



## A Systematic Review of Risky Behaviors in Adolescence and Their Related Factors: Evidence from Iran

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### Abstract

**Background:** Adolescence is one of the most challenging, stressful, attractive, and, at the same time, problematic periods of life for adolescents, as well as for their parents, teachers, and healthcare providers. The present study aims to evaluate the tendency toward high-risk behaviors and the factors associated with adolescent risk behaviors among Iranian adolescents.

**Materials and Methods:** In this systematic review, online databases (Medline, EMBASE, Scopus, Web of Science, Cochrane Library, CINAHL, CIVILICA, and the Google Scholar search engine) were reviewed with no time limit up to March 2023. Two reviewers evaluated the quality of eligible studies and conducted the selection procedure. The quality of the data was assessed using the STROBE guidelines.

**Results:** Finally, 19 studies were selected. The prevalence of high-risk behaviors in adolescents was 34.2% (range: 5.4% - 63.1%). The selected studies highlighted five forms of high-risk behaviors: hookah smoking (6.9% - 59%), cigarette smoking (10.9% - 44.1%), substance abuse (1.8% - 31.1%), sexual risk behaviors (14.5% - 41.6%), and violence (23.4%). There was a significant negative relationship between religious tendencies and the risky behaviors of students. Additionally, there was a significant relationship between age, gender, field of study, health literacy, family income, family structure, attachment to family and peers, commitment to norms, belief in moral principles, social inhibitions, and the tendency toward high-risk behaviors ( $p < 0.05$ ).

**Conclusion:** The prevalence of high-risk behaviors among adolescents is significant. The supply of tobacco products to teenagers should be prohibited. It is essential to create healthy recreational activities (such as sports and cultural competitions), develop programs, and design educational interventions to prevent risky behaviors while enhancing communication skills and self-efficacy in adolescents. Additionally, it is recommended that parents and teachers strengthen religious beliefs in adolescents.

**Key Words:** Adolescents, Risky Behaviors, Iran, Related Factors.

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## 1- INTRODUCTION

Adolescence is a transitional stage of physical and psychological development that generally spans from puberty to adulthood (1, 2). This transition encompasses biological, psychological, social, and emotional dimensions that expose teenagers to significant stress (3-7). The World Health Organization (WHO) officially defines an adolescent as someone between the ages of ten and 19 (8). Adolescents are often characterized by a heightened propensity for risk-taking and impulsivity, as exemplified by the clustering of risky behaviors, including alcohol consumption, drug use, antisocial behaviors, and unprotected sexual activity. There is ample evidence that risk-taking rises sharply during adolescence (9-12). For nearly two decades, the prevalence of risky behaviors, particularly among teenagers and young adults, has become one of the most pressing concerns for societies (13).

High-risk behaviors are defined as actions that increase the risk of disease or injury and may subsequently lead to disability, death, or social problems. The most common high-risk behaviors include violence, alcoholism, tobacco use disorder, risky sexual behaviors, and eating disorders (14-16). Studies have shown that most high-risk behaviors begin before the age of 18 and encompass smoking, alcohol, and drug use (14-21). Research conducted in Iran indicates that the prevalence of high-risk behaviors among teenagers has been significant in recent years (22-24). Several studies also highlight the prevalence of high-risk behaviors such as cigarette smoking, hookah use, alcohol consumption, and drug use among teenagers aged 14 to 18 (25-30).

According to the latest national census, 28% of the country's population falls within the age range of 10 to 19 years (31). The prevalence of high-risk behaviors

among teenagers and young people has become a social issue in Iran in recent years, raising intense concerns at various managerial, academic, and societal levels. Given that adolescents are particularly vulnerable to risky behaviors, it is essential to investigate these behaviors to develop preventive programs and promote health (32, 33). This study aimed to evaluate the tendency toward high-risk behaviors and the factors associated with adolescent risk behaviors among Iranians aged 10 to 19.

## 2- MATERIALS AND METHODS

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement was used as the template for this review (34).

### 2-1. Eligibility criteria

Participants, Interventions, Comparators, and Outcomes (PICO) were used to formulate the review objective and inclusion criteria.

#### 2-1-1. P (Participants):

Iranian adolescents (aged 10 to 19 years).

#### 2-1-2. I (Intervention/Exposure):

Factors associated with risk behaviors.

#### 2-1-3. C (Comparison):

The absence of risk behaviors.

#### 2-1-4. O (Outcomes):

High-risk behaviors, including substance use (alcohol consumption, tobacco smoking, and substance abuse), sexual risk behaviors, and aggressive or violent behavior.

### 2-2. Included Studies

The systematic review included studies that contained any quantitative assessment, measurement, or evaluation of high-risk behaviors in adolescents (high school students only) in Iran, published up to March 2023, written in English or Persian, and with full text available.

### 2-3. Exclusion Criteria

The exclusion criteria included abstracts without the full article, articles not written in English or Persian, review articles, systematic reviews and meta-analyses, letters to the editor, editorials, short reports, case reports, and briefs.

### 2-4. Information sources

A systematic search of electronic databases, including Medline, EMBASE, Scopus, Web of Science, Cochrane Library, CINAHL, CIVILICA, and the Google Scholar search engine, was conducted. The search was performed independently and in duplicate by two reviewers, and any disagreements between the reviewers were resolved by the supervisor.

### 2-5. Search

Search terms were a combination of (Students OR High School Students OR Adolescents OR Teenagers) AND (High-Risk Behaviors OR Risky Behaviors OR Behaviors OR Risk Factors) AND (Prevalence) AND (Iran).

### 2-6. Study selection

The studies selected reported the prevalence of tobacco smoking, alcohol consumption, substance abuse, sexual behavior, violence, and factors associated with adolescent risk behaviors among Iranians aged 10 to 19 years. A database search was conducted to identify potential studies; abstracts were screened for eligibility, full-text articles were obtained and assessed, and a final list of included studies was compiled. This process was carried out independently and in duplicate by two reviewers, with any disagreements resolved by a third reviewer. References were organized and managed using EndNote software (version X8).

### 2-7. Data collection

Two reviewers independently collected data and gathered information based on the

following parameters: author names, study period, study design, settings, sample size, gender, and main findings.

### 2-8. Risk of bias in individual studies

The risk of bias was assessed following the standard STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines (35). This is a valuable tool for evaluating the quality of observational studies. The checklist consists of 22 items, scored based on the importance of each item in the present study. The final score for the checklist was 30, while the minimum score was 15.0. The assessment was conducted independently and in duplicate by two reviewers, with any discrepancies resolved by a third reviewer.

### 2-9. Synthesis of results

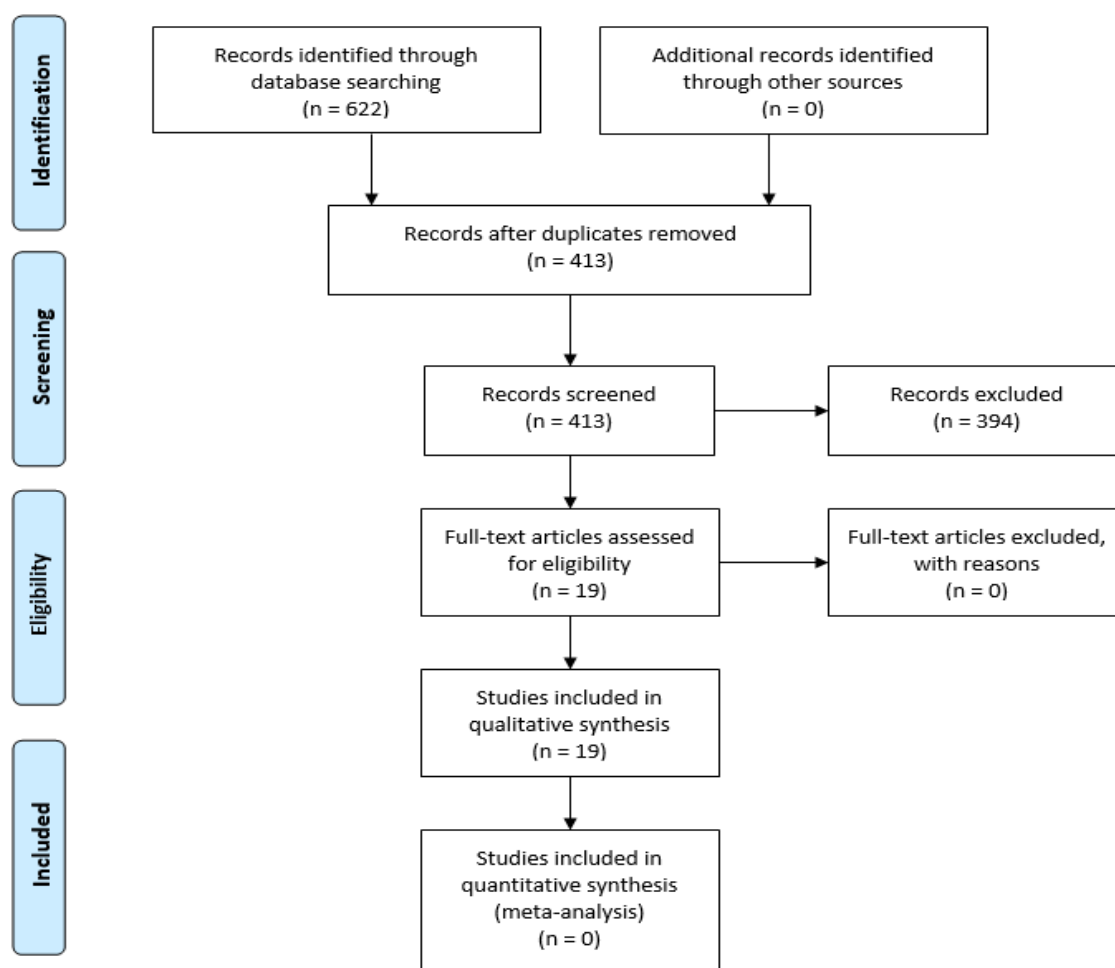
Due to the heterogeneity of the studies (including different populations, varying numbers of risk behaviors, and differing risk factors), no meta-analysis was conducted.

### 2-10. Ethical considerations

Approval from a research ethics committee was not necessary, as the study analyzed only publicly available articles. The research adhered to ethical standards by respecting copyright laws and ensuring transparency in methods and sources.

## 3- RESULTS

A total of 19 studies, comprising 8,027 adolescents between 2011 and 2021, were selected (**Figure 1**). The majority (77.25%) of the studies included in this review analyzed both boys and girls, while approximately 14.82% included only boys and 7.93% included only girls. The quality of reporting in the studied articles was acceptable based on the STROBE scale. The main characteristics of the selected studies are summarized in **Table 1** and the following sections:



**Fig.1:** PRISMA flowchart.

**1.** A cross-sectional study conducted in 2013 on 1,280 high school students in Tehran aimed to investigate the prevalence of high-risk behaviors among this population. The results indicated that the most common risky behaviors among teenagers included smoking hookah and cigarettes, engaging in sexual activity, experiencing physical violence outside the home, and consuming alcohol. The average prevalence of high-risk behaviors was higher in boys than in girls (36).

**2.** A cross-sectional study involving 3,529 high school students from 30 high schools in Tehran in 2012 aimed to evaluate the role of family variables in adolescents' tendency toward high-risk behaviors. The results indicated that adolescents' tendency toward high-risk behaviors was significantly related to family factors.

These findings demonstrate the significant influence of family factors—particularly smoking, alcohol consumption, and drug abuse among family members—on Iranian adolescents' tendency toward high-risk behaviors (37).

**3.** A cross-sectional study involving 245 adolescents in northern Tehran in 2018 aimed to explore the prevalence of risky behaviors among this population. The results indicated that 6.9% of students had carried cold weapons at least once, 15.17% had experienced drug use (including opium and hash) at least once, 21.3% had consumed alcohol, 41.66% had engaged in sexual relations with the opposite sex, and 44.1% had smoked (38).

**4.** A cross-sectional study involving 450 high school students in Tehran from 2011

to 2012 aimed to assess the prevalence of risky behaviors and their relationship to religious orientations among students from Shaahed and public schools. The results indicated that the prevalence of risky behaviors was 8.2% among public school students, 1.5% among Shaahed school students, and 3.2% among Shaahed students. A significant difference was found between public school students and Shaahed students regarding the mean scores of risky behaviors. Additionally, a significant negative relationship was observed between religious tendencies ( $p < 0.05$ ) and the risky behaviors of both public and Shaahed students. Considering subsidiary hypotheses, a significant positive relationship was identified between age and field of study ( $p < 0.05$ ) and risky behaviors in public school students (39).

**5.** A descriptive cross-sectional study involving 252 students in Qom from 2019 to 2020 aimed to predict adolescents' tendency toward high-risk behaviors based on parenting style and healthy lifestyle. The results indicated a significant relationship between parenting style (control and affection) and three aspects of lifestyle (spiritual growth, health accountability, and exercise/physical activity). According to the calculated coefficient of determination, parenting style and healthy lifestyles in adolescents can explain 30% of the variance in their risk behaviors. Furthermore, based on the calculated beta coefficient, a healthy lifestyle has a greater impact on the emergence of adolescents' risk behaviors than parenting style (40).

**6.** A cross-sectional study involving 800 high school students in Qom in 2016 aimed to estimate the prevalence of health risk behaviors among this population. The results indicated that the prevalence of high-risk behaviors in the studied population was 56.25%. Statistically significant differences were found between

both sexes regarding the prevalence of physical contact at school and outside of school over the course of a year, carrying a sharp weapon to school within a month, smoking at school during a month, and hookah smoking, as well as the use of alcohol and drugs within a month ( $p < 0.05$ ) (30).

**7.** A cross-sectional study involving 180 high school students in Shiraz from 2019 to 2020 aimed to predict high-risk behaviors based on psychological motives in female teenagers. The results indicated that emotional and reckless motivations played the most significant role in predicting female adolescents' willingness to use drugs. Emotional motivation was the primary factor in predicting the tendency of teenage girls to consume alcohol. Additionally, regression coefficients revealed that irresponsibility and recklessness were the most important predictors of the smoking trend variable (41).

**8.** A cross-sectional study conducted in 2020 evaluated the predictive model of high-risk behaviors in Iranian male adolescents based on psychological motivations. The study included 450 male high school students from Shiraz, selected through convenience sampling. The results showed that thrill-seeking, irresponsibility, calculation, and hedonistic motivations significantly predicted high-risk behaviors, collectively explaining 44% of the variance in these behaviors. Among these, thrill-seeking and recklessness were the strongest predictors of tendencies toward substance use, including alcohol and drugs, while motivations had the least impact on smoking (42).

**9.** A cross-sectional study involving 400 high school adolescents in Kashan in 2012 aimed to investigate high-risk behaviors and their association with demographic characteristics. The results indicated that 28.7% of boys and 22.5% of girls engaged in risky behaviors. A significant difference

was found between general high-risk behaviors and specific domains such as tobacco use, sexual high-risk behaviors, acquired immunodeficiency syndrome (AIDS) behaviors, and law-breaking among girls and boys. Additionally, a significant relationship was identified between high-risk behaviors and several individual, family, and social factors ( $p < 0.05$ ) (43).

**10.** A cross-sectional study involving 400 high school adolescents in Kashan from December 2014 to June 2017 aimed to evaluate the relationship between risky behaviors and sensation-seeking in a sample of Iranian adolescents. The results indicated that risky behaviors were observed in 51.2% of students, with a significant difference found between male and female students in this regard ( $p < 0.05$ ). The overall sensation-seeking score, as well as the scores in the dimensions of experience-seeking, disinhibition, and boredom susceptibility, were higher in males than in females ( $p < 0.05$ ). Therefore, sensation-seeking can serve as an indicator for screening risky behaviors and should be monitored (44).

**11.** A cross-sectional study involving 510 high school students in Qazvin in 2012 aimed to estimate the prevalence of health risk behaviors among this population. The results indicated that the use of hookah was the most popular among both girls and boys (59%), compared to cigarette smoking (32.7%), drug use (7.3%), and alcohol consumption (16.7%). The prevalence of physical violence both in and outside of school over the course of a year, carrying weapons to school within a month, cigarette smoking at school within a month, and the use of hookah, alcohol, and opioids during one month were more frequently observed in boys than in girls. In contrast, seat belt use was more common among girls than boys, with an overall prevalence of 23.7% for seat belt usage (45).

**12.** A cross-sectional study involving 457 female adolescents in Zahedan in 2015 aimed to determine the prevalence of health-risk behaviors among teen girls in Southeastern Iran. The results indicated that the highest prevalence of health-risk behaviors among the students included not drinking natural fruit juice (53.1%), not wearing a seat belt (43.0%), sitting in a car while the driver is sending messages or emails (43.0%), not drinking milk daily (36.0%), lacking minimum daily physical activity (37.0%), and watching TV for more than three hours a day (35.0%). The ANOVA revealed a statistically significant difference in the average health-risk behaviors of adolescents from families with high economic status, those who never talked with their parents, and those who had physical relations with the opposite sex ( $p < 0.001$ ) (46).

**13.** A cross-sectional study involving 384 high school students in Babol in 2018 aimed to investigate the association between high-risk behaviors and identity styles in adolescents. The results indicated that the most prevalent high-risk behaviors among students included aggression (23.4%), relationships with the opposite gender (14.5%), smoking cigarettes and hookah (10.9%), consuming alcohol (9.3%), suicidal thoughts and attempts (5.7%), running away from home (3.9%), and using psychotropic substances (1.8%). Regression analysis showed that only the informational identity style had a significant negative correlation with high-risk behaviors (47).

**14.** A descriptive-analytical cross-sectional study involving 716 high school students in Bushehr in 2019 aimed to determine the status of adolescents' tendencies toward high-risk behaviors and related factors. The results indicated that high-risk driving had the highest mean score ( $14.5 \pm 88.67$ , range: 5-25). There was a direct and significant relationship among all three high-risk behavior subscales: smoking,

violence, and high-risk driving. The presence of smoking friends had significant direct relationships with all three high-risk behaviors, and the amount of pocket money had a significant direct relationship with the tendency toward high-risk driving ( $p = 0.016$ ) (48).

**15.** A cross-sectional study involving 377 male high school students in Bushehr in 2017 aimed to explore the prevalence of high-risk behaviors among male adolescents in southern Iran. The results indicated that the highest frequency of high-risk behaviors among male adolescents included physical contact and fighting outside of school (22.81%), hookah consumption within a month (19.62%), physical contact and fighting at school within a year (18.30%), and smoking cigarettes outside of school in a month (11.14%). Additionally, the rates of hookah consumption within a month and outside of school were reported as 19.62% and 11.14%, respectively (49).

**16.** A cross-sectional study involving 334 high school students in Rabor in 2021 aimed to investigate the relationship between high-risk behaviors (HRB) and mental health in adolescents. The results indicated that being male is a risk factor for alcohol consumption, smoking, and other substance use, as well as for engaging in high-risk sexual behaviors, depression, and suicidal tendencies among adolescents. The variables of age, sex, parental marital status, number of children in the family, educational level, and substance use (smoking, hookah, and alcohol) were identified as influential and facilitating factors in the HRB of adolescents. Adolescents with better mental health tend to be physically healthier, exhibit more positive social behaviors, and engage in fewer risky behaviors. In contrast, adolescents with mental health issues such as depression are more likely to engage in risky behaviors (50).

**17.** A descriptive cross-sectional study involving 560 high school students in West Azerbaijan province from 2019 to 2020 aimed to investigate the relationship between health literacy and high-risk behaviors, focusing on the mediating role of positive adolescent development among students. The results indicated that health literacy had a significant relationship with high-risk behaviors and reduced the tendency toward such behaviors. The total mean score of high-risk behaviors among students was  $20.57 \pm 13.64$  (addiction:  $5.21 \pm 4.98$ , alcohol:  $4.92 \pm 4.85$ , sexual behaviors:  $3.27 \pm 2.75$ , and violence:  $7.20 \pm 5.08$ ) (51).

**18.** A cross-sectional study involving 384 high school students in Guilan province from 2020 to 2021 aimed to determine the prevalence of smoking, alcohol consumption, and drug use among adolescent students. The results indicated that the most prevalent high-risk behaviors among these students were smoking (34.96%), drug use (31.17%), and alcohol consumption (30.62%). These findings highlight a significant concern regarding substance use among adolescents in this region, suggesting the need for targeted interventions and educational programs to address these high-risk behaviors and promote healthier lifestyle choices among young people (52).

**19.** A cross-sectional study involving 363 male high school students in Sanandaj in 2018 aimed to determine the factors associated with high-risk behaviors among students based on the Health Belief Model. The results indicated that the prevalence of high-risk behaviors among the students was 63.1%. A significant statistical difference was found between students with high-risk behaviors and those without regarding knowledge, perceived susceptibility, cues to action, perceived barriers, and perceived self-efficacy ( $p < 0.05$ ) (53).

**Table-1:** The general characteristics of included studies (n=19).

Authors, Study period, References	Study design	Area	Sample size	Gender	Setting	Main results	*Quality assessment result
Rashid, 2013, 36	cross-sectional study	Tehran	1280	M/F	High school	The most common risky behaviors among teenagers were, respectively, smoking hookah, smoking cigarettes, engaging in sexual activity, experiencing physical violence outside the home, and consuming alcohol.	17
Panaghi et al., 2012, 37	cross-correlation	Tehran	3529	M/F	High school	The results demonstrate the significant role of family factors—especially smoking, alcohol consumption, and drug abuse among family members—in Iranian adolescents' tendency toward high-risk behaviors.	17
Marashi et al., 2018, 38	cross-sectional study	Tehran	245	M/F	High school	6.9% of students had carried cold weapons at least once; 15.17% had used drugs (opium and hash); 21.3% consumed alcohol; 41.66% had engaged in sexual relations with the opposite sex; and 44.1% had smoked.	19
Valizadeh et al., 2011-2012, 39	cross-sectional study	Tehran	450	M/F	High school	The prevalence of risky behaviors was 8.2% among public school students, 1.5% among Shaahed school students, and 3.2% among Shaahede Shaahed students.	18
Abbasi et al. 2019-2020, 40	cross-sectional study	Qom	252	M/F	High school	Parenting styles and healthy lifestyle choices in adolescents can explain 30% of the variations in their risk behaviors. Additionally, healthy lifestyle choices have a greater impact on the emergence of risk behaviors in adolescents than parenting styles.	17
Marzban et al., 2016, 30	cross-sectional study	Qom	800	M/F	High school	The prevalence of high-risk behaviors in the studied population was 56.25%.	17
Sehat et al., 2019-2020, 41	cross-sectional study	Shiraz	180	F	High school	Emotional and reckless motivations played the most significant roles in predicting female adolescents' willingness to use drugs. Additionally, emotional motivation was the primary factor in predicting the tendency of teenage girls to consume alcohol.	16
Aminimanesh et al., 2020, 42	cross-sectional study	Shiraz	450	M	High school	Based on the results, thrill-seeking, calculation, audience control, irresponsibility, and hedonistic motivation were significantly related to high-risk behaviors.	17
Aghajni et al., 2012, 43	cross-sectional study	Kashan	400	M/F	High school	The results indicated that 28.7% of boys and 22.5% of girls exhibited risky behaviors.	18
Safa et al., 2014-2017, 44	cross-sectional study	Kashan	400	M/F	High school	More than half of the adolescents (51.2%) exhibited risky behaviors. Additionally, a significant difference was found between male and female students in this regard.	18
Esmailzadeh et al., 2012, 45	cross-correlation	Qazvin	510	M/F	High school	The use of hookah was the most popular activity among both girls and boys (59%), compared to cigarette smoking (32.7%), drug use (7.3%), and alcohol consumption (16.7%).	19

Shahraki-Sanavi et al., 2015, 46	cross-correlation	Zahedan	457	F	High school	The highest prevalence of health-risk behaviors among students included the following: failing to drink natural fruit juice (53.1%), not wearing a seat belt (43.0%), sitting in a car while the driver is texting or emailing (43.0%), and not drinking milk daily (36.0%), among others.	19
Zabihi et al., 2018, 47	cross-sectional study	Babol	384	M/F	High school	The most prevalent high-risk behaviors among adolescents included aggression (23.4%), relationships with the opposite gender (14.5%), smoking cigarettes and hookah (10.9%), consuming alcohol (9.3%), and suicidal thoughts and attempts (5.7%), among others.	18
Zarei et al., 2019, 48	cross-sectional study	Bushehr	716	M/F	High school	High-risk driving had the highest mean score ( $14.5 \pm 8.67$ , range: 5–25).	18
Sotoudeh et al., 2017, 49	cross-sectional study	Bushehr	377	M	High school	The highest frequency of high-risk behaviors among adolescents included physical contact and struggle outside of school (22.81%), hookah consumption (19.62%), physical contact and struggle within school (18.30%), and smoking cigarettes outside of school (11.14%).	19
Jalali et al., 2021, 50	cross-sectional study	Rabor	334	M/F	High school	The male gender is a risk factor for alcohol and substance use, as well as for tendencies toward high-risk sexual behaviors, depression, and suicide in adolescents.	16
Brouki Milan et al., 2019-2020, 51	cross-sectional study	West Azerbaijan province	560	M/F	High school	The total mean score for high-risk behaviors in students was $20.57 \pm 13.64$ , with the following breakdown: addiction ( $5.21 \pm 4.98$ ), alcohol use ( $4.92 \pm 4.85$ ), sexual behaviors ( $3.27 \pm 2.75$ ), and violence ( $7.20 \pm 5.08$ ).	18
Omidpour et al., 2020-2021, 52	cross-sectional study	Guilan province	384	M/F	High school	The most common high-risk behaviors among adolescent students were smoking (34.96%), drug use (31.17%), and alcohol consumption (30.62%).	19
Panahi et al., 2019, 53	cross-sectional study	Sanandaj	363	M	High school	The prevalence of high-risk behaviors among students was 63.1%.	17

\*Based on the STROBE checklist (35). M: male, F: female.

#### 4- DISCUSSION

This study aimed to investigate the tendency toward high-risk behaviors and the associated factors influencing adolescent risk behaviors among Iranians aged 10 to 19 years. The results indicated that the prevalence of high-risk behaviors in adolescents was 34.2%. The most common forms of high-risk behaviors, in order of prevalence, were hookah smoking, cigarette smoking, substance abuse, sexual risk behaviors, and violence. There was a significant relationship

between age, gender, field of study, health literacy, family income, family structure, attachment to family and friends, commitment to norms, belief in moral principles, social inhibitions, and the tendency toward high-risk behaviors ( $p < 0.05$ ).

Health-threatening behaviors are among the most significant health and psychosocial challenges faced by many countries, imposing extensive and severe problems on societies. Despite numerous efforts over the last two decades to

increase public awareness of the harms and dangers associated with high-risk behaviors, societies continue to see a rise in these behaviors, particularly among young people and teenagers (54). Adolescence is a crucial and formative period in life. Puberty, as an extremely sensitive stage of development, marks the transition from childhood to adulthood, underscoring the importance of this phase. During this time, a series of physical, psychological, and social changes occur, laying the foundation for adult life into old age. The unique characteristics of the changes during puberty and adolescence can make individuals particularly vulnerable to specific problems (31-33).

Surveys have shown that high-risk behaviors, such as smoking and the consumption of alcohol and other substances, are prevalent among middle school and high school students (21). The present review indicated that the prevalence of high-risk behaviors among Iranian adolescents is notably high, ranging from 5.4% to 63.1%.

Researchers believe that the increasing tendency of teenagers toward high-risk behaviors reflects the emotional and psychological challenges they face. Experts assert that feelings of depression, loneliness, and isolation are often directly associated with high-risk behaviors in teenagers, particularly suicide. Conversely, high self-esteem and strong social support networks serve as protective factors against high-risk behaviors such as smoking, alcohol consumption, and antisocial activities (55, 56). One study identified several causes of risky behaviors, including biological (genetic), personal, environmental, social (gender and race), and cultural factors (57). According to the latest national census, 28% of Iran's population falls within the age range of 10 to 19 years. Therefore, understanding the high-risk behaviors of this age group is essential for future

planning and for implementing logical, principled interventions aimed at reducing such behaviors (31, 32).

The present study identified the most common high-risk behaviors among adolescents as tobacco smoking (including cigarettes and hookah), substance abuse, sexual risk behaviors, and violence, respectively. Tobacco use is evolving among adolescents, and any form of tobacco product use—whether smoked, smokeless, or electronic—is unsafe. The initiation and establishment of tobacco product use primarily occur during adolescence (58, 59). Nearly nine out of ten adults who smoke cigarettes daily first tried smoking by age 18, and 99% had their first experience with smoking by age 26 (59). The results of the present review indicated that the prevalence of hookah use among Iranian adolescents ranged from 6.9% to 59%, while cigarette smoking ranged from 10.9% to 44.1%. In 2022, approximately four out of every 100 middle school students (4.5%) and about one in every six high school students (16.5%) in the United States reported current use of a tobacco product. Additionally, in 2022, 0.5% of middle school students and 1.5% of high school students reported having smoked hookah in the past 30 days (60, 61).

The results of the present review indicated that substance abuse (ranging from 1.8% to 31.1%) and alcohol consumption (ranging from 9.3% to 30.6%) among Iranian adolescents are notably high. According to the 2019 Youth Risk Behavior Survey (YRBS), alcohol is the most commonly used substance among young people in the U.S. (62). The YRBS results, which included data from 13,677 high school students, showed that 29% consumed alcohol, 14% engaged in binge drinking, 5% of drivers operated a vehicle after drinking alcohol, 17% rode with a driver who had been drinking, and 8% had been involved in a physical fight at school.

The consumption of alcohol, drugs, and tobacco adversely affects the developing brain; their use can alter brain structure and impair decision-making abilities, even after a single instance. The most commonly abused substances among adolescents are alcohol and psychotropic drugs (62, 63). Several studies have shown that youth who consume alcohol are more likely to experience various negative outcomes (63-66):

- School problems, such as higher rates of absenteeism or lower grades
- Social issues, such as fighting or lack of participation in youth activities
- Legal problems, such as being arrested for driving under the influence or physically harming someone while intoxicated
- Physical health issues, such as hangovers or illnesses
- Unwanted, unplanned, and unprotected sexual activity
- Disruption of normal growth or sexual development
- Physical and sexual violence
- Increased risk of suicide and homicide
- Alcohol-related motor vehicle crashes and other unintentional injuries, such as burns, falls, or drowning
- Memory impairments
- Misuse of other substances
- Changes in brain development that may have lifelong effects, and
- Alcohol poisoning.

The results of the present review indicated that sexual risk behaviors among Iranian adolescents (ranging from 14.5% to 41.6%) are prevalent and concerning. Such behaviors place youth at risk for human immunodeficiency virus (HIV) infection, sexually transmitted diseases (STDs), and unintended pregnancies. Among U.S. high school students surveyed in 2019, 38%

reported having experienced sexual intercourse (67). When adolescents become sexually active, their behaviors can often lead to sexually transmitted infections (STIs), and unplanned pregnancies. Although many STIs are treatable, symptoms and complications from infections such as herpes and HIV must be managed for life. Most teenagers who engage in sexual activity do not use consistent birth control methods or protection, or they do not use them properly, both of which increase the risk of unplanned pregnancies (33, 68). School health programs can help young people adopt lifelong attitudes and behaviors that support their health and well-being, including practices that reduce their risk of HIV and other STDs. These programs should provide basic, accurate health information that directly contributes to health-promoting decisions and behaviors.

The present review indicated that the prevalence of violence among Iranian adolescents is high, at 23.4%. Youth violence is a significant public health issue that affects thousands of young people, as well as their families, schools, and communities. It can have serious and long-lasting effects on young people's physical, mental, and social health, hinder their development, and contribute to impaired decision-making, learning challenges, decreased connections with peers and adults, and difficulties in coping with stress. Violence also increases healthcare costs, lowers property values, harms school attendance, and reduces access to community support services. A combination of individual factors (such as a history of violent victimization, attention deficits, involvement with drugs, alcohol, or tobacco, and antisocial beliefs and attitudes), family factors (including authoritarian child-rearing attitudes, harsh or inconsistent disciplinary practices, and parental substance abuse), peer and social factors (such as association with

delinquent peers and poor academic performance), and community factors (like limited economic opportunities, high concentrations of impoverished residents, and socially disorganized neighborhoods) contribute to the risk of youth violence. It is essential to protect young people and support their growth into healthy adults. Certain factors may influence the likelihood of youth experiencing or perpetrating violence. Preventing youth violence requires an understanding of and addressing risk and protective factors at the individual, relational, community, and societal levels (57, 67, 69-70).

In the present review, a significant negative relationship was found between religious tendencies and the risky behaviors of students. Religiosity serves as a protective factor against such behaviors, often referred to as a shield (71). Studies have shown that young people who believe in God and recognize the significant role of religion in their lives are less likely to engage in risky behaviors, such as violence and early sexual relations, compared to their non-religious peers (72-74). A meta-analysis of 40 studies examining the relationship between religion and both destructive and constructive behaviors revealed a significant positive relationship between religiosity and constructive behaviors (75). Consequently, strengthening religiosity and religious beliefs among students may lead to a decrease in risky behaviors.

## 5- CONCLUSION

Adolescence is recognized as a period of vulnerability, during which individuals are particularly at risk and exposed to high-risk behaviors. Such behaviors endanger the health and well-being of adolescents as well as those around them. According to the present review, the prevalence of high-risk behaviors among Iranian adolescents is notably high. The five most common high-risk behaviors

identified were, in order of prevalence: cigarette smoking, hookah smoking, substance abuse, sexual risk behaviors, and violence.

There is a significant relationship between age, gender, field of study, health literacy, family income, family structure, attachment to family and peers, commitment to norms, belief in moral principles, social inhibitions, and the tendency toward high-risk behaviors. It is crucial to protect youth and support their development into healthy adults. Therefore, the sale of tobacco products to adolescents should be prohibited.

Creating healthy recreational activities (such as sports and cultural competitions), developing programs, and designing educational interventions are essential for preventing risky behaviors while enhancing communication skills and self-efficacy among adolescents.

One protective factor against risky behaviors is religiosity, which has been described as a shield. A significant negative relationship exists between religious tendencies and the risky behaviors of students. Studies indicate that young people who believe in God and recognize the importance of religion in their lives are less likely to engage in risky behaviors such as violence and early sexual relations compared to their non-religious peers. Research shows that prevention efforts involving teachers, administrators, parents, community members, and even students can effectively reduce risky behaviors and improve the school environment.

**6- CONFLICT OF INTEREST:** None.

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