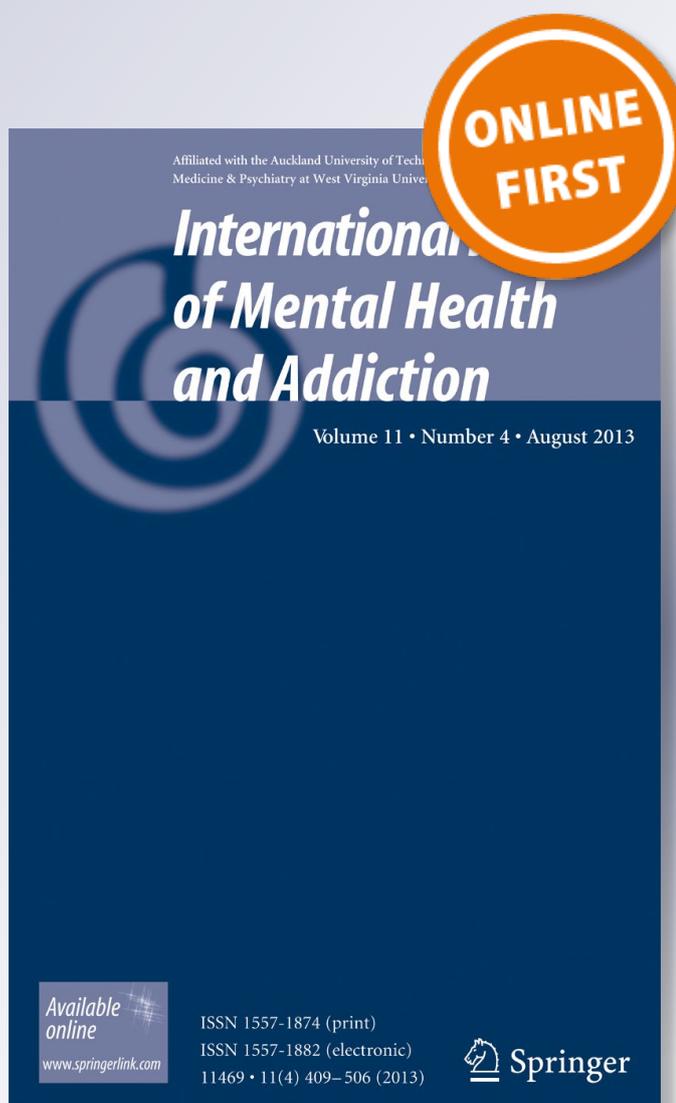
# *The Use of Psychoactive Substances in a Conflict Area in the West Bank: Drug Use Risk Factors and Practices in Palestinian Refugee Camps*

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# The Use of Psychoactive Substances in a Conflict Area in the West Bank: Drug Use Risk Factors and Practices in Palestinian Refugee Camps

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## Abstract

During a conflict, there is a significant disability related to common mental health problems, including depression, anxiety, and substance misuse. A self-administered questionnaire was used in a cross-sectional study that was conducted in 2016 to investigate the prevalence of and risk factors associated with psychoactive substance (PS) use among 950 teenagers in different conflict zones in the West Bank. Refugee teenagers were particularly vulnerable to PS use for different reasons, including the availability of substances, the ease of accessing them, the need to cope with problems, and social/peer pressure. The combined use of PS warrants attention due to the potential for physical and mental health risks. PS use was associated with greater odds of violence, which was more evident among refugee users than among other users. Given the multiple factors that influence adolescent PS use in refugee camps specifically, early detection and prevention strategies are essential for this target population.

**Keywords** Drug misuse · Palestinian refugees · Conflict zone · Mental health problems · Psychoactive substances

Substance use problems can develop in one's country of origin, in regions of conflict, in transit, in temporary refugee camps, or in resettlements (Horyniak et al. 2016; Lai 2014; Papadopoulos 2018). They can also develop in the midst of political instability and weak governance (Ezard et al. 2011; Graubner et al. 2007; Hanna 2017; Hecker and Haer 2015). During conflict, there is a significant disability due to common mental health problems, such as depression, anxiety, and substance misuse (Bhui and Warfa 2007). In post-conflict regions, drug addiction levels tend to remain extremely high 5 years after the conflict has ended

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(Institute of Medicine 1996). Internally displaced persons, refugees, ex-combatants, women, and youth in post-conflict situations are more likely to consume illicit drugs than are individuals in a stable society (Bhui and Warfa 2007; Hanna 2017).

Psychoactive substance (PS) addiction is a problem that exists among Palestinians in the West Bank and Gaza Strip despite the religious, legal, and cultural constraints that condemn and prohibit such mental health problems (Abu Gamer et al. 2007; Thabet and Dajani 2012; Damiri et al. 2018; Massad et al. 2016). Many factors could increase drug use among Palestinians. These include the long-term Israeli-Palestinian conflict, the internal Palestinian conflict, the situation of instability, the absence of a unified Palestinian authority and police system, and the weak enforcement of laws (Damiri et al. 2018; United Nations Office on Drugs and Crime 2017b). Previous studies have demonstrated that most Palestinian users were teenagers and young adults who were stigmatized (Centers for Disease Control and Prevention 2013; Damiri et al. 2018; Massad et al. 2016; United Nations Office on Drugs and Crime 2017a). Early substance use dramatically increases the risk of substance use disorder (SUD) (Jordan and Andersen 2017; Mangerud et al. 2014; Wium-Andersen et al. 2010). Youth users could face various difficulties and maltreatment, including physical, psychological, and sexual abuse (Newcomb et al. 1988), which emphasizes the fact that the prevention of this problem should start at an earlier age (Jordan and Andersen 2017).

Palestinian refugees suffer from common daily life stressors, such as a high unemployment rate, low income, high poverty, food insecurity, poor infrastructure, and high population density (Habib et al. 2012). Therefore, they are at increased risk of violence, abuse, exploitation, and neglect across the region. They also face challenges related to protection issues, limited public space, crowded houses, and a lack of activities for children and youth (Defense for Children International/Palestine Section 2017). In turn, children engage in risky behaviors such as tobacco smoking, alcohol intake, and experimenting with drugs (United Nations International Children's Emergency Fund 2010). Palestinian refugee camps have been described as locations where most alcohol and drugs use occurs (Damiri et al. 2018; Massad et al. 2016).

Substance use among populations displaced by conflict is a neglected area of public health (Ezard et al. 2011), especially among Palestinians. The evidence on the correlation between substance use and conflict is not fully developed (Hanna 2017). Research on the situation of drug use in conflict zones would enrich the existing literature, specifically on relevant factors that may affect emerging substance use disorders among teenagers. A recognition of the factors associated with drug use among adolescents and young adults in conflict and post-conflict zones can provide an understanding of the etiology of substance use. These factors can indicate the direction that prevention programs should take to increase awareness of substance use among adolescents (Newcomb et al. 1988). Limited, if any, studies exist on drug use among Palestinians in conflict zones, especially in refugee camps (Van Hout et al. 2019). This study is a part of ongoing research that aims to explore risk factors associated with psychoactive substances use among Palestinians in conflict zones in different age groups. The specific objectives of this study were to investigate the differences in the prevalence of psychoactive substance use among teenagers aged 15–16 years in different conflict zones in the West Bank (cities, villages, and camps) and to investigate personal factors, such as knowledge, attitudes, and motivations, that could influence the use of these substances, including energy drinks, tobacco, alcohol, and illicit drugs.

## Methodology

### Study Design and Setting

A cross-sectional study was conducted in 2016 in Tulkarm governorates in the north of the West Bank to investigate the prevalence of, risk factors for, knowledge of, and attitudes towards psychoactive substances, including tobacco, energy drinks (ED), alcohol, and illicit drugs, among teenagers aged 15–16 years in three different conflict zones (cities, refugee camps, and villages). This governorate is one of the largest governorates in the north of the West Bank. It consists of a city, two refugee camps, and thirty-three villages around the city.

### Population and Sampling Technique

There were 1960 teenagers aged 15–16 years enrolled in schools and distributed all over the governorate: 345 students from the city, 197 students from the two camps, and 1260 students from 27 villages around the city. To select the subjects, a stratified random sampling technique was used. The study area was stratified into three main locations, city, camps, and villages (twenty-seven villages located around the city). To choose a representative sample from the rural area, the twenty-seven villages around the city were stratified depending on their location to the city in relation to the north, east, west, and south. All students from the city and the refugee camps were recruited to participate in this study. To choose a representative sample from the rural area, three schools from each side were chosen randomly (12 schools in total), and all students in the chosen schools were recruited (408 students). The total number of recruited students was 950. Informed consent was given to each student to be signed by his parents. Oral agreement was obtained from each participating teenager. The following exclusion criteria were employed: females, males older than 16 years or younger than 15 years, those who participated in the pilot study (30 urban teenagers, 10 refugee teenagers, and 30 rural teenagers), and those who refused to sign informed consent or who were unwilling to participate in the study.

### Study Tool

A modified self-administered questionnaire from the questionnaire used in the European School Survey Project on Alcohol and Other Drugs was used (Johnston et al. 2015). To achieve valid and precise results, the questionnaire was translated into Arabic, the local language in the West Bank and translated back to English by language experts. The questionnaire was then divided into four sections. The first section concerned sociodemographic and self-reported violence. The second section assessed the consumption of energy drinks, tobacco, alcohol, and illicit drugs and the age of initiation for each substance. The third section concerned the pattern and the reasons for using each substance. The fourth section assessed knowledge of and attitudes towards using psychoactive substances.

Due to the stigma that surrounds illicit drug and alcohol use, a pilot study was conducted to test recruitment and consent rates as well as the length of the questionnaire. The response rate was high (92.9%). On average, 8–15 min was taken to complete the questionnaire. The participants were asked for feedback to aid in the identification of ambiguities and difficult questions. Questions related to sexual or suicidal behavior were discarded before the pilot study was conducted, as requested by the Ministry of Education. The total score on the

questionnaire showed a coefficient ( $\alpha = 0.828$ ) for 71 items and adequate coefficients for virtually all domains ( $\alpha = 0.828$  for substance practices,  $\alpha = 0.818$  for knowledge and attitudes, and  $\alpha = 0.703$  for violent behaviors).

In this study, substance use was defined as the use of illegal or legal psychoactive substances without medical prescriptions, including tobacco, alcohol, energy drinks, and illicit drugs. Lifetime substance users are those who have used licit or illicit addictive drugs without a physician's prescription even once in his lifetime. The current substance user is any person who has used psychoactive substances in the last 30 days. To facilitate better understanding among the students, the street names of different substances were used alongside their scientific names, generic names, and brand names. The list of the street names of illicit drugs was dependent on what was known, seized, or used in the West Bank in 2010–2014 (Damiri et al. 2018). This list includes natural cannabis (hashish and marijuana), synthetic cannabinoids (hydro, spice/K2, mastolon, mabsoton, Mr. Nice guy, bango, Mariam), amphetamine-type stimulants (such as amphetamine, methamphetamine under the name of GG, crystal meth, and ecstasy), opioids (such as morphine, codeine, heroin, and methadone), cocaine and crack, and others (gas lighters, tripe, tramadol, valium, assival, and clonix). The energy drinks, alcohol, and cigarettes included imported and locally manufactured products available for purchase in the West Bank at the time of the study. The names listed in the questionnaire help participants understand the survey scope and answer questions. The types of localities included cities, villages, and refugee camps.

## Data Analysis

Statistical Package for Social Sciences (SPSS) (version 22, IBM Corporation) was used for data entry and analysis. Continuous variables were expressed as the means  $\pm$  standard deviations, and categorical variables were expressed numerically and as percentages. Differences in means between groups were assessed using the independent samples *t* test and analysis of variance (ANOVA), whereas Pearson's chi square test or Fisher's exact test were used for categorical variables. Multinomial logistic regression analysis was conducted to evaluate the relative risk by generating the odds ratios (ORs) and 95% confidence intervals (CIs) for risk factors. A *P* value of  $< 0.05$  was considered statistically significant.

## Ethical Consideration

Ethical approval was obtained from the Institutional Review Board (IRB) at An-Najah National University in Palestine and access to the schools was granted permission for Ministry of Education before the research was performed. The study was conducted under the ethical standards of the Declaration of Helsinki. Due to the stigma that surrounds drug and alcohol use, confidentiality was highlighted in all written and oral communications. Informed consent was obtained from the teenagers' parents, and the teenagers' verbal agreement was obtained. The confidentiality of information collected from research participants was maintained by using self-reported anonymous questionnaires, and any question that would lead to personal identification was not included. All participants were assured that all data collected would be confidential and available to the researcher only. Participation in this study was voluntary. Participants were advised that they had the right to withdraw from the research at any time.

## Results

A total of 950 teenagers aged 15–16 years were recruited. Seventy teenagers had participated in the pilot study. The response rate was high: 97.8% in the city, 95.1% in the villages, and 100% in refugee camps. Partially completed questionnaires (i.e., less than 50% completed) were discarded (21 questionnaires). The final sample size was 835 teenagers; 305 (36.5%) were urban teenagers, 369 (44.2%) were rural teenagers, and 161 (19.3%) were refugee teenagers.

### Psychoactive Substance–Related Practices in the Different Localities (city, villages, and camps)

EDs were the most common psychoactive substance in all localities. Most refugee teenagers (76.9%), urban teenagers (68.5%), and rural teenagers (62.9%) were current ED users. Moreover, 50.6% of refugee teenagers, 40.3% of urban teenagers, and 38.4% of rural teenagers were also current tobacco smokers. The prevalence of current alcohol intake was as follows: 7.6% among refugee teenagers, 4.7%, among urban teenagers, and 1.9% among rural teenagers. The prevalence of illicit drug use was 6.9% among refugee teenagers, 4.0% among urban teenagers, and 1.4% among rural teenagers (Table 1). PS use was significantly higher among refugee teenagers than among urban and rural teenagers ( $P$  value  $< 0.05$ ). Refugee teenagers also intended to use ED, alcohol, and illicit drugs more than urban and rural teenagers did ( $P$  value  $< 0.05$ ). No differences in the age of initiation were found for any substance in the three localities ( $P$  value  $\geq 0.05$ ). Most users (58.1%) had tried energy drinks and tobacco at the same time. Synthetic cannabinoids (3.1%), followed by new homemade liquid methamphetamine called GG (2.9%) and natural cannabis (2.8%), were the most common illicit drugs to be used (Table 1).

### Association Between Substance Use and Locality

For current use, the logistic regression model revealed that rural teenagers were less likely than refugee teenagers to use all substances, including ED (odds ratio (OR), 0.511;  $P$  value, 0.002), tobacco (OR, 0.608;  $P$  value, 0.009), alcohol (OR, 0.237;  $P$  value, 0.003), and illicit drugs (OR, 0.186;  $P$  value, 0.002). On the other hand, urban teenagers were only less likely to smoke tobacco (OR, 0.658;  $P$  value, 0.034) than were refugee teenagers (Table 2). For lifetime use, rural teenagers were less likely than were refugee teenagers to use energy drinks (OR, 0.283;  $P$  value, 0.002), drink alcohol (OR, 0.288;  $P$  value,  $< 0.001$ ), and use illicit drugs (OR, 0.25;  $P$  value, 0.003), while urban teenagers were only less likely to use energy drinks than were refugee teenagers (OR, 0.286;  $P$  value, 0.003) (Table 2).

### Knowledge, Attitudes, and Motivations Regarding Substance Use Among Refugee, Urban, and Rural Teenagers

Most respondents were knowledgeable about the danger of psychoactive substance use. However, compared with urban teenagers, refugee and rural teenagers lack knowledge of available weaning centers in the West Bank ( $P$  value  $< 0.001$ ) (Table 3). More refugee teenagers (11.1%) than urban (4.7%) and rural teenagers (4.2%) agreed that one of their family members or friends was an alcohol user ( $P$  value 0.027). Moreover, more refugee

**Table 1** Substance practice among respondents in the three localities

Substance practice		City <i>n</i> (%)	Camps <i>n</i> (%)	Villages <i>n</i> (%)	<i>P</i> value
Current users	Energy drinks	207(68.5)	123(76.9)	231(62.9)	0.007
	Tobacco	120(40.3)	81(50.6)	114(38.4)	0.029
	Alcohol	14(4.7)	12(7.6)	7(1.9)	0.007
	Illicit drugs	12(4)	11(6.9)	5(1.4)	0.004
Lifetime users	Energy drinks	259(86)	151(95.6)	317(85.9)	0.004
	Tobacco	182(60.9)	103(66.0)	216(58.7)	0.34
	Alcohol	30(10)	22(13.8)	16(4.3)	0.000
Multiple substances use	Illicit drugs	15(5)	13(8.1)	8(2.2)	0.006
	Energy drink and tobacco	174(58.4)	101(64.7)	210(57.1)	0.000
	Energy drink and alcohol	30(10)	22(14)	16(14.3)	0.097
	Energy drinks and illicit drugs	15(5)	13(8.2)	7(1.9)	0.077
	Tobacco and alcohol	25(8.4)	20(12.9)	16(4.4)	0.000
	Tobacco and illicit drugs	14(4.7)	13(8.3)	6(1.6)	0.001
Intention to use a substance in the future	Alcohol and illicit drugs	15(5)	10(6.3)	5(1.4)	0.000
	Energy drinks	158(55.2)	102(66.7)	192(66.7)	0.028
	Tobacco	94(32.3)	58(37.9)	136(37.7)	0.32
	Alcohol	12(4)	10(6.5)	9(2.5)	0.08
Initiation age (years ±sd)	Illicit drugs	6(2)	9(5.7)	4(1.1)	0.02
	Energy drinks	12.1 ± 2.1	11.9 ± 2.6	12.2 ± 1.8	0.48
	Tobacco	12.4 ± 2.4	12.2 ± 2.3	12.0 ± 2.1	0.49
	Alcohol	14.5 ± 1.7	14.9 ± 1.6	13.8 ± 1.8	0.39
Most common illicit drugs used	Illicit drugs	14.1 ± 2.2	14.7 ± 1.9	13.0 ± 2.1	0.79
	Lifetime users <i>n</i> (%)				
Natural cannabis	Hashish	22(2.8)			
	Marijuana	22(2.8)			
Synthetic cannabinoids	Mr. nice guy	24(3.0)			
	Mastaloon or Mabsatoon or Eve, Mariam, or Bango	25(3.1)			
	Spice/K2	20(2.5)			
Prescribed drugs	Tramadol	17(2.1)			
	Diazepam (Assival or Valium)	19(2.1)			
	Benzodiazepam (Clonex)	16(2.0)			
	Light gas, acetone	20(2.5)			
Inhalants	Crystal meth, Ecstasy	15(1.8)			
	GG	23(2.9)			
Liquid Methamphetamine	GG	23(2.9)			
Cocaine	Crack	17(2.1)			
LSD	Tripe	16(2.0)			
Opioids	Morphine, heroine, methadone	16(2.0)			

teenagers (13.4%) than urban (6.5%) or rural teenagers (3.7%) had accepted that one of their family members or friends was a drug user (*P* value 0.02). More refugee teenagers agreed that it is easy to gain access to alcohol (47.9%) from refugee camps than urban (36.5%) and rural teenagers (34.6%) (*P* value 0.023) and to obtain access to illicit drugs (37.2%) than urban (28.9%) and rural teenagers (23.1%) (*P* value 0.014) (Table 3). Only 49.7% of refugee teenagers (compared with 52% of urban teenagers and 52.4% of rural teenagers) agreed that tobacco should be banned (*P* value 0.02) (Table 3). More refugee teenagers (25.4%) drank alcohol to feel high than did urban (12.1%) and rural teenagers (11.8%) (*P* value 0.001). More refugee teenagers had smoked tobacco to have fun, cope with friends, run from problems, get rid of anger, and satisfy an addiction than did rural and urban teenagers (*P* value < 0.05). On the other hand, more rural teenagers had smoked to have fun and to cope with friends than did

**Table 2** Association between using psychoactive substances and locations

Substance type*	Location	Current users		Life time user	
		OR, 95%(CI)	<i>P</i> value	OR, 95%(CI)	<i>P</i> value
Energy drinks	City	0.655(0.422–1.018)	0.06	0.286(0.25–0.652)	0.003
	Villages	0.511(0.334–0.781)	0.002	0.283(0.125–0.637)	0.002
	Refugee camps	Reference group		Reference group	
Tobacco smoking	City	0.658(0.447–0.968)	0.034	0.800(0.534–1.200)	0.281
	Villages	0.608(0.418–0.885)	0.009	0.731(0.495–1.081)	0.117
	Refugee camps	Reference group		Reference group	
Alcohol use	City	0.602(0.271–1.335)	0.221	0.692(0.385–1.245)	0.219
	Villages	0.237(0.091–0.613)	0.003	0.288(0.144–0.555)	0.000
	Refugee camps	Reference group		Reference group	
Illicit drug use	City	0.564(0.243–1.310)	0.183	0.595(0.276–1.28)	0.186
	Villages	0.186(0.064–0.545)	0.002	0.251(0.102–0.617)	0.003
	Refugee camps	Reference group		Reference group	

\*Reference category is none users

OR, odd ratio; CI, confidence interval

urban users (*P* value < 0.05) (Table 3). No other differences had been determined for the motives of using other substances. Close friends were the closest contacts who offered refugee teenagers all substances in comparison with close friends of urban and rural teenagers (*P* value < 0.05). On the other hand, relatives and neighbors were the closest contacts who offered energy drinks to rural teenagers in comparison with relatives and neighbors of urban and refugee teenagers (*P* value < 0.05) (Table 3).

### Association Between Psychoactive Substance Use and Violent Behaviors in Different Localities

Most teenagers, both users or nonusers, were involved in trouble with the police, with a significantly higher level among refugee teenagers (49%) than among urban teenagers (24.8%) and rural teenagers (18.7%) (*P* value < 0.001) (Table 4). Moreover, more refugee teenagers were involved in other violent behaviors, such as carrying sharp weapons (64.4%) and hurting somebody physically (52.6%), than were urban and rural teenagers (*P* value ≤ 0.001) (Table 4).

If a teenager engaged in two or more violent behaviors, then he was considered a violent teenager. In general, psychoactive substance users showed more violent behaviors than did nonusers (Table 5). Most of those who used energy drinks (95.4%) and tobacco (72.96%) showed two or more violent behaviors, with no significant differences among localities (*P* value ≥ 0.05) (Table 5). On the other hand, only 10.58% of alcohol users and 5.57% of illicit drug users had shown two or more violent behaviors; these patterns were significantly higher among refugee users than among urban and rural users (*P* value < 0.01) (Table 5).

The logistic regression model revealed that violence was more likely to be prevalent among refugee teenagers than among urban teenagers (OR, 1.67; *P* value, 0.028) and rural teenagers (OR, 1.76; *P* value, 0.012) (Table 6). Violence was also more prevalent among energy drink users (OR, 3.87; *P* value, < 0.001) than among nonusers and among tobacco smokers than among non-smokers (OR, 2.94; *P* value, < 0.001) (Table 6).

**Table 3** Compression between knowledge and attitudes of the respondents in the three localities, urban, refugee, and rural

	City n(%)	Camps n(%)	Villages n(%)	P value
<b>Knowledge for all respondents</b>				
Do you know that smoking is harmful?	256(84.2)	140(90.9)	328(89.6)	0.151
Do you know that alcohol use is harmful?	280(91.8)	142(92.2)	341(93.4)	0.16
Do you know that drug use is harmful?	274(92.3)	138(92)	329(91.9)	0.71
Do you know that there are weaning centers in the country?	89(32.1)	30(20.0)	70(19.9)	0.000
Have you been informed about the dangers of illicit drugs?	253(89.1)	127(84.7)	294(83.3)	0.16
<b>Attitude for all respondents</b>				
I agree that tobacco should be banned	155(52)	76(49.7)	187(52.4)	0.02
I agree that alcohol should be banned	251(83.9)	122(80.3)	299(83.5)	0.2
I agree that illicit drugs should be banned	274(90.7)	137(90.7)	334(93.3)	0.69
I accept one of my family members or friends to smoke tobacco	61(21.4)	31(20.5)	80(22.3)	0.94
I accept one of my family members or friends to drink alcohol	14(4.7)	17(11.1)	15(4.2)	0.027
I accept one of my family members or friends to use illicit drugs	19(6.5)	20(13.4)	13(3.7)	0.02
It is easy to get access to tobacco	218(72.4)	109(72.7)	253 (71.1)	0.88
It is easy to get access to alcohol	110(36.5)	69(47.9)	122(34.6)	0.023
It is easy to get access to illicit drugs	84(28.9)	51(37.2)	79(23.1)	0.014
I care about my health	272(90.7)	130(88.4)	333(93.0)	0.058
Nobody cares if I use illicit drugs	44(14.9)	41(11.6)	22(14.9)	0.097
Source of illicit drugs	4(10.3)	15(38.5)	3(7.7)	0.06
I drink alcohol to feel high	28(12.1)	30(25.4)	33(11.8)	0.001
I smoke to have fun	76(32.9)	55(46.6)	126(45.2)	0.024
I smoke to cope with my friends	97(42)	67(56.8)	150(53.6)	0.009
I smoke because to feel good	62(26.8)	40(33.9)	122(43.7)	0.000
I smoke to relax	59(25.5)	37(31.4)	103(36.9)	0.023
I smoke to run from problems	67(29.0)	57(48.3)	106(38.0)	0.002
I smoke to get rid of feeling anger	82(35.2)	63(53.4)	130(46.6)	0.002
I smoke because of addiction	60(26)	43(36.4)	100(35.8)	0.034
I smoke for no reason	59(25.5)	15(12.7)	60(21.5)	0.02
<b>Most close contacts offering psychoactive substances</b>				
Close friends offer me energy drinks	133(46.3)	98(63.2)	206(58.4)	0.001
Close friends offer me cigarettes	91(31.7)	75(48.4)	134(37.6)	0.003
Close friends offer me water pipe	91(31.7)	70(47.2)	132(37.1)	0.019
Close friends offer me alcohol	14(4.5)	15(9.7)	7(2.0)	0.001
Close friends offer me illicit drugs	8(2.8)	12(7.7)	6(1.7)	0.002
Relatives offer me energy drinks	60(22)	35(22.6)	116(32.6)	0.014
Relatives offer me cigarettes	30(10.5)	23(14.8)	65(18.3)	0.02
Neighbors offer me energy drinks	42(14.6)	32(20.6)	81(22.8)	0.032
No one offers me energy drinks	102(31.5)	41(26.5)	77(21.6)	0.000
No one offers me cigarettes	131(45.6)	49(31.6)	120(36)	0.006
No one offers me water pipe	105(36.6)	38(24.8)	127(35.7)	0.023
No one offers me alcohol	217(75.6)	98(63.2)	213(65.4)	0.006
No one offers me illicit drugs	224(78)	107(69)	224(68)	0.013

## Discussion

The results of this study have shown that licit and illicit substance use was high among teenagers in the West Bank in three localities (city, villages, and refugee camps). However, PS use was significantly higher among refugee teenagers than among urban and rural teenagers.

Tobacco and energy drink use among adolescents is a significant public health problem, as experimentation with smoking often begins during adolescence (Dart et al. 2015; Davison et al. 2016; Hwang and Park 2014). The prevalence of ED intake and tobacco smoking

**Table 4** Violent behaviors shown by all participants

Behavior for all participants	City <i>n</i> (%)	Villages <i>n</i> (%)	Camps <i>n</i> (%)	<i>P</i> value
Ran away from house for more than 24 h	37(12.8)	52(15.2)	47(30.9)	0.000
Enrolled in a fight	192(66.7)	230(66.1)	101(67.3)	0.96
Hurt someone physically	106(36.8)	112(33.2)	81(52.6)	0.000
Stole something	62(21.7)	77(22.8)	42(27.6)	0.356
Entered unauthorized place	61(21.2)	84(24.7)	43(27.7)	0.292
Had troubles with police	72(24.8)	63(18.7)	76(49)	0.000
Carried sharp weapon	140(47.8)	163(47.7)	98(64.5)	0.001

reached an alarming rate among Palestinian teenagers. The high prevalence of ED intake is consistent with the fact that the consumption of ED has become a popular practice worldwide. However, its prevalence in this study was higher than the prevalence among young populations in Germany (Viell et al. 1996) and Saudi Arabia (Musaiger and Zagzoog 2014). Adolescents who had a high consumption of energy drinks reported specific side effects, including jitteriness, nervousness, dizziness, inability to focus, difficulties with concentration, gastrointestinal upset, and insomnia (Meredith et al. 2016; Musaiger and Zagzoog 2014). Tobacco smoking plays a direct role in the incidence of lung cancer among Palestinians (PCBS 2012). It is expected to account for an increasing chronic disease burden. Tobacco smoking was more prevalent among teenagers than among Palestinian university students (Damiri et al. 2019) and Jordanian youth in neighboring countries (Alzyoud et al. 2014; Mzayek et al. 2012). In addition to its high use among Palestinian teenagers, most of the teenagers (58.1%) had tried energy drinks and tobacco at the same time. Different studies have examined the positive association between smoking and caffeine consumption as well as the potential health risk of combining nicotine and caffeine (Davison et al. 2016; Kroon 2007; Treur et al. 2016; Wolk et al. 2012). Consequently, strict energy drink and tobacco control legislation that limits the sale of energy drinks and cigarettes to minors and restricts smoking in public places is an important strategy that could decrease the potential of adolescents experimenting with energy drinks and cigarettes (Botello-Harbaum et al. 2009).

Alcohol and illicit drug use are illegal behaviors bound by a religious, social, and cultural stigma that condemns such behaviors in Palestine. All teenagers were Muslims, and Islam is generally considered to have strong proscriptive norms against the use of alcohol and illicit

**Table 5** Percentages of teenagers with violent behavior according to their use to psychoactive substances in the three locations

Psychoactive substances use		Violent teenagers <i>n</i> (%)			<i>P</i> value
		City	Villages	Camps	
Energy drink use	Yes	178(97.3)	203(93.1)	115(96.6)	0.109
	No	5(2.7)	15(6.9)	4(3.4)	0.012
Smoking tobacco	Yes	136(75.6)	154(71.0)	85(72.6)	0.59
	No	44(24.4)	63(29.0)	32(27.4)	0.707
Alcohol use	Yes	25(13.7)	10(4.6)	20(16.4)	0.001
	No	158(86.3)	207(95.4)	100(83.6)	0.950
Illicit drug use	Yes	11(6)	5(2.3)	13(10.7)	0.005
	No	171(94)	213(97.7)	108(89.9)	0.444

**Table 6** Association between violence and substances use among teenagers

Violence Yes*		n(%)	OR, 95%(CI)	P value
Address	City	183(60.0)	0.598(0.378–0.947)	0.028
	Villages	218(59.1)	0.567(0.363–0.884)	0.012
	Camps (reference group)	122(75.8)		
Energy drinks use	Yes	496(95.4)	3.869(2.316–6.466)	0.000
	No (reference group)	24(4.6)		
Tobacco smoking	Yes	375(73.0)	2.938(2.126–4.061)	0.000
	No (reference group)	139(27.0)		
Alcohol use	Yes	55(10.6)	1.253(0.596–2.761)	0.575
	No (reference group)	465(89.4)		
Illicit drug use	Yes	29(15.6)	1.205 (0.409–3.549)	0.734
	No (reference group)	492(94.6)		

\*The reference category is no violence

OR, odd ratio; CI, confidence interval

drugs in comparison with other cultures (Spear 2015; World Health Organization (WHO) 2011). Therefore, current alcohol and illicit drug use were highly prevalent among Palestinian teenagers, especially among refugee teenagers. This could be due to the availability of these substances in refugee camps, as refugee teenagers reported that they gain access to alcohol and illicit drugs easily from their locality. Refugee camps were the source of illicit drugs for 38.5% of current drug users compared with 10.3% in the city and 7.7% in the villages. This could be due to the weak Palestinian police surveillance inside refugee camps. The inadequate rule of law could lead to a lack of proper control and consequently, new routes of trafficking and increased access to drugs (Damiri et al. 2018; Hanna 2017).

Natural and synthetic cannabinoids and a new homemade liquid methamphetamine called GG were the most common illicit drugs used in all localities. Refugee camps were described as one of the localities where new PS products, such as synthetic cannabinoids (hydro) and liquid methamphetamine, have emerged (Damiri et al. 2018). Methamphetamine is a potent stimulant that increases attention and decreases sleeping hours. Amphetamines have serious short- and long-term harms, such as deficits in learning and memory; brain damage; and permanent damage to blood vessels of the heart and brain that can lead to heart attacks, strokes and death, severe tooth decay, and psychosis (Wu et al. 2007). Moreover, these new highly addictive substances tended to occur most frequently in groups that engaged in risky behaviors (Damiri et al. 2019).

Refugee teenagers may be particularly vulnerable to PS use for different reasons, including coping with traumatic experiences and social and economic inequality (Damiri et al. 2018). Motives for smoking tobacco among refugees were to run from problems, to get rid of anger, to relax, and to cope with friends. When people who have already been under extremely stressful conditions gain access to drugs, they may use them to relieve stress or mental health conditions such as depression and anxiety (Ezard et al. 2011; Hanna 2017; Sinha 2008). Refugee teenagers in this study were more receptive than other teenagers to the idea of one of their family members using alcohol or drugs. Among the factors that interplay in the prevalence of PS use among refugee teenagers are the nature of family relations, PS use by other family members, and social/peer interactions. The majority of refugee teenagers had the intention to use illicit drugs and alcohol and did not agree to ban tobacco, although they were

knowledgeable about their dangers. This could be because of a higher propensity among refugee teenagers than among urban and rural teenagers to transgress laws and social norms. This may also explain the higher percentages of violence among refugee teenagers. The high availability of drugs within communities contributes to the prevalence of drug-related violence and is a risk factor for initiation into both drug use and violence (Volkman et al. 2013).

Psychoactive substance users in the three localities were more likely to be violent than nonusers. However, refugee teenagers in this study showed more violent behaviors. Drug use and violence are key risk factors for mental health problems, child abuse, and neglect. It is important to mention here that ongoing political instability and general insecurity could contribute to the increased criminal and violent activities in the three localities, especially in refugee camps. According to the United Nations Relief and Works Agency for Palestine Refugees (UNRWA), adolescents who are refugees are exposed to conflict-related violence, intracommunal violence, drug abuse, and other risky behaviors, all of which increase their risk for mental health challenges. Overall, these findings suggest the need to integrate PS use prevention and treatment into services offered to refugee teenagers in the West Bank. Poor knowledge of treatment services predisposes teenagers to continue using. Only 20% of refugee and rural teenagers and 32% of urban teenagers knew about the drug weaning centers in the West Bank. These findings indicate that refugee teenagers could suffer from drug dependency and some of the behavioral and psychiatric conditions, including internalizing disorders such as anxiety or depression. In addition to health problems, PS use could also place refugees at high risk of poor academic performance, school dropout, and involvement in crime and more violent activities (Benda et al. 2005; Biswas et al. 2006; Chatterji 2006; National Institute on Drug Abuse 2018). Early intervention could be vital to steering the refugee child's life path away from risk-taking behaviors. This could be done with collaboration with other institutions such as the UNRWA, offices of social services in refugee camps, and the Ministry of Education.

## Limitations

There are several limitations to this study. One of the reasons for school dropout after basic education among teenagers in the occupied Palestinian territories is drug use and misuse (United Nations International Children's Emergency Fund 2010). This study did not include dropout teenagers. Therefore, the prevalence of PS use could be higher among this age group of teenagers. Among the factors predicting adolescent drug use are the adjustment to school and satisfaction with teachers (Warner et al. 1995). These factors were not investigated. The physical, psychosocial, and mental health consequences of psychoactive drug use among teenagers were not investigated. Moreover, the study did not include direct questions about political and internal conflicts and their effects on PS use. These sensitive questions could not be asked inside schools to conform to the requirements of the schools' administrators. This study did not investigate teenagers' involvement in drug trafficking. Difficulties and maltreatment, including physical and sexual abuse due to PS use, were also not investigated. Moreover, the lack of prior research studies on this topic was one of the most important constraints to predicting the change in PS use in the three localities. Further studies are recommended in these subjects.

## Conclusion

The findings of this study draw attention to our limited understanding of the epidemiology of psychoactive substance use among teenagers in a conflict area, namely, the West Bank. Psychoactive substance use was high among teenagers in three localities (city, villages, and refugee camps). The combined use of these substances warrants attention due to the potential for health risks and mental health challenges. Refugee teenagers were particularly vulnerable to substance use for different reasons, including the availability of the substances, the ease of accessing them, the need to cope with problems, and social/peer pressure. Given the multiple factors that influence adolescent PS use in the West Bank in general and in refugee camps specifically, early detection and prevention strategies are essential. Programs of the Anti-Narcotics General Administration (ANGA) should make particular efforts in refugee camps due to the perceived fact that they are at greater risk of risky behaviors. Governmental rehabilitation centers should also be established to take care of children who use these substances. Schools should exert greater effort to raise awareness among students and their families about the issue of substance use and its dangers. More studies are needed to improve our understanding of PS use among teenagers in conflict areas.

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**Authors' Contributions** BRD wrote the initial and final draft of the manuscript and study design and carried data analysis and results interpretation. Availability of Data and Materials Most data generated or analyzed during this study are included in this manuscript. Other data that support the findings of this study and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Compliance with Ethical Standards** Approval was obtained from Institutional Review Board (IRB) at An-Najah National University (ANU) in Palestine prior of the research conduction. The study was carried out in accordance with the ethical standards, Declarations of Helsinki. All study participants were freely accepted to join the study. Confidentiality was highlighted in all written and oral communications. Informed consent was obtained from the relevant local authorities and the students. Other ethical safeguards were employed: self-reported anonymous questionnaire was used and privacy.

**Conflict of Interest** The author declares that she has no conflict of interest.

## References

- Abu Gamer, K., Thabet, A. A., & Vostanis, P. (2007). Prevalence of substance abuse in the university students in the Gaza Strip. *Arab Psychiatric Journal, 18*(1), 1–8.
- Alzyoud, S., Kheirallah, K. A., Weglicki, L. S., Ward, K. D., Al-Khawaldeh, A., & Shotar, A. (2014). Tobacco smoking status and perception of health among a sample of Jordanian students. *International Journal of Environmental Research and Public Health, 11*(7), 7022–7035.
- Benda, B. B., Toombs, N. J., & Corwyn, R. F. (2005). Self-control, gender, and age. *Journal of Offender Rehabilitation, 40*(3–4), 115–132.
- Bhui, K., & Warfa, N. (2007). Drug consumption in conflict zones in Somalia. *PLoS Medicine, 4*(12), e354.
- Biswas, P., Malhotra, S., Malhotra, A., et al. (2006). Comparative study of neuropsychological correlates in schizophrenia with onset in childhood, adolescence and adulthood. *European Child & Adolescent Psychiatry, 15*, 360–366.
- Botello-Harbaum, M. T., Haynie, D. L., Iannotti, R. J., Wang, J., Gase, L., & Simons-Morton, B. (2009). Tobacco control policy and adolescent cigarette smoking status in the United States. *Nicotine & Tobacco Research: official journal of the Society for Research on Nicotine and Tobacco, 11*(7), 875–885.

- Centers for Disease Control and Prevention (2013). The Global School and Health Survey Background (GSHS). Retrieved from <https://www.cdc.gov/gshs/index.htm> [last accessed on 4 April 2019].
- Chatterji, P. (2006). Illicit drug use and educational attainment. *Health Economics*, 15, 489–511.
- Damiri, B., Sayeh, W., Odeh, M., & Musmar, H. (2018). Drug use and possession, emerging of new psychoactive substances in the West Bank, Palestine. *Egyptian Journal of Forensic Sciences*, 8(1), 42.
- Damiri, B., Sandouka, H. N., Janini, E. H., & Yaish, O. N. (2019). *Prevalence and associated factors of psychoactive substance use among university students in the West Bank, Palestine, Drugs: Education, Prevention and Policy* (pp. 1–10).
- Dart, R. C., Bronstein, A. C., Spyker, D. A., Cantilena, L. R., Seifert, S. A., Heard, S. E., & Krenzelok, E. P. (2015). Poisoning in the United States: 2012 emergency medicine report of the National Poison Data System. *Annals of Emergency Medicine*, 65(4), 416–422.
- Davison, G., Shoben, A., Pasch, K. E., & Klein, E. G. (2016). Energy drink use among Ohio Appalachian smokers. *Journal of Community Health*, 41(5), 897–902.
- Defense for Children International/Palestine Section (DCI) (2017). Space to play, West Bank refugee camps are facing a crisis of safety and square fee. Retrieved from: [https://www.dci-palestine.org/space\\_to\\_play](https://www.dci-palestine.org/space_to_play) [last accessed on 5 Oct 2019].
- Ezard, N., Oppenheimer, E., Burton, A., Schilperoord, M., Macdonald, D., Adelekan, M., et al. (2011). Six rapid assessments of alcohol and other substance use in populations displaced by conflict. *Conflict and Health*, 5(1), 1.
- Graubner, C., Bartelt, N., Berg, C., & Helfrich, L. (2007). Drugs and conflict: how the mutual impact of illicit drug economies and violent conflict influences sustainable development, peace and stability: *Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)*.
- Habib, R. R., Seyfert, K., & Hojeij, S. (2012). Health and living conditions of Palestinian refugees residing in camps and gatherings in Lebanon: a cross-sectional survey. *The Lancet*, 380, S3.
- Hanna, F. (2017). Alcohol and substance use in humanitarian and post conflict situations. *Eastern Mediterranean Health Journal*, 23(3), 231–235.
- Hecker, T., & Haer, R. (2015). Drugs boosting conflict? A micro-level test of the linkage between substance use and violence. *Terrorism and Political Violence*, 27(2), 205–224.
- Horyniak, D., Melo, J. S., Farrell, R. M., Ojeda, V. D., & Strathdee, S. A. (2016). Epidemiology of substance use among forced migrants: a global systematic review. *PLoS One*, 11(7), e0159134.
- Hwang, J. H., & Park, S. W. (2014). Age at smoking initiation and subsequent smoking among Korean adolescent smokers. *Journal of Preventive Medicine and Public Health = Yebang Uihakhoe chi*, 47(5), 266–272.
- Institute of Medicine. (1996). *Pathways of addiction: Opportunities in drug abuse research*. Washington, DC: The National Academies Press.
- Johnston, L. D., O'Malley, P. M., Miech, R. A., Bachman, J. G., & Schulenberg, J. E. (2015). *Monitoring the future national survey results on drug use: 1975–2014: overview, key findings on adolescent drug use*. Institute for Social Research, University of Michigan.
- Jordan, C. J., & Andersen, S. L. (2017). Sensitive periods of substance abuse: early risk for the transition to dependence. *Developmental Cognitive Neuroscience*, 25, 29–44.
- Kroon, L. A. (2007). Drug interactions with smoking. *The American Journal of Health-System Pharmacy*, 64(18), 1917–1921.
- Lai, L. (2014). Treating substance abuse as a consequence of conflict and displacement: a call for a more inclusive global mental health. *Medicine, Conflict and Survival*, 30(3), 182–189.
- Mangerud, W. L., Bjerkeset, O., Holmen, T. L., Lydersen, S., & Indredavik, M. S. (2014). Smoking, alcohol consumption, and drug use among adolescents with psychiatric disorders compared with a population based sample. *Journal of Adolescence*, 37(7), 1189–1199.
- Massad, S. G., Shaheen, M., Karam, R., Brown, R., Glick, P., Linnemay, S., & Khammash, U. (2016). Substance use among Palestinian youth in the West Bank, Palestine: a qualitative investigation. *BMC Public Health*, 16(1), 800.
- Meredith, S. E., Sweeney, M. M., Johnson, P. S., Johnson, M. W., & Griffiths, R. R. (2016). Weekly energy drink use is positively associated with delay discounting and risk behavior in a nationwide sample of young adults. *Journal of Caffeine and Adenosine Research*, 6(1), 10–19.
- Musaiger, A. O., & Zagzoog, N. (2014). Knowledge, attitudes and practices toward energy drinks among adolescents in Saudi Arabia. *Global Journal of Health Science*, 6(2), 42–46.
- Mzayek, F., Khader, Y., Eissenberg, T., Al Ali, R., Ward, K. D., & Maziak, W. (2012). Patterns of water-pipe and cigarette smoking initiation in schoolchildren: Irbid longitudinal smoking study. *Nicotine & Tobacco Research*, 14, 448–454.

- National Institute on Drug Abuse (2018). Drugs, Brains, and Behavior: The Science of Addiction. Retrieved from <https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction> on 2019, November 15.
- Newcomb, M. D., Chou, C.-p., Bentler, P. M., & Huba, G. J. (1988). Cognitive motivations for drug use among adolescents: longitudinal tests of gender differences and predictors of change in drug use. *Journal of Counseling Psychology*, 35(4), 426–438.
- Palestinian Central Bureau of Statistics (PCBS). (2012). International day of giving up smoking (Word No Tobacco Day). Retrieved from [http://www.pcbs.gov.ps/Portals/\\_pcbs/PressRelease/MoH&PCBSSmoke2012E.pdf](http://www.pcbs.gov.ps/Portals/_pcbs/PressRelease/MoH&PCBSSmoke2012E.pdf) [last accessed on 4 Apr 2019].
- Papadopoulos, R. K. (2018). An uncertain safety: integrative health care for the 21st century refugees. *European Journal of Psychotraumatology*, 9(1), 1549929.
- Sinha, R. (2008). Chronic stress, drug use, and vulnerability to addiction. *Annals of the New York Academy of Sciences*, 1141, 105–130.
- Spear, L. P. (2015). Adolescent alcohol exposure: are there separable vulnerable periods within adolescence? *Physiology & Behavior*, 148, 122–130.
- Thabet, A. A. M., & Dajani, J. K. (2012). Substance abuse among Palestinians in the West Bank and Gaza Strip. *Arab Journal of Psychological Science*, 36, 76–78.
- Treur, J. L., Taylor, A. E., Ware, J. J., McMahon, G., Hottenga, J.-J., Baselmans, B. M. L., et al. (2016). Associations between smoking and caffeine consumption in two European cohorts. *Addiction*, 111(6), 1059–1068.
- United Nations International Children's Emergency Fund. (2010). The situation of Palestinian children in The Occupied Palestinian Territory, Jordan, Syria and Lebanon. An assessment based on the Convention on the Rights of the Child 2010. Retrieved from [https://www.unicef.org/oPt/Palestinian\\_sitan-final.pdf](https://www.unicef.org/oPt/Palestinian_sitan-final.pdf) 1 [last accessed on April 4, 2019].
- United Nations Office on Drugs and Crime. (2017a). Estimating the extent of illicit drug use in Palestine. Retrieved from [https://www.unodc.org/documents/middleeastandnorthafrica/Publications/Estimating\\_the\\_Extent\\_of\\_Illicit\\_Drug\\_Use\\_in\\_Palestine.pdf](https://www.unodc.org/documents/middleeastandnorthafrica/Publications/Estimating_the_Extent_of_Illicit_Drug_Use_in_Palestine.pdf) 1 [last accessed on April 4, 2019].
- United Nations Office on Drugs and Crime.(2017b). Illicit drug use in Palestine, a qualitative investigation. Retrieved from [https://www.unodc.org/documents/publications/Illicit\\_Drug\\_Use\\_in\\_Palestine.pdf](https://www.unodc.org/documents/publications/Illicit_Drug_Use_in_Palestine.pdf) 1 [last accessed on April 4, 2019].
- Van Hout, M. C., Al-Afifi, M. F., Abushams, L., Kewley, S., Quigg, Z., Whitfield, M., ... & Wazaify, M. (2019). Palestinian children's experiences of drug abuse in the home in the occupied territories of Palestine: A scoping review of extant literature. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-019-00085-2>.
- Viell, B., Grabner, L., Fruchel, G., & Boczek, P. (1996). New caffeinated beverages: a pilot survey of familiarity and consumption by adolescents in North-Rhine Westphalia and Berlin and considerations of consumer protection[in German]. *Zeitschrift für Ernährungswissenschaft*, 35(4), 378–386.
- Volkman, T., Fraga, M. A., Brodine, S. K., Iñiguez-Stevens, E., Cepeda, A., Elder, J. P., et al. (2013). Drug-scene familiarity and exposure to gang violence among residents in a rural farming community in Baja California, Mexico. *Global Public Health*, 8(1), 65–78.
- Warner, L. A., Kessler, R. C., Hughes, M., Anthony, J. C., & Nelson, C. B. (1995). Prevalence and correlates of drug use and dependence in the United States. Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 52(3), 219–229.
- Wium-Andersen, I. K., Wium-Andersen, M. K., Becker, U., & Thomsen, S. F. (2010). Predictors of age at onset of tobacco and cannabis use in Danish adolescents. *The Clinical Respiratory Journal*, 4(3), 162–167.
- Wolk, B. J., Ganetsky, M., & Babu, K. M. (2012). Toxicity of energy drinks. *Current Opinion in Pediatrics*, 24(2), 243–251.
- World Health Organization (WHO). (2011). WHO global status report on alcohol and health. Geneva, Switzerland. Retrieved from <http://apps.who.int/iris/bitstream/handle/10665/44499/?sequence=1> [last accessed on 4 Apr 2019].
- Wu, L.-T., Pilowsky, D. J., Schlenger, W. E., & Galvin, D. M. (2007). Misuse of methamphetamine and prescription stimulants among youths and young adults in the community. *Drug and Alcohol Dependence*, 89(2–3), 195–205.