Review article

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Risk Behaviors in Adolescents: A Review of Contemporary Research Jovana Erić[1,2], Sunčica Ivanović[3], Emina Nikšić[2,4], Almedina Alihodžić[4,5], Elma Sokić-Begović[2,6], Milena Cvetković-Jovanović[7,8]

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Adolescence is a sensitive developmental period in which patterns of behavior are formed that subsequently have a significant effect on health in adulthood. Contemporary research indicates that, in addition to traditional forms of risk behavior, new challenges are emerging in relation to

mental health, the digital environment, and adolescent lifestyles. The aim of this narrative literature review is to synthesize contemporary scientific knowledge on adolescent risk behaviors, with particular emphasis on risk factors, protective factors, and preventive strategies.

A narrative literature review was conducted by searching the PubMed, Web of Science, and Scopus electronic databases, focusing on papers published from January 2021 to May 2026.

The studies analyzed indicate associations between various forms of adolescent risk behavior and the social, socioeconomic, and digital environments. Findings from systematic reviews and meta-analyses indicate that more frequent social media use is associated with alcohol consumption, tobacco and other psychoactive substance use, and risky sexual behaviors, while exposure to content depicting risk behaviors is associated with the use of electronic nicotine products. Family communication, parental monitoring, and a sense of belonging at school stand out as important protective factors. Comprehensive school interventions have shown beneficial effects on certain risk behaviors, but their effectiveness has not been confirmed for all outcomes analyzed.

Adolescent risk behaviors are associated with numerous individual, family, school, and social factors, including the digital environment. Family support and a positive school climate represent important protective factors, while the development of preventive strategies requires a comprehensive approach based on scientific evidence. Collaboration between the health and education sectors, continuous improvement of teaching staff competencies, and evaluation of the effectiveness of preventive programs are of particular importance.

Keywords: adolescents, risk factors, prevention, family, school environment

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Rizična ponašanja adolescenata: pregled savremenih istraživanja

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Adolescencija je osjetljiv razvojni period u kojem se formiraju obrasci ponašanja koji kasnije značajno utiču na zdravlje u odraslom dobu. Savremena istraživanja ukazuju da pored tradicionalnih oblika rizičnog ponašanja, javljaju se i novi izazovi povezani sa mentalnim zdravljem, digitalnim okruženjem i životnim stilovima adolescenata. Cilj ovog preglednog rada je

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da sintetizuje savremena naučna saznanja o rizičnim ponašanjima adolescenata, sa posebnim osvrtom na faktore rizika, zaštitne faktore i preventivne strategije.

Pretraga, nama dostupne literature objavljene u elektronskim bazama podataka PubMed, Web of Science i Scopus, od januara 2021 do maja 2026. godine.

Analizirani rezultati istraživanja ukazuju na promjene u trendovima rizičnih ponašanja među adolescentima, pri čemu je u delu ispitivanih populacija zabeležen pad učestalosti pušenja klasičnih cigareta, konzumacije alkohola i pojedinih rizičnih seksualnih ponašanja. Istovremeno, upotreba elektronskih cigareta i uticaj digitalnog okruženja izdvajaju se kao značajni faktori rizika savremenog doba. Najznačajnije determinante rizičnih ponašanja obuhvataju porodično i školsko okruženje, socioekonomske uslove, društvene mreže, kao i individualne i bihevioralne faktore. Pozitivna porodična i školska klima deluju sinergijski i predstavljaju značajne zaštitne faktore u prevenciji rizičnih ponašanja adolescenata. Savremeni preventivni pristupi zasnivaju se na sveobuhvatnim, multidisciplinarnim strategijama koje istovremeno obuhvataju porodicu, školu, zdravstveni sistem i lokalnu zajednicu.

Trendovi rizičnih ponašanja adolescenata mijenjaju se pod uticajem savremenog društvenog i digitalnog okruženja, te preventivne strategije moraju biti zasnovane na aktuelnim naučnim dokazima. Porodica i škola predstavljaju ključne zaštitne faktore u očuvanju zdravlja adolescenata, a kontinuirano unapređenje kompetencija nastavnog kadra i razvoj sveobuhvatnih preventivnih programa od suštinskog su značaja za zdrav i bezbjedan razvoj mladih.

Ključne riječi: adolescenti, faktori rizika, prevencija, porodica, školsko okruženje

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Introduction

Adolescence is a period of growing up marked by numerous changes and challenges. According to the World Health Organization (WHO) definition, this period covers ages 10–19 years (1). The family environment, including parental connectedness and monitoring, occupies a particularly important place in the consideration of adolescent risk behaviors (2). Important determinants of risk behaviors include behavioral (individual) factors: insufficient physical activity, an unbalanced diet, alcohol consumption, tobacco use (conventional cigarettes), electronic cigarettes (e-cigarettes), drug use, and insufficient or poor-quality sleep. In addition to the determinants of risk behaviors, environmental (social) factors are also very important: family, the school environment, socioeconomic conditions, the availability of harmful legal substances (alcohol and cigarettes), the influence of social media and other media, the community, and cultural norms (3, 4). Adolescent risk behaviors also include physical and psychological violence occurring within and outside the family, and often in the school environment. Adolescent risky sexual behaviors include unprotected sexual intercourse and other behaviors that may increase the risk of sexually transmitted infections and unintended pregnancy (5). Adolescents should, in turn, be provided with appropriate preventive health education tailored to their age and health services accessible to every individual (6). Whole-school programs that simultaneously address multiple risk behaviors and take account of school climate and student–teacher relationships are considered in the prevention of adolescent risk behaviors (7). Differences in socioeconomic status are also identified as an important phenomenon in the development of adolescent risk behaviors, yet this factor remains insufficiently researched, and preventive strategies among this population even less so (8). The aim of this review is to synthesize contemporary scientific knowledge on adolescent risk behaviors, with particular emphasis on risk factors, protective factors, and preventive strategies.

Methods

The study was designed as a narrative literature review aimed at synthesizing contemporary scientific knowledge on adolescent risk behaviors, their determinants, protective factors, and preventive strategies. The World Health Organization (WHO) definition of adolescence, covering the period from 10 to 19 years of age, was used as the initial age framework for this review, while allowing for broader or differently defined age categories in individual studies. Risk behaviors

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included tobacco and e-cigarette use, alcohol and other psychoactive substance use, risky sexual behaviors, violence, insufficient physical activity, and unhealthy dietary habits, with consideration of the influence of the digital, family, and school environments. Risk behaviors were classified on the basis of their association with adverse health and psychosocial outcomes, in accordance with the findings of the studies analyzed. The scientific literature was searched in the PubMed, Web of Science, and Scopus electronic databases, focusing on papers published between January 2021 and May 2026. The literature search consisted of individual, thematically focused searches using the keywords adolescents, risk behaviors, risk factors, prevention, family, and school environment, individually and in various combinations. In PubMed, searches were conducted using free-text keywords, without specifically using controlled MeSH descriptors. The period from January 2021 to May 2026 was selected to examine contemporary scientific knowledge and changes in patterns of adolescent risk behaviors, particularly in the context of the development of the digital environment and new public health challenges. Original observational studies, including cross-sectional and longitudinal studies, intervention studies, and relevant reviews, systematic reviews, and meta-analyses were considered. Different research designs were included to examine the prevalence of individual risk behaviors, their associations with risk and protective factors, and the effectiveness of preventive interventions. Exclusion criteria covered papers outside the thematic focus of the study, studies that did not include an adolescent population, publications unavailable in full text, and papers not published in English. Older relevant sources were used exclusively to provide a theoretical and contextual rationale for the topic. Two authors conducted the literature search. One author reviewed the titles and abstracts of the identified publications and then the full texts of potentially relevant papers. The second author checked the selection of publications for synthesis. Differences in the assessment of individual publications were resolved by agreement between the authors. The final selection was based on the publications' alignment with the aim of the review and the inclusion and exclusion criteria, taking into account their methodological characteristics and the relevance of their findings. Eleven publications were included in the final narrative synthesis. Sources cited solely to define concepts, provide theoretical explanations, or offer context served as supplementary literature. Findings were synthesized using a narrative and thematic approach, with results grouped into sections covering contemporary patterns of adolescent risk behaviors and associated factors, the influence of the family and school environments, protective factors, and preventive strategies. Because of the heterogeneity of research designs, study populations, and outcomes

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analyzed, no quantitative synthesis of the results was conducted. No formal assessment of the methodological quality of the included studies or risk of bias using validated instruments was performed. The narrative synthesis considered the methodological characteristics of the studies, including research design, study population characteristics, and outcomes analyzed, while taking into account their possible influence on the interpretation of the results.

Synthesis of Results

Contemporary Patterns of Adolescent Risk Behaviors and Associated Factors

Contemporary research on adolescent risk behaviors indicates the need to consider them within a broader social, socioeconomic, and digital context. A report by the US National Academies of Sciences, Engineering, and Medicine emphasizes the importance of social and economic conditions for adolescent health and development, as well as the need for comprehensive preventive approaches that go beyond a focus on individual risk behaviors. Socioeconomic inequalities may be associated with differences in exposure to risk factors, resource availability, and opportunities to participate in preventive programs, which is why these circumstances need to be considered when planning preventive health interventions (9).

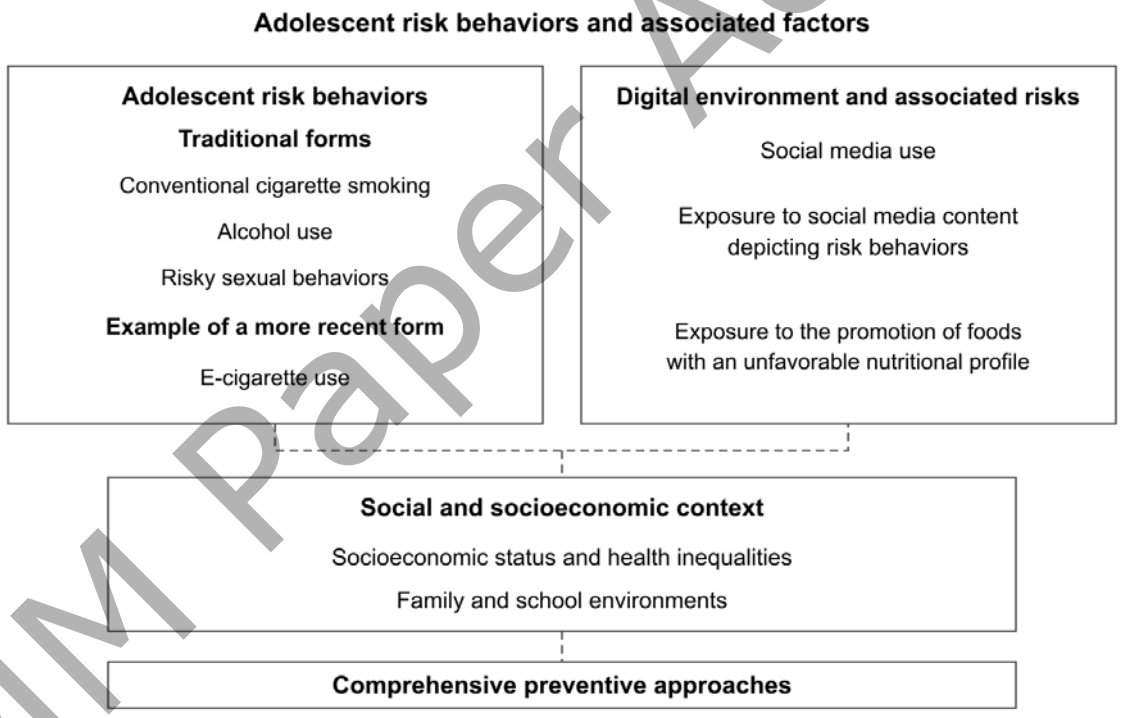
Contemporary research places particular emphasis on the association between social media use and adolescent health risk behaviors. A systematic review and meta-analysis by Purba et al. (2023), which included 126 studies and a total of 1,431,534 adolescents, found that more frequent social media use, compared with less frequent use, was associated with higher odds of alcohol consumption (OR = 1.48; 95% CI: 1.35–1.62), tobacco use (OR = 1.85; 95% CI: 1.49–2.30), other psychoactive substance use (OR = 1.28; 95% CI: 1.05–1.56), and risky sexual behaviors (OR = 1.77; 95% CI: 1.48–2.12). The authors distinguished between frequency of social media use, time spent on social media, and exposure to content depicting risk behaviors. Exposure to social media content depicting health risk behaviors, compared with no such exposure, was associated with higher odds of using electronic nicotine products (OR = 1.73; 95% CI: 1.34–2.23). These results indicate associations between certain aspects of social media use and risk behaviors, but do not confirm causal relationships or constitute indicators of temporal trends. In that systematic review, the certainty of evidence according to the GRADE methodology was rated as moderate for unhealthy dietary behaviors, low for alcohol consumption, and very

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low for the other outcomes analyzed, requiring caution when interpreting the associations identified (10).

Within the digital environment, adolescents' exposure to marketing content promoting foods and beverages with an unfavorable nutritional profile is a particular concern. In a systematic review that included six studies, Kucharczuk et al. (2022) examined the role of food and beverage advertising on social media in shaping adolescents' food choices. Notable findings included more frequent recall of unhealthy food products and the involvement of celebrities and influencers in their promotion. These results indicate the need to consider digital marketing as a potential factor associated with the formation of dietary habits, without assuming a direct causal effect on the development of obesity or other health consequences (11).

Figure 1 presents the associations between adolescent risk behaviors and social and digital factors.



Note: The diagram represents a conceptual synthesis of adolescent risk behaviors and factors associated with their occurrence, based on the literature analyzed (9–11, 14, 17, 20). The categories shown do not represent quantified temporal trends or comparable prevalence indicators. Dashed lines indicate thematic connections between the sections shown, rather than demonstrated causal relationships.

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Figure 1. Conceptual Diagram of Adolescent Risk Behaviors and Associated Social and Digital Factors

The Influence of the Family on Risk Behaviors

Fernandez et al. (2024) examined the association between family functioning and adolescent risk behaviors, including psychoactive substance use and risky sexual behaviors, in a cross-sectional study. Their findings indicate the potential importance of assessing family functioning for the early identification of adolescents exposed to health risks (12). A study by Efrati (2025), conducted among Israeli families, indicates an association between parental mental health and the quality of parent–adolescent communication. In particular, greater maternal psychopathology was found to be associated with weaker family cohesion, while greater paternal psychopathology was associated with poorer family adaptability (13). Another paper presented the first national assessment of parental monitoring among US high school students and examined the association between parental monitoring and adolescents' experiences and behaviors. A high level of parental monitoring was associated with a lower likelihood of the risk behaviors examined, which included risky sexual behaviors (early sexual intercourse, unprotected intercourse, sexually transmitted diseases, and unintended pregnancies), psychoactive substance use (cigarettes, e-cigarettes, alcohol, marijuana, and other drugs), violence (physical violence, weapon carrying, injuries at school, and threats), and indicators of poor mental health (suicidal ideation, suicide attempts, feelings of hopelessness, and sadness). The results of the study by Dittus et al. (2023) indicate that a higher level of parental monitoring is associated with a lower prevalence of several categories of adolescent risk behaviors examined; however, the cross-sectional study design does not allow conclusions about causal relationships (14). In addition to these risk behaviors, new findings suggest that the family environment plays an important role in shaping adolescents' lifestyles and habits, particularly regarding diet and physical activity. Findings from the study by Li et al. (2024) indicate associations of sociodemographic characteristics, physical activity, and health behaviors with adolescent obesity, with the authors emphasizing the importance of considering the family and wider social environments when planning preventive approaches (15). In a review, Dimitratos et al. (2022) discuss possible mechanisms linking parental stress to adolescents' dietary habits, including a tendency to consume high-calorie foods, which may be

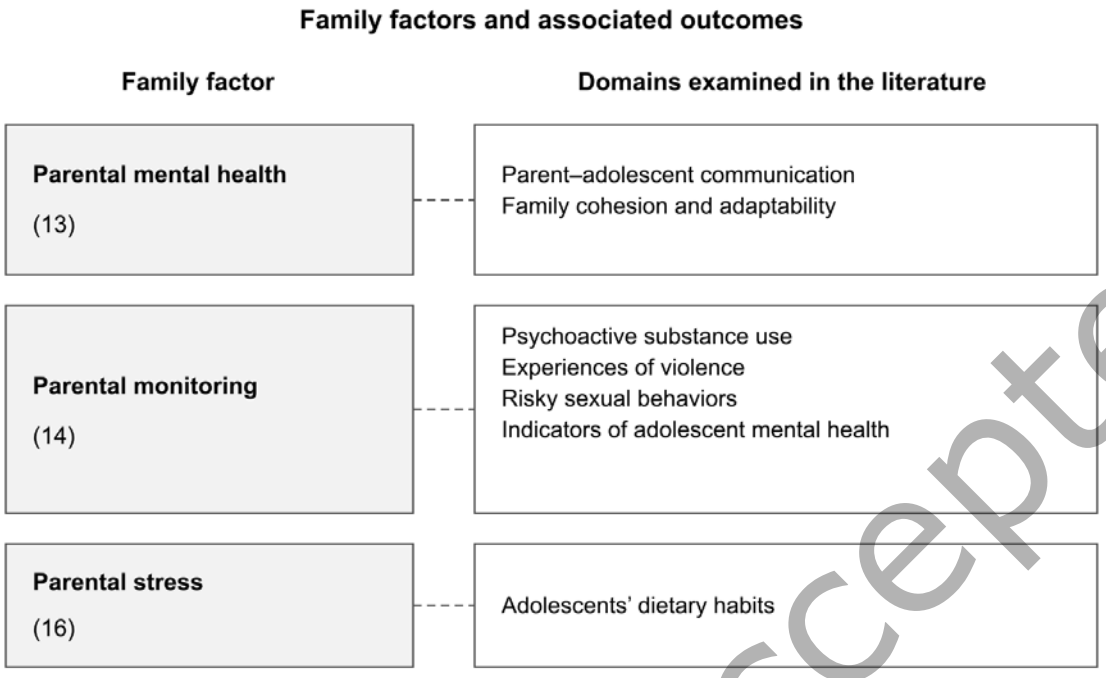
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associated with an increased risk of developing obesity (16) (Table 1). The associations between family factors and adolescent risk behaviors are shown schematically in Figure 2.

Table 1. Overview of Studies on the Influence of the Family on Risk Behaviors

Author/year	Study type	Key findings	Implications for prevention
Fernandez et al. (2024)	Cross-sectional study (secondary analysis of harmonized data)	More favorable family functioning is associated with a lower prevalence of the adolescent risk behaviors examined.	Assessment of family functioning may contribute to the early identification of adolescents at risk.
Efrati (2025)	Observational study	Greater parental psychopathology is associated with the quality of family communication, with differences observed in the associations of maternal and paternal psychopathology with family cohesion and adaptability.	The findings indicate the importance of considering parental mental health and the quality of family relationships when planning support for adolescents and their families.
Dittus et al. (2023)	Cross-sectional study; secondary analysis of national survey data from the Youth Risk Behavior Survey (YRBS)	A higher level of parental monitoring is associated with a lower prevalence of the risk behaviors examined among adolescents.	The findings indicate the importance of parental monitoring as a potential protective factor, given its association with a lower prevalence of risky sexual behaviors, psychoactive substance use, violence, and indicators of poor adolescent mental health.
Li et al. (2024)	Observational study; secondary analysis of survey data	The associations of sociodemographic characteristics, physical activity, and health behaviors with adolescent obesity were analyzed.	The findings indicate the importance of considering physical activity, health behaviors, and sociodemographic characteristics when planning adolescent obesity prevention programs.
Dimitratos et al. (2022)	Review	Parental stress may negatively affect adolescents' diet and increase the risk of obesity and emotional overeating.	Understanding the influence of parental stress may contribute to the development of intervention programs aimed at preventing obesity.

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Note: The lines indicate associations discussed in the review, rather than a demonstrated causal sequence. The diagram does not imply that every family factor is associated with every outcome shown.

Figure 2. Schematic Diagram of Associations Between Family Factors and Adolescent Risk Behaviors

The Influence of the School Environment on Adolescent Risk Behaviors

Alongside the family, the school environment is an important factor in shaping adolescents' behavior and healthy lifestyle habits. Mihić et al. (2022), citing recommendations from the Centers for Disease Control and Prevention (CDC), emphasize the importance of involving students and their families in school life, developing students' academic, emotional, and social competencies, and providing continuous professional development for teachers. Particular emphasis is placed on the need to develop relationships based on trust, support, and a sense of safety among all participants in the educational process, which may help create a more favorable school environment for the prevention of adolescent risk behaviors (4). Findings from a recent systematic review and meta-analysis showed that comprehensive school-level interventions based on the core concept of the "Health Promoting School" may contribute to reductions in risk behaviors such as cyberbullying, cyberaggression, and regular smoking among adolescents. The study found no statistically significant effects on alcohol consumption, drug use, or mental disorders; the authors emphasize the importance of implementing school programs and state that

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the level of success depends on their implementation (17). Hansen (2025) reports that frequent social media use, experiences of sexual harassment, drug use, smoking, peer violence, and aggression are significantly associated with alcohol consumption and antisocial behavior among adolescents (18). A positive school climate may be important in preventing adolescent risk behaviors, and findings from a longitudinal study point to the importance of relationships in which teachers show respect for students (19). A sense of belonging to the school as an institution is an important factor in the prevention of adolescent risk behaviors. In adolescents' lives, it may provide a starting point for adopting healthy lifestyles (20) (Table 2).

Table 2. Main Findings of Studies on the Influence of the School Environment on Risk Behaviors

Author/year	Study type	Key findings	Implications for prevention
Lekamge et al. (2025)	Systematic review and meta-analysis	Comprehensive school interventions showed beneficial effects in reducing cyberbullying, cyberaggression, and regular smoking. The main analyses found no statistically significant effects on alcohol consumption or other psychoactive substance use.	The effectiveness of a school program that incorporates a comprehensive intervention approach in the school environment depends on the quality of implementation.
Hansen (2025)	Cross-sectional study	Social media use is associated with a greater risk of alcohol consumption and antisocial behavior, while online gaming is associated with lower levels of both risks.	Prevention should include adolescents' digital literacy, particularly regarding social media.
Rose et al. (2024)	Meta-analysis	A stronger sense of school belonging is associated with a lower prevalence of risks related to psychoactive substance use, mental and sexual health, violence, and the co-occurrence of multiple health risk behaviors.	School connectedness and strengthening adolescents' sense of belonging represent an important preventive strategy that may help reduce risk behaviors.

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Discussion

Findings on the associations of the family and school environments with risk behaviors provide a basis for considering preventive approaches, but do not in themselves constitute evidence of their effectiveness. While the meta-analysis by Rose et al. indicates an association between a sense of belonging at school and a lower prevalence of various health risks (20), the meta-analysis of school interventions by Lekamge et al. shows that beneficial effects have not been confirmed for all outcomes examined. Beneficial effects were found for regular smoking, exposure to cyberbullying, and cyberaggression perpetration. The main analyses found no statistically significant effects on alcohol consumption or other psychoactive substance use, whereas a sensitivity analysis restricted to studies with a low risk of selection bias showed a beneficial effect on regular alcohol consumption (17). These findings are not directly contradictory, because the former examines associations and the latter examines the effectiveness of interventions. The importance of the school environment should therefore not be equated with equal success of school programs in preventing all risk behaviors.

Interpretation of the results requires consideration of the methodological limitations of the sources. The cross-sectional design of the studies by Dittus et al. and Hansen does not allow reliable determination of temporal sequence or causal conclusions about the relationship between the factors examined and risk behaviors (14, 18). Additional limitations include assessment of parental monitoring using a single question, which does not capture the complexity of this construct (14), as well as possible recall bias and inconsistent assessment time frames for different variables in the Hansen study (18). Differences in populations, social context, and measurement methods further limit direct comparison and generalization of the findings. Preventive implications should therefore be considered in accordance with the design and scope of individual studies, with a need for longitudinal follow-up and testing of intervention effectiveness.

Examples of collaboration between the health and education sectors also exist in the region. The manual “Healthy Lifestyles”, developed in the Federation of Bosnia and Herzegovina, is intended for work with students in grades VI–IX during class community sessions. Representatives of the health and education systems participated in its development with support from the United Nations Population Fund (UNFPA), focusing on healthy relationships, sexual and reproductive

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health, and violence prevention (25). In Montenegro, the elective subject “Healthy Lifestyles”, introduced for students in grade VIII or IX of primary school, provides an example of collaboration between the health and education sectors. The curriculum was developed through collaboration among epidemiologists, psychologists, and pedagogues. Teacher training was organized and a student textbook was produced to support its implementation. Collaboration between health and education professionals thus included both the development of teaching content and support for its delivery. A program was also developed for general secondary schools, with the participation of physical education teachers and a recommendation that the subject be taught in the first or second year (26). According to an announcement by the Bureau for Education Services from September 2026, “Healthy Lifestyles” continues to be offered as an elective subject in primary and secondary schools in Montenegro (27). These examples demonstrate collaboration between the health and education sectors; however, assessment of the effectiveness of the programs in reducing risk behaviors requires examination of evaluation results.

Challenges and Directions for Future Research

Preventive health promotion in the contemporary world is one of the most important factors in improving health and quality of life and extending life expectancy. To develop comprehensive, evidence-based interventions for the prevention of adolescent risk behaviors, future research should focus on identifying the economic, social, psychological, and individual factors that shape health-promoting behaviors (21). Numerous studies highlight the importance of the family and school environments for adolescents; however, most cover only one developmental stage of adolescence, which may limit understanding of risk and developmental protective factors. Future research should better integrate different environmental levels and cover all developmental stages of adolescence (22). A more recent approach, Adverse Adolescent Experiences (AAEs), based on Bronfenbrenner’s ecological systems theory, emphasizes that future research should encompass individual, family, school, and peer determinants, as well as separate factors in the local and wider community, to adequately understand the causal relationships underlying the development of risk behaviors and enable strategic preventive action (23).

Future public health policies and preventive actions addressing adolescent risk behaviors and the identification of their determinants should pay particular attention to the family environment as a key factor. Particular attention should also be given to teachers involved in adolescents’

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schooling and upbringing through an educational program and continuous teacher training and instruction in methods and programs based on scientific evidence, with the aim of reducing the challenges associated with risk behaviors (24).

Limitations of the Review

Certain methodological limitations need to be considered when interpreting the results of this review. The study was designed as a narrative literature review without applying a systematic review protocol, so selection bias in the choice of sources is possible. A further limitation is the absence of a predefined and thoroughly documented search strategy for each database, which limits the reproducibility of the process and the ability to assess the comprehensiveness of the literature identified. Restricting the search to English-language publications may have introduced language bias, while excluding papers unavailable in full text may have resulted in the omission of relevant studies and reduced the coverage of the evidence analyzed. Limiting the search period to January 2021–May 2026 may have excluded older studies relevant to understanding long-term trends in adolescent risk behaviors, representing an additional limitation of this review. Publication bias is possible, since studies with statistically significant results may be more prevalent in the published literature. Another methodological limitation is the absence of a formal assessment of the quality of the included studies and risk of bias, which makes it more difficult to assess the reliability of individual findings and the influence of potential methodological weaknesses on the overall synthesis of results. The included studies differ in research design, participant age, social and geographical context, and outcomes examined, making direct comparison more difficult and limiting generalizability. Furthermore, different aspects of social media use, including time spent on social media, problematic or compulsive use, and exposure to specific content, are not interchangeable indicators, which needs to be taken into account when comparing and interpreting the findings. These limitations should be borne in mind when drawing conclusions and considering preventive implications.

Conclusion

Contemporary findings indicate associations of risk behaviors with the digital environment and socioeconomic conditions. The studies analyzed indicate associations between more frequent social media use and certain risk behaviors, while exposure to content depicting health risk behaviors is associated with the use of electronic nicotine products. These findings need to be

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interpreted with consideration of the methodological limitations of the studies analyzed, without drawing causal conclusions. More favorable family functioning, higher levels of parental monitoring, and a stronger sense of school belonging are associated with a lower prevalence of certain adolescent risk behaviors examined. Based on the findings presented, further strengthening of collaboration between the health and education sectors is recommended, together with support for teachers in implementing preventive programs and evaluating their effects on adolescent risk behaviors. Future research should cover the developmental periods of adolescence to better understand adolescents' needs and adapt preventive strategies to different adolescent age groups.

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References

1. The adolescent health indicators recommended by the Global Action for Measurement of Adolescent health: guidance for monitoring adolescent health at country, regional and global levels. Geneva: World Health Organization; 2024. Accessed: 10. 11. 2026. Available at: https://www.who.int/publications/i/item/9789240092198

2. Shawaluddin NS, Lah TMAT, Mahjom M, Nasaruddin NH, Alias N, Riyadzi MR, et al. Associations of parental connectedness and monitoring with high-risk behaviors among Malaysian adolescents: a nationally representative study. BMC Public Health. 2025 Oct 1;25:3273. doi: 10.1186/s12889-025-24598-9

3. Łebek E, Dąbek J, Szynal M, Knapik A, Gallert-Kopyto W. Risky behaviors of adolescents in the Silesian voivodeship: resistance to stress and physical activity. *Minerva Pediatr (Torino).* 2023;75(5):650-659. doi: 10.23736/S2724-5276.19.05520-8
4. Mihić J, Skinner M, Novak M, Ferić M, Kranželić V. The importance of family and school protective factors in preventing the risk behaviors of youth. Int J Environ Res Public Health. 2022;19(3):1630. doi: 10.3390/ijerph19031630
5. Bozzini AB, Bauer A, Maruyama J, Simões R, Matijasevich A. Factors associated with risk behaviors in adolescence: a systematic review. *Rev Bras Psiquiatr*. 2021;43(2):210-221. doi: 10.1590/1516-4446-2019-0835
6. World Health Organization. Adolescent health. Geneva: World Health Organization; Accessed: 9. 4. 2026. Available at: https://www.who.int/health-topics/adolescent-health#tab=tab_1

7. Cooper C, Lhussier M. Adolescent health: from individual risk behaviours to wellbeing ecosystems: learning from the paradigm shift. Int J Incl Educ. 2026;30(2):359-73. doi: 10.1080/13603116.2025.2449844
8. Xiong Z, Li Z. Effects of perceived economic inequality on adolescent risk-taking behavior: a dual-systems model in a Chinese cultural context. J Appl Dev Psychol. 2026;103:101927. doi: 10.1016/j.appdev.2026.101927
9. National Academies of Sciences, Engineering, and Medicine. *Promoting Positive Adolescent Health Behaviors and Outcomes: Thriving in the 21st Century.* Washington (DC): National Academies Press; 2020. doi: 10.17226/25552
10. Purba AK, Thomson RM, Henery PM, Pearce A, Henderson M, Katikireddi SV. Social media use and health risk behaviours in young people: systematic review and meta-analysis. BMJ. 2023;383:e073552. doi: 10.1136/bmj-2022-073552
11. Kucharczuk AJ, Oliver TL, Dowdell EB. Social media's influence on adolescents' food choices: a mixed studies systematic literature review. Appetite. 2022;168:105765. doi: 10.1016/j.appet.2021.105765
12. Fernandez A, Lozano A, Lee TK, Prado G. Screening for adolescent risk behaviors: preliminary evidence for a family functioning tool. Int J Behav Med. 2024;31(5):669–678. doi: 10.1007/s12529-023-10209-7
13. Efrati Y. How does parents' psychopathology associate with parent-adolescent communication related and unrelated to sex? J Sex Marital Ther. 2025;51(5):477–490. doi: 10.1080/0092623X.2025.2498436
14. Dittus PJ, Li J, Verlenden JV, Wilkins NJ, Carman-McClanahan MN, Cavalier Y, et al. Parental monitoring and risk behaviors and experiences among high school students-Youth Risk

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Behavior Survey, United States, 2021. MMWR Suppl. 2023;72(1):37-44. doi: 10.15585/mmwr.su7201a5

15. Li H, He W, Liu G. Exercise habits and health behaviors on adolescent obesity. Acta Psychol (Amst). 2024;245:104199. doi: 10.1016/j.actpsy.2024.104199
16. Dimitratos SM, Swartz JR, Laugero KD. Pathways of parental influence on adolescent diet and obesity: a psychological stress-focused perspective. Nutr Rev. 2022;80(7):1800-1810. doi: 10.1093/nutrit/nuac004
17. Lekamge RB, Jain R, Sheen J, Solanki P, Zhou Y, Romero L, et al. Systematic review and meta-analysis of the effectiveness of whole-school interventions promoting mental health and preventing risk behaviours in adolescence. J Youth Adolesc. 2025;54(2):271-289. doi: 10.1007/s10964-025-02135-6
18. Hansen S. Assessment of the influential mechanisms of adolescent risk behaviors and protective and risk factors among high school students in Finnmark, Arctic Norway. PLoS One. 2025;20(7):e0328066. doi: 10.1371/journal.pone.0328066
19. Ko MY, Rosenberg SM, Meza BP, Dudovitz RN, Dosanjh KK, Wong MD. Perceptions of school climate shape adolescent health behavior: a longitudinal multischool study. J Sch Health. 2023 Jun;93(6):475-84. doi: 10.1111/josh.13274
20. Rose ID, Lesesne CA, Sun J, Johns MM, Zhang X, Hertz M. The relationship of school connectedness to adolescents' engagement in co-occurring health risks: a meta-analytic review. J Sch Nurs. 2024;40(1):58-73. doi: 10.1177/10598405221096802
21. Tabrizi JS, Doshmangir L, Khoshmaram N, Shakibazadeh E, Mashhadi Abdolahi H, Khabiri R. Key factors affecting health promoting behaviors among adolescents: a scoping review. BMC Health Serv Res. 2024;24:58. doi: 10.1186/s12913-023-10510-x
22. Zhang JJ, Wang EN. Positive and negative risk-taking behaviors in adolescents: Distinct characteristics, interrelationships, and influencing factors. World J Psychiatry. 2025;15(6):106944. doi: 10.5498/wjp.v15.i6.106944
23. Pollmann A, Bates KE, Fuhrmann D. A framework for understanding adverse adolescent experiences. Nat Hum Behav. 2025;9:450–463. doi: 10.1038/s41562-024-02098-x
24. Mirzaei S, Mehrolhassani MH, Yazdi-Feyzabadi V, Jahanara A, Haghdoost AA, Oroomiei N. Identifying the challenges of policy content related to high-risk sexual behaviors, stimulant drugs, and alcohol consumption in adolescents. BMC Health Serv Res. 2024;24(1):788. doi: 10.1186/s12913-024-11256-w
25. Mehmedović F. Zdravi stilovi života: znanje i vještine za zdrav i siguran život. Priručnik za nastavnike i druge profesionalce za VI–IX razred. Dio II. Federalno ministarstvo obrazovanja i nauke; 2024. Accessed: 20. 10. 2026. Available at: https://ba.unfpa.org/bs/publications/zdravi-stilovi-%C5%BEivota-%E2%80%93-znanje-i-vje%C5%A1tine-za-zdrav-i-siguran-%C5%BEivot-priru%C4%8Dnik-za-0
26. Zavod za školstvo. Zdravi stilovi života. Podgorica: Zavod za školstvo; Accessed: 9. 11. 2026. Available at: https://www.gov.me/amp/clanak/zdravi-stilovi-zivota-2
27. Zavod za školstvo. Stručno usavršavanje za nastavnike i nastavnice na temu „Zdravi stilovi života". Podgorica: Zavod za školstvo; 2026. Accessed: 10. 11. 2026. Available at:

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https://zuns.me/strucno-usavrsavanje-za-nastavnike-i-nastavnice-na-temu-zdravi-stilovi-zivota/

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