High-Risk Behaviors and Associated Factors among Iranian Adult Population: A National Survey

Bahram Ebrahimi [1], Amin Doosti-Irani [1,2], Forouzan Rezapur-Shahkolai [3,4], *Jalal Poorolajal [1,5]

1. Department of Epidemiology, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran
2. Modeling of Noncommunicable Diseases Research Center, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran
3. Social Determinants of Health Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
4. Department of Public Health, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran
5. Research Center for Health Sciences, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran

*Corresponding Author: Email: poorolajal@umsha.ac.ir

Abstract

Background: There is no official and representative information on certain health-risk behaviors in Iran. This national survey was performed to determine the prevalence of five high-risk behaviors among the adult population and underlying factors.

Methods: This cross-sectional study was performed in 23 provinces of Iran in 2019 involving 10,957 participants. The following five risky behaviors were evaluated: (a) using illicit drugs in the past month, (b) drinking alcohol in the past month, (c) having extramarital sex in the past year, (d) having suicidal thoughts in the past month, (e) and attempting suicide in the past year. The logistic regression model was used for analyses and associations were reported using odds ratio (OR) with its 95% confidence interval (CI).

Results: The prevalence of health-risk behaviors was as follows: illicit drug use 10.4%, drinking alcohol 16.8%, extramarital sex 9.9%, suicidal thoughts 8.8%, and suicide attempt 5.4%. Almost 27.6% of the participants were involved in at least one risky behavior. There was a strong association between illicit drugs use and male gender 2.51 (2.11-2.98) and using psychiatric medications 2.96 (2.46-3.55); between drinking alcohol and male gender 2.23 (1.93-2.58); between extramarital sex and divorced/widowed status 2.43 (1.72-3.44) and having an intimate friend of the opposite sex 3.75 (3.13-4.51); between suicidal thoughts and using psychiatric medications 2.23 (1.83-2.72); between suicide attempt and a history of running away from home 2.10 (1.64-2.68).

Conclusion: More than one-fourth Iranian adult population is involved in at least one risky behavior. Engaging in any risky behavior may increase the possibility of engaging in other high-risk behaviors.

Keywords: Health risk behaviors; Adult; Illicit drugs; Alcohols; Sexual behavior; Suicide; Iran

Introduction

Many high-risk behaviors such as alcohol consumption, extramarital sex, drug abuse, and suicidal behaviors are taboo in Iranian society, therefore, there is no official information or comprehensive national survey to give a clear picture of the prevalence of these risky behaviors

and their predisposing factors. The available information comes from tiny, non-representative samples of specific populations (1-6).

A systematic review conducted in 2020 estimated that the prevalence of alcohol consumption among the Iranian adult population varied from 0.03% to 68.0% in different regions, 0.3% to 66.6% in men, and 0.2% to 21.0% in women (7). Another report based on Persian Cohort Study indicated that about 11.9% of the Iranian adult population are drug abusers (8). A meta-analysis including 28 studies from different parts of Iran showed that the overall prevalence of lifetime extramarital or premarital sex was about 24%, 33% in men, and 14% in women (9). Another meta-analysis estimated that smoking prevalence among the Iranian population varied from 12.3% to 38.5% in men, and from 0.6% to 9.8% in women (10). Almost 80% of smokers reported their first experience of smoking before the age of 15 (11).

Despite the great importance of health-risk behaviors, they have not been extensively investigated and reported at the national level in Iran. Reporting the prevalence of high-risk behaviors, while important, is not enough. At present, there is not a clear and comprehensive survey aiming at the risky behaviors and their predisposing factors among the Iranian adult population. Until reliable information on the prevalence of health-risk behaviors and associated predisposing factors is collected, it may be difficult or even impossible to design successful prevention programs and to ensure effective responses.

Therefore, we aimed to determine the prevalence of five risky behaviors among the Iranian adult population and associated underlying factors.

Methods

This cross-sectional study was conducted all across the country on a representative sample of the Iranian adult population in 2019. The Ethics Committee of the Hamadan University of Medical Sciences approved the study (IR.UMSHA.REC.1397.808. Both male and fe-

male Iranian adults aged 18 yr or older enrolled in this survey voluntarily and anonymously. Enrollment was not based on any special eligibility requirements. Much effort was made to make the samples representative of the general adult population. The participants were selected from different public parts of the cities where people were expected to go there for their daily affairs such as bus stops, subway stations, department stores, banks, drug stores, mosques, healthcare centers, clinics, hospitals, libraries, universities, campus, restaurants, parks, and gyms.

This study is part of a large survey conducted to assess the prevalence of aggression and risky behaviors among the Iranian general population. The method of sample size calculation was explained elsewhere (12). The sample was selected from the capital cities of 23 out of the 31 provinces. Samples were selected in proportion to the size of the study population. A sample of around 400 was taken from the small provinces (with less than 4 million population) and a sample of around 800 from the big provinces (with more than 4 million population). Finally, 10,957 samples was gathered from 23 provinces.

A self-administered questionnaire was used to collect data including several demographic, behavioral, and cultural characteristics. In cases that participants were not convenient with a self-administered questionnaire, the questionnaire was filled out by the executives through a face-to-face interview.

The outcomes of interest were five high-risk behaviors including (a) using illicit drugs in the past month (b) drinking alcohol in the past month; (c) engaging in extramarital sex in the past month; (d) history of suicide ideation in the past month; and (e) a history of suicide attempt in the past year.

Since the outcomes of interest (risky behaviors) were dichotomous, the association between each risky behavior and independent factors was evaluated using a simple and multiple logistic regression model. The significance level for all statistical analyses was set at 0.05 using Stata software, version 14 (StataCorp, TX, USA).

Results

The participation rate of the study population was 88.6%. Of 10,957 participants, 5,755 (52.9%) were women. The mean (SD) age of the participants was 33.00 (11.31) yr, ranging from 18 to 90 years. As shown in Fig. 1, 3027 (27.6%) had at least one out of five risky behaviors.
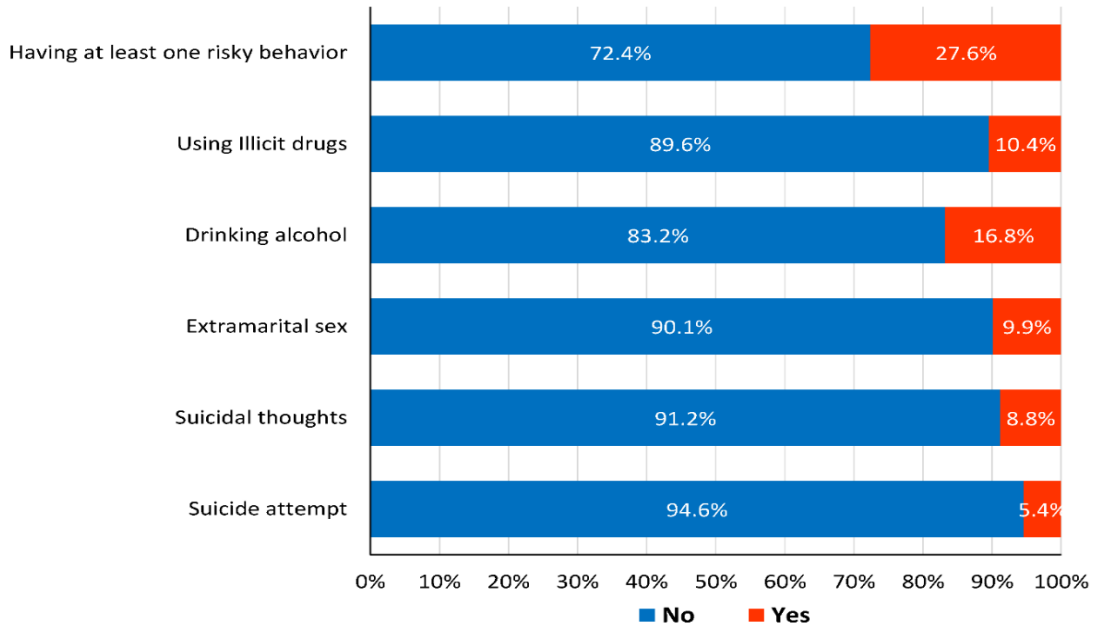

Fig. 1: The prevalence of top five risky behaviors among the Iranian adult population

The association between illicit drug use, drinking alcohol, and extramarital sex with demographic, behavioral, and cultural factors are given in Table 1. According to the results of the multiple logistic regression model, male gender, marital status, having an intimate friend of the opposite sex, interest in watching porn movies, being sexually abused in childhood, a history of running away from home or school, and a history of suicidal ideation or attempt were the main risk factors there were associated with illicit drugs use, drinking alcohol, ad extramarital sex.

Table 1: The association between illicit drugs use, drinking alcohol, extramarital sex, and various demographic, behavioral, and social factors

Variables	Illicit drugs use				Drinking alcohol				Extramarital sex			
	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)†	P-value	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)†	P-value	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)†	P-value
Age (yr)	1.00 (0.99-1.00)	0.606	1.00 (1.00-1.01)	0.251	0.98 (0.97-0.98)	0.001	1.00 (0.99-1.01)	0.702	0.98 (0.97-0.98)	0.001	1.00 (0.99-1.01)	0.681
					Gender							
Women	1.00		1.00		1.00		1.00		1.00		1.00	

	OR	P	OR	P	OR	P	OR	P	OR	P	OR	P
Men	3.07 (2.68-3.51)	0.001	2.51 (2.11-2.98)	0.001	3.21 (2.88-3.58)	0.001	2.23 (1.93-2.58)	0.001	2.01 (1.77-2.29)	0.001	1.20 (1.01-1.44)	0.041
Marital status												
Single	1.00		1.00		1.00		1.00		1.00		1.00	
Married	0.80 (0.70-0.91)	0.001	1.52 (1.23-1.87)	0.001	0.52 (0.46-0.57)	0.001	1.22 (1.02-1.46)	0.031	0.42 (0.37-0.49)	0.001	1.13 (0.91-1.41)	0.259
Divorced/Widow	2.54 (2.00-3.22)	0.001	1.70 (1.20-2.40)	0.003	1.92 (1.56-2.36)	0.001	1.71 (1.24-2.36)	0.001	2.52 (2.01-3.15)	0.001	2.43 (1.72-3.44)	0.001
Educational level												
Illiterate	1.00		1.00		1.00		1.00		1.00		1.00	
School education	0.51 (0.36-0.71)	0.001	0.75 (0.48-1.17)	0.205	0.89 (0.63-1.26)	0.536	1.07 (0.66-1.73)	0.771	0.78 (0.52-1.17)	0.235	1.54 (0.88-2.69)	0.132
Academic education	0.32 (0.23-0.45)	0.001	0.61 (0.38-0.97)	0.037	0.78 (0.55-1.10)	0.158	1.13 (0.69-1.84)	0.629	0.63 (0.42-0.95)	0.027	1.52 (0.86-2.69)	0.148
Reading at least one hour per week												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.56 (0.49-0.63)	0.001	0.94 (0.79-1.11)	0.452	0.62 (0.56-0.69)	0.001	0.76 (0.66-0.88)	0.001	0.58 (0.51-0.66)	0.001	0.83 (0.69-0.99)	0.038
Having an intimate friend of the same sex												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.63 (0.55-0.73)	0.001	0.84 (0.70-1.00)	0.055	0.85 (0.75-0.97)	0.015	0.96 (0.82-1.14)	0.674	0.85 (0.73-0.99)	0.042	0.84 (0.68-1.03)	0.091
Having an intimate friend of the opposite sex												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	3.22 (2.84-3.65)	0.001	1.38 (1.16-1.65)	0.001	4.87 (4.38-5.41)	0.001	1.77 (1.53-2.04)	0.001	8.08 (7.01-9.33)	0.001	3.75 (3.13-4.51)	0.001
Regular physical exercise per week												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.95 (0.84-1.08)	0.484	0.75 (0.64-0.89)	0.001	1.52 (1.37-1.68)	0.001	1.43 (1.25-1.64)	0.001	1.37 (1.21-1.56)	0.001	1.05 (0.89-1.24)	0.576
Father behavior												
Reasonable	1.00		1.00		1.00		1.00		1.00		1.00	
Aggressive	3.29 (2.85-3.79)	0.001	1.49 (1.24-1.79)	0.001	2.44 (2.16-2.75)	0.001	1.21 (1.02-1.43)	0.028	2.58 (2.23-2.99)	0.001	1.09 (0.89-1.33)	0.409
Careless	2.67 (2.25-3.17)	0.001	1.25 (0.99-1.57)	0.056	1.88 (1.63-2.18)	0.001	0.94 (0.76-1.15)	0.543	2.30 (1.93-2.74)	0.001	1.08 (0.85-1.38)	0.530
Mother behavior												
Reasonable	1.00		1.00		1.00		1.00		1.00		1.00	
Aggressive	2.59 (2.20-3.05)	0.001	1.09 (0.88-1.36)	0.435	2.28 (1.98-2.62)	0.001	1.25 (1.03-1.51)	0.024	2.49 (2.11-2.95)	0.001	0.97 (0.77-1.23)	0.828

Careless	2.88 (2.46-3.38)	0.001	1.39 (1.12,1.72)	0.003	1.91 (1.66-2.21)	0.001	0.91 (0.74-1.11)	0.341	2.61 (2.21-3.08)	0.001	1.27 (1.00-1.60)	0.046
Parents died during childhood											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	1.59 (1.35-1.88)	0.001	1.28 (1.03,1.58)	0.024	1.17 (1.01-1.35)	0.035	0.93 (0.76-1.13)	0.464	1.39 (1.16-1.66)	0.001	1.09 (0.87-1.38)	0.459
Parents divorced during childhood											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	3.47 (2.84-4.24)	0.001	1.06 (0.81-1.38)	0.690	2.76 (2.29-3.31)	0.001	0.93 (0.72-1.20)	0.580	3.67 (3.00-4.48)	0.001	1.22 (0.93-1.61)	0.156
Ability to control anger											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.48 (0.42-0.55)	0.001	0.97 (0.82-1.14)	0.681	0.49 (0.44-0.54)	0.001	0.87 (0.76-1.00)	0.049	0.42 (0.37-0.48)	0.001	0.78 (0.66-0.93)	0.005
Doing regular prayer											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.38 (0.33-0.44)	0.001	0.79 (0.67-0.95)	0.010	0.18 (0.16-0.20)	0.001	0.29 (0.25-0.34)	0.001	0.28 (0.24-0.32)	0.001	0.78 (0.64-0.95)	0.013
Interest in watching action movies											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	2.21 (1.95-2.51)	0.001	0.95 (0.81-1.12)	0.540	3.41 (3.07-3.79)	0.001	1.50 (1.30-1.72)	0.001	2.72 (2.38-3.09)	0.001	1.03 (0.86-1.22)	0.776
Interest in watching porn movies											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	4.54 (4.00-5.15)	0.001	1.75 (1.49-2.06)	0.001	5.04 (4.53-5.61)	0.001	1.63 (1.42-1.88)	0.001	5.96 (5.23-6.79)	0.001	1.84 (1.56-2.18)	0.001
Interest in listening to music											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.81 (0.70-0.94)	0.005	0.87 (0.71-1.05)	0.137	1.35 (1.18-1.55)	0.001	1.20 (1.00-1.44)	0.048	1.02 (0.87-1.19)	0.765	0.90 (0.73-1.11)	0.312
Being sexually abused in childhood											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	5.53 (4.72-6.47)	0.001	1.47 (1.19-1.82)	0.001	4.35 (3.76-5.03)	0.001	1.39 (1.13-1.71)	0.002	7.28 (6.23-8.51)	0.001	2.66 (2.15-3.28)	0.001
A history of running away from home											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	8.61 (7.47-9.92)	0.001	1.88 (1.55-2.27)	0.001	6.45 (5.66-7.35)	0.001	1.29 (1.07-1.55)	0.007	7.29 (6.31-8.43)	0.001	1.41 (1.15-1.73)	0.001
History of escape from school											
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	5.13 (4.52-	0.001	1.47 (1.24-	0.001	5.63 (5.06-	0.001	1.91 (1.65-	0.001	4.39 (3.86-	0.001	1.15 (0.96-	0.139

Variables	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
	5.83)		1.74)		6.27)		2.20)		5.00)		1.37)	
Being at kindergarten in childhood												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	1.56 (1.37-1.78)	0.001	1.47 (1.24-1.74)	0.001	1.59 (1.43-1.77)	0.001	1.11 (0.96-1.28)	0.158	1.87 (1.64-2.13)	0.001	1.45 (1.22-1.73)	0.001
Using psychiatric medications												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	6.68 (5.79-7.70)	0.001	2.96 (2.46-3.55)	0.001	3.74 (3.28-4.27)	0.001	1.65 (1.37-1.99)	0.001	3.77 (3.22-4.38)	0.001	0.98 (0.78-1.21)	0.823
Having sexual satisfaction												
No	1.00		1.00		1.00		1.00		1.00		1.00	
Yes	0.50 (0.45-0.57)	0.001	0.86 (0.72-1.04)	0.117	0.45 (0.41-0.50)	0.001	0.92 (0.78-1.08)	0.293	0.35 (0.31-0.40)	0.001	0.70 (0.58-0.85)	0.001
Attachment to parents												
Low	1.00		1.00		1.00		1.00		1.00		1.00	
High	0.41 (0.36-0.47)	0.001	0.86 (0.73-1.02)	0.076	0.43 (0.38-0.47)	0.001	0.81 (0.71-0.93)	0.003	0.38 (0.33-0.44)	0.001	0.85 (0.71-1.02)	0.075
Family conflict and hostility												
Low	1.00		1.00		1.00		1.00		1.00		1.00	
High	1.74 (1.53-1.97)	0.001	1.08 (0.92-1.26)	0.359	1.52 (1.37-1.68)	0.001	0.93 (0.81-1.06)	0.284	1.67 (1.47-1.90)	0.001	0.96 (0.81-1.13)	0.621

† Odds ratio (OR) adjusted for all variables in the table

The relationship between suicidal thoughts and suicide attempts with demographic, behavioral, and cultural factors is shown in Table 2. According to the results of the multiple logistic regression model, age, male gender, marital status, a history of running away from home or school, Using psychiatric medications, and having family conflict and hostility were the main risk factors of both suicidal thoughts and suicide attempt.

Table 2: The association between suicidal thoughts and suicide attempts and various demographic, behavioral, and social factors

Variables	Suicidal thoughts				Suicide attempts			
	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)†	P-value	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)†	P-value
Age (yr)	0.96 (0.95-0.97)	0.001	0.98 (0.97-0.99)	0.001	0.97 (0.97-0.98)	0.001	0.99 (0.98-1.00)	0.007
Gender								
Women	1.00		1.00		1.00		1.00	
Men	0.94 (0.82-1.07)	0.383	0.63 (0.53-0.75)	0.001	0.91 (0.77-1.08)	0.306	0.65 (0.52-0.81)	0.001
Marital status								
Single	1.00		1.00		1.00		1.00	
Married	0.42 (0.37-0.49)	0.001	0.69 (0.55-0.85)	0.001	0.59 (0.50-0.70)	0.001	1.33 (1.01-1.74)	0.040

Divorced/Widow	1.32 (1.01-1.73)	0.038	0.75 (0.51-1.09)	0.128	2.16 (1.60-2.91)	0.001	1.71 (1.11-2.63)	0.015
Educational level								
Illiterate	1.00		1.00		1.00		1.00	
School education	0.71 (0.47-1.07)	0.110	1.02 (0.58-1.77)	0.950	0.45 (0.30-0.67)	0.001	0.63 (0.37-1.08)	0.095
Academic education	0.58 (0.38-0.88)	0.010	0.97 (0.55-1.70)	0.905	0.26 (0.17-0.39)	0.001	0.46 (0.26-0.80)	0.006
Reading at least one hour per week								
No	1.00		1.00		1.00		1.00	
Yes	0.85 (0.74-0.98)	0.035	1.43 (1.19-1.72)	0.001	0.55 (0.46-0.65)	0.001	0.78 (0.62-0.97)	0.025
Having an intimate friend of the same sex								
No	1.00		1.00		1.00		1.00	
Yes	0.60 (0.52-0.70)	0.001	0.62 (0.52-0.75)	0.001	0.68 (0.56-0.83)	0.001	1.04 (0.81-1.33)	0.763
Having an intimate friend of the opposite sex								
No	1.00		1.00		1.00		1.00	
Yes	2.50 (2.19-2.86)	0.001	0.99 (0.82-1.19)	0.914	2.75 (2.33-3.25)	0.001	1.20 (0.95-1.51)	0.124
Regular physical exercise per week								
No	1.00		1.00		1.00		1.00	
Yes	1.17 (1.03-1.34)	0.016	1.03 (0.87-1.21)	0.754	1.27 (1.07-1.49)	0.005	1.23 (1.00-1.52)	0.051
Father behavior								
Reasonable	1.00		1.00		1.00		1.00	
Aggressive	2.49 (2.13-2.91)	0.001	1.32 (1.07-1.62)	0.008	2.63 (2.18-3.18)	0.001	1.00 (0.78-1.29)	0.992
Careless	2.67 (2.24-3.19)	0.001	1.69 (1.35-2.12)	0.001	2.32 (1.85-2.91)	0.001	0.91 (0.67-1.22)	0.523
Mother behavior								
Reasonable	1.00		1.00		1.00		1.00	
Aggressive	2.56 (2.16-3.04)	0.001	1.12 (0.89-1.40)	0.335	2.93 (2.39-3.61)	0.001	1.11 (0.84-1.47)	0.445
Careless	2.01 (1.68-2.42)	0.001	0.89 (0.70-1.13)	0.344	2.36 (1.89-2.94)	0.001	1.15 (0.86-1.55)	0.335
Parents died during childhood								
No	1.00		1.00		1.00		1.00	
Yes	1.44 (1.20-1.73)	0.001	1.08 (0.86-1.36)	0.523	2.12 (1.73-2.60)	0.001	1.60 (1.23-2.07)	0.001
Parents divorced during childhood								
No	1.00		1.00		1.00		1.00	
Yes	3.72 (3.02-4.57)	0.001	1.18 (0.90-1.55)	0.226	5.12 (4.08-6.43)	0.001	1.50 (1.10-2.03)	0.010
Ability to control anger								
No	1.00		1.00		1.00		1.00	
Yes	0.46 (0.40-0.52)	0.001	0.84 (0.71-0.99)	0.035	0.41 (0.35-0.49)	0.001	0.80 (0.64-0.98)	0.033
Doing regular prayer								
No	1.00		1.00		1.00		1.00	
Yes	0.41 (0.35-0.47)	0.001	0.76 (0.63-0.91)	0.002	0.50 (0.42-0.59)	0.001	1.04 (0.82-1.30)	0.765
Interest in watching action movies								
No	1.00		1.00		1.00		1.00	
Yes	1.98 (1.73-2.26)	0.001	1.21 (1.02-1.43)	0.032	1.68 (1.42-1.98)	0.001	0.94 (0.76-1.17)	0.604

Interest in watching porn movies								
No	1.00		1.00		1.00		1.00	
Yes	2.68 (2.34-3.07)	0.001	1.10 (0.92-1.32)	0.307	2.90 (2.45-3.43)	0.001	1.03 (0.82-1.29)	0.816
Interest in listening to music								
No	1.00		1.00		1.00		1.00	
Yes	0.85 (0.73-1.00)	0.060	0.95 (0.77-1.16)	0.608	0.64 (0.53-0.78)	0.001	0.85 (0.67-1.08)	0.188
Being sexually abused in childhood								
No	1.00		1.00		1.00		1.00	
Yes	5.84 (4.96-6.88)	0.001	1.90 (1.53-2.36)	0.001	6.56 (5.43-7.92)	0.001	1.29 (1.00-1.67)	0.054
A history of running away from home								
No	1.00		1.00		1.00		1.00	
Yes	5.55 (4.76-6.46)	0.001	1.17 (0.95-1.46)	0.145	8.55 (7.17-10.19)	0.001	2.10 (1.64-2.68)	0.001
History of escape from school								
No	1.00		1.00		1.00		1.00	
Yes	3.67 (3.20-4.20)	0.001	1.60 (1.33-1.93)	0.001	4.01 (3.39-4.74)	0.001	1.39 (1.10-1.76)	0.005
Being at kindergarten in childhood								
No	1.00		1.00		1.00		1.00	
Yes	1.92 (1.67-2.20)	0.001	1.28 (1.08-1.52)	0.005	1.84 (1.56-2.19)	0.001	1.25 (1.01-1.56)	0.044
Using psychiatric medications								
No	1.00		1.00		1.00		1.00	
Yes	5.36 (4.60-6.24)	0.001	2.23 (1.83-2.72)	0.001	6.58 (5.51-7.86)	0.001	1.75 (1.38-2.22)	0.001
Having sexual satisfaction								
No	1.00		1.00		1.00		1.00	
Yes	0.37 (0.32-0.42)	0.001	0.85 (0.70-1.02)	0.085	0.37 (0.31-0.44)	0.001	0.65 (0.51-0.83)	0.001
Attachment to parents								
Low	1.00		1.00		1.00		1.00	
High	0.40 (0.34-0.46)	0.001	0.71 (0.60-0.85)	0.001	0.41 (0.35-0.50)	0.001	0.86 (0.69-1.08)	0.194
Family conflict and hostility								
Low	1.00		1.00		1.00		1.00	
High	1.99 (1.74-2.27)	0.001	1.26 (1.07-1.48)	0.006	2.24 (1.89-2.64)	0.001	1.30 (1.06-1.60)	0.013

† Odds ratio (OR) adjusted for all variables in the table

Discussion

The results of this survey indicated that high-risk behaviors are multifactorial behaviors associated with several demographic, social, cultural, and religious factors. Almost 27.6% of the Iranian adult population had engaged in at least one out of five risky behaviors. Furthermore, engaging in any risky behavior can increase the risk of engaging in other risky behaviors and vice versa. Therefore, to prevent high-risk behaviors among the adult population, general regulations are required to cover all risky behaviors simultaneously. That means preventive programs must target all sorts of risky behaviors. People who engage in one risky behavior are more likely to engage in a subsequent risky behavior (13-15). They may share several biological and environmental factors. Therefore, effective prevention programs must affect more than one behavior (16).

Based on our findings, the prevalence of suicidal thoughts and was 8.8% and 5.4%, respectively.

Several demographical, psychological, biological, social, and cultural factors may influence suicidal behaviors (17,18). Moreover, psychological disorders (19,20), drinking alcohol (21), using illicit drugs (22), smoking (23) can increase the risk of suicidal behaviors. Although suicide may not be visible, it seems like an iceberg that requires special attention. There is a consensus that the rates of suicidal behaviors are usually underestimated and underreported (24,25). Many people who have suicidal thoughts or suicide plans may never present to health services to seek help (26). Therefore, suicide is a hidden general health problem that must be the focus of special attention.

According to our findings, although drinking alcohol is legally forbidden in Iran, about 16.8% of the Iranian adult population drink alcohol. Previous epidemiological studies revealed that alcohol misuse was associated with gender (27), deprivation (28), risky sexual behaviors (29), and many sociodemographic characteristics (30-33). Alcohol use is a public health problem that if neglected may be associated with subsequent harmful drinking-related morbidities and mortalities.

Based on our findings, more than 10% of the Iranian adult population used an illicit drug that was associated with several social and environmental elements. We also indicated that illicit drug use was correlated with some conditions date back to early childhood events such as being sexually abused or escaping from home or school and being in kindergarten during childhood. Illicit drug use is also associated with many other factors such as imprisonment (34), educational level (35), and even genetic factors (36). Opioid use disorders are the most common type of illicit drug use in Iran (37) that can result in severe economic and social consequences (38).

This study had some limitations and potential biases as follows. First, this study, like any cross-sectional study was associated with an inherent bias regarding the temporality of the exposures and outcomes. Furthermore, predisposing factors are not separate elements, but they should be considered collectively. Some factors promote while some factors inhibit the occurrence of an event. The interaction of these factors determines whether or not an event occurs (39). Second, we asked some sensitive questions that are cultural and religious taboos in our country. Although participants filled out the questionnaires anonymously, so some participants might give incorrect answers to these questions. Therefore, these factors might be underestimated, and the results might be biased. Although this national survey provides a good picture of the prevalence of health-risk behaviors and their predisposing factors among the Iranian adult population, however, due to the limitations and potential biases mentioned above, the generalizability of the results to the Iranian general population should be done with caution.

Conclusion

More than one-fourth Iranian adult population was involved in at least one risky behavior. Risky behaviors were associated with several demographical, social, and cultural factors, some of which date back to early childhood events. The high-risk behaviors seem to have a synergistic reinforcing effect on one another so that engaging in one risky behavior increased the risk of engaging in other risky behaviors and vice versa. Therefore, preventive measures are not effective or efficient to manage behavioral risks unless they include several risky behaviors simultaneously.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors have no conflict of interest to declare.

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