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Risk and Protective Factors in Substance Abuse: Systematic Literature Review

Nurlaela Widyarini[1], J. Seno Aditya Utama[2]

[1]Fakultas Psikologi Universitas Muhammadiyah Jember
[2]Fakultas Psikologi Universitas Katolik Indonesia Atma Jaya
[1]nurlaela@unmuhjember.ac.id

ABSTRACT

Substance abuse among adolescents and young adults is a global health issue with complex impacts on social development and long-term health. Understanding risk and protective factors is crucial for developing effective prevention strategies. This systematic review synthesizes findings from studies published between 2014–2023 using the PRISMA guidelines. Searches were conducted in PubMed, Scopus, PsycINFO, and Web of Science, focusing on adolescents and young adults in both quantitative and qualitative research. From 3,152 articles, 35 studies met the inclusion criteria and were thematically analyzed. The findings support Social Influence Theory, Attachment Theory, and Sensation Seeking and Impulsivity Theory, which explain key factors in substance abuse. Peer influence, weak family bonds, and high impulsivity emerged as major predictors. The risk of substance use increases in permissive environments with easy access to substances, lack of parental supervision, and family instability. Psychological factors such as sensation seeking and mental health issues also contribute, while genetic predisposition amplifies environmental impacts. Conversely, strong family bonds, social support, and self-resilience protect individuals from substance abuse risks. This review underscores the need for holistic approaches and longitudinal research to understand causal pathways and develop more effective interventions in diverse populations.

Keywords: *protective-risk factors, systematic literature review, substance abuse*

ABSTRAK

Penyalahgunaan zat pada remaja dan dewasa muda merupakan isu kesehatan global dengan dampak kompleks terhadap perkembangan sosial dan kesehatan jangka panjang. Pemahaman faktor risiko dan pelindung sangat penting untuk mengembangkan strategi pencegahan yang efektif. Kajian sistematis ini mensintesis temuan dari studi yang diterbitkan antara 2014–2023 menggunakan pedoman PRISMA. Pencarian dilakukan pada *PubMed, Scopus, PsycINFO*, dan *Web of Science*, dengan fokus pada remaja dan dewasa muda dalam penelitian kuantitatif maupun kualitatif. Dari 3.152 artikel, sebanyak 35 studi memenuhi kriteria inklusi dan dianalisis secara tematik. Temuan ini mendukung teori Pengaruh Sosial, Keterikatan, serta Pencarian Sensasi dan Impulsivitas, yang menjelaskan faktor-faktor utama dalam penyalahgunaan zat. Pengaruh teman sebaya, lemahnya ikatan keluarga, dan tingginya impulsivitas berperan sebagai prediktor utama. Risiko penggunaan zat meningkat dalam lingkungan permisif dengan akses zat yang mudah, kurangnya pengawasan orang tua, serta ketidakstabilan keluarga. Faktor psikologis seperti pencarian sensasi dan masalah mental juga berkontribusi, sementara predisposisi genetik memperkuat dampak lingkungan. Sebaliknya, ikatan keluarga yang kuat, dukungan sosial,

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dan ketahanan diri melindungi individu dari risiko penyalahgunaan zat. Kajian ini menegaskan perlunya pendekatan holistik dan penelitian longitudinal untuk memahami jalur kausal serta mengembangkan intervensi yang lebih efektif dalam populasi beragam.

Keywords : faktor risiko-protektif, penyalahgunaan zat, *systematic literature review*

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Introduction

Substance abuse is a complex and far-reaching public health issue impacting individuals, communities, and society as a whole. Data from the National Narcotics Board of Indonesia (Badan Narkotika Nasional, BNN) indicates that while the prevalence trend of drug abuse decreased in 2023 compared to 2021, the figures remain relatively high and have previously increased. The annual prevalence of use decreased from 1.95% in 2021 to 1.73% in 2023 after rising from 1.80% in 2019. A similar trend is observed in lifetime use, which decreased from 2.57% in 2021 to 2.20% in 2023 but had previously increased from 2.40% in 2019. In absolute terms, the number of drug abusers remains substantial, with 3.3 million individuals in the past year and over 4.2 million who have ever used drugs. The 14.56% decrease in drug-prone areas in the last two years likely contributed to this trend (Data and Information Research Center of the National Narcotics Board, 2023).

Substance abuse has serious physical, psychological, and socio-economic consequences, affecting users, their families, and broader society (Data and Information Research Center of the National Narcotics Board, 2023). Global epidemiological studies, such as those reported by Rehm and Shield (Rehm & Shield, 2019) confirm that substance abuse—including alcohol, narcotics, and prescription drugs—is strongly associated with chronic health risks, mental disorders, reduced quality of life, and increased mortality. These findings, consistent with BNN data, indicate that despite a downward trend, substance abuse remains a critical issue requiring further investigation and comprehensive prevention and intervention strategies.

The widely identified adverse effects of substance abuse, as documented in numerous prior studies (Rehm & Shield, 2019), further highlight the urgency of prioritizing this issue in public health policies and intervention strategies. Addressing substance abuse should no longer be limited to specific demographic groups such as adolescents alone but must encompass all age groups and backgrounds. Extensive research over recent decades has identified various risk

factors contributing to substance abuse. These factors include environmental influences, such as exposure to permissive social norms and the availability of illicit substances (Deak & Johnson, 2021; Sloboda et al., 2012). Individual factors such as genetic predisposition, impulsivity, and sensation-seeking behavior also play a significant role (Sloboda et al., 2012). Additionally, peer pressure, low socioeconomic status, and various psychological stressors are important factors in the initiation and maintenance of substance use behavior.

On the other hand, research has also identified protective factors that are crucial in reducing the risk of substance abuse. These protective factors include strong social support networks, active involvement in prosocial activities, and high personal resilience (Kim et al., 2015; Volkow & Blanco, 2023). Furthermore, studies by (Kim et al., 2015; Tomczyk et al., 2016) indicate that strong family support, close-knit community bonds, and effective public policies to reduce substance accessibility can significantly mitigate the risk of substance abuse in various populations. These studies underscore the need for developing comprehensive and multi-layered prevention strategies that focus on reducing risk factors and strengthening protective factors. By synthesizing findings from various recent studies, this systematic review aims to provide a deeper and more comprehensive understanding of the complex interplay between risk and protective factors in substance abuse. This understanding is expected to be a foundation for developing more effective interventions relevant to contemporary society's continuously changing dynamics.

Literature Review

Despite the substantial body of research on substance abuse, several gaps remain in the literature. Many studies focus narrowly on specific populations or geographic areas, limiting their applicability to broader communities (Patton, et al., 2016). Additionally, a significant number of studies use cross-sectional designs, which do not allow for the establishment of causality between risk factors and substance use (Stewart et al., 2023). Variations in methodology, sample size, and data collection practices further hinder the generalizability of these findings (Amialchuk et al., 2019). To address these limitations, a systematic literature review that integrates findings across various cultural and socioeconomic contexts is essential for developing a more comprehensive understanding of substance abuse and its contributing factors (Piquero, 2021).

A systematic review approach offers several advantages for the study of substance abuse. First, it allows for the identification of knowledge gaps, highlighting areas where future research is needed (Kim & Cho, 2022). Second, it synthesizes findings from diverse studies,

providing a more holistic understanding of the risk and protective factors involved in substance use. This broader perspective is particularly important for shaping effective public health policies and interventions that are applicable across different populations (Bjork, 2020; Galvan, 2010). Third, by consolidating research from various disciplines, such as psychology, public health, and sociology, this approach contributes to a more nuanced framework for understanding the complex interactions between individual behavior, environmental influences, and substance availability (Galvan, 2010).

Understanding the underlying factors that contribute to substance abuse is critical for developing interventions that not only address the risks but also strengthen protective factors. Such interventions should be designed to reduce the availability of substances, promote mental health, and foster social connections, all of which are vital for preventing substance use across different demographics (Wei et al., 2015; Wendy S. Slutske et al., 2016). Additionally, prevention programs that enhance personal resilience, improve access to mental health care, and promote healthier coping mechanisms can have far-reaching benefits in reducing substance abuse in the general population (Zhou et al., 2024). By focusing on both risk reduction and protective factor enhancement, public health initiatives can significantly decrease the overall burden of substance abuse (Windle, 2020).

The primary objective of this research is to systematically review the literature on substance abuse by identifying and analyzing the social, psychological, genetic, and environmental risk factors associated with its use (Spoth et al., 2022). Furthermore, this study seeks to explore the role of protective factors—such as family structure, community engagement, and resilience—in preventing substance abuse across different age groups and contexts (Calling et al., 2019; Hawes et al., 2019). By synthesizing a wide range of studies, the review aims to offer a comprehensive understanding of the factors that contribute to substance abuse and provide recommendations for more effective public health interventions (Zuckermann et al., 2021). This research will also address the methodological limitations of previous studies and suggest directions for future research, ensuring a more targeted and impactful approach to combating substance abuse worldwide (Gray & Squeglia, 2018; Trucco, 2020).

In conclusion, this systematic review is expected to contribute significantly to the prevention and management of substance abuse through the development of evidence-based interventions.

Method

This study employed a systematic literature review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Shamseer et al., 2015).

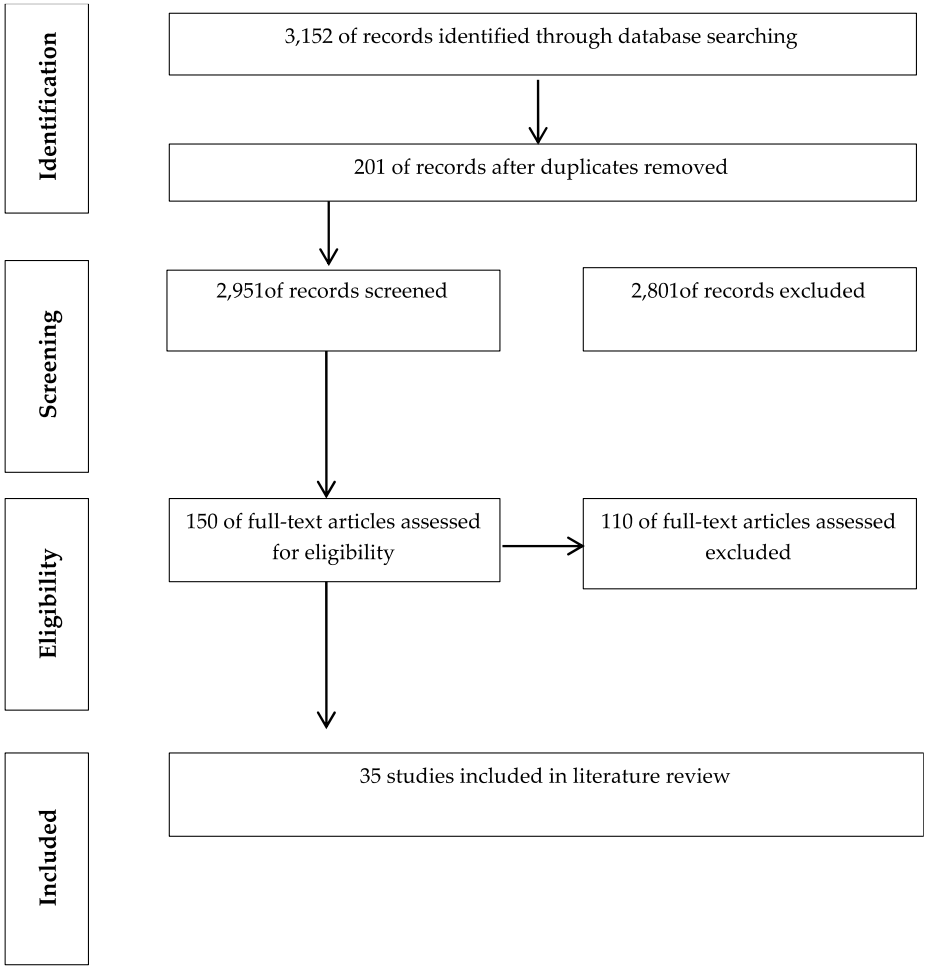


Figure. 1 PRIMA flow diagram

Literature Search Strategy

A research team conducted a literature search between July and August 2024 across four major databases: PubMed, Scopus, PsycINFO, and Web of Science. Keywords related to substance abuse—such as "substance abuse," "drug use," "substance misuse," and "alcohol abuse"—were employed, in addition to terms describing the population, including "adolescents," "youth," "teenagers," and "young adults." To identify relevant risk and protective factors, terms like "risk factors," "protective factors," "social influence," "sensation seeking," "impulsivity," "attachment," and "resilience" were also used. The research team limited the search to articles published between 2014 and 2023.

Inclusion and Exclusion Criteria

Inclusion criteria included studies focusing on risk and/or protective factors associated with substance abuse. Studies had to target adolescent and young adult populations explicitly. Quantitative (cross-sectional, longitudinal, cohort) and qualitative studies were included. Articles had to be available in full text and written in English or Indonesian. Exclusion criteria included studies focusing solely on interventions or treatments, editorials, commentaries, letters, non-systematic reviews, and individual case studies.

Study Selection Process

After removing 201 duplicates from the initial 3,152 articles, 2,951 remained for screening. Two independent researchers reviewed titles and abstracts based on the inclusion and exclusion criteria. As a result, 150 articles were eligible for full-text review. After this review, 110 articles were excluded. A total of 35 studies remained for final analysis. Any disagreements during the selection process were discussed until a consensus was reached.

Data Analysis and Synthesis

Given the heterogeneity in study designs, populations, and measured variables, a narrative synthesis was used. Findings were categorized around key themes. These themes included social and environmental risk factors, psychological and behavioral factors, genetic influences, and protective factors. Each theme was analyzed within its respective theoretical framework. These theoretical frameworks included Social Influence Theory, Sensation Seeking and Impulsivity Theory, Attachment Theory, and Resilience Theory. Context-specific population findings and cultural diversity were emphasized to account for variations across different social groups and settings.

Bias Control and Validity

The research team implemented a comprehensive search strategy to minimize publication risk and selection bias. This strategy included a variety of databases. They also examined the reference lists of included studies for additional relevant articles. Two independent researchers were involved in the study selection process and quality assessment to ensure objectivity and reduce individual bias. PRISMA guidelines were followed for reporting to ensure transparency and completeness.

Methodological Limitations

This systematic review has three main limitations. First, language bias is potentially present as only English and Indonesian language studies were included, potentially overlooking studies in other languages that may offer unique cultural perspectives or findings. This language bias limits the geographical and cultural representation in the synthesis of findings. Second, the dominance of cross-sectional designs in the analyzed studies limits the understanding of causality. These designs only show associations between risk and protective factors with substance abuse at a single time point without determining the direction of relationships or temporal sequence. Longitudinal research must address this limitation and generate more substantial causal evidence for intervention development.

Third, methodological heterogeneity across studies was considerably high, encompassing population variations (age, cultural, geographical), measurement instruments (varying validity and reliability), and operational definitions of variables. These differences complicate the synthesis of findings and limit the possibility of quantitative meta-analysis. Standardization of methodologies is needed to improve research consistency in this field. Nevertheless, this review still provides a valuable synthesis of risk and protective factors in substance abuse while also identifying directions for future research to strengthen the evidence base in this field.

Results

The systematic review analyzed 35 studies published between 2014 and 2023. These studies focused on risk and protective factors associated with substance abuse in diverse populations and geographical contexts (Table 1). These studies encompassed a variety of research designs, populations, and theoretical frameworks, identifying a range of factors influencing substance abuse.

The majority of analyzed studies employed cross-sectional designs, a methodology that allows for the evaluation of risk and protective factors at a specific point in time. Three studies used longitudinal designs, providing insights into temporal relationships and potential causality. Four studies adopted qualitative approaches, offering in-depth explorations of participant experiences and perceptions. Other research designs included matched case-control studies and multivariate twin studies, reflecting the multifaceted nature of substance abuse research.

These studies were conducted in various countries, including the United States, Iran, Brazil, Canada, and other nations across Asia, Europe, Africa, and Australia. This geographical diversity enhances the generalizability of the findings and allows for cross-cultural comparisons. This diversity is crucial in understanding how cultural, social, and economic contexts influence substance abuse patterns and intervention effectiveness.

The populations studied included adolescents, young adults, and adults in various settings. Several studies focused on high-risk communities, such as young men in slums in Indonesia (Nasir et al., 2014), adolescents in foster care in the United States (Brook et al., 2015) and homeless youth (Tyler & Ray, 2019). These populations often face heightened risks due to socio-economic deprivation, unstable family conditions, and increased exposure to substance use within their communities. Many studies examined students in secondary schools and universities. These studies provided insights into substance abuse patterns in educational environments where peer influence is powerful (Chebet et al., 2023; Doggett et al., 2022; Huang et al., 2023; Khalid & Kausar, 2016; Qeadan et al., 2023; Sajjadi et al., 2015; Schinke et al., 2017; Shafie et al., 2023; Spillane et al., 2021). Some studies involved individuals undergoing treatment for substance abuse or related disorders. These studies offered perspectives on factors influencing recovery and relapse (Fuentes et al., 2020; Gmel et al., 2015; Öngel Atar et al., 2016; Sfendla et al., 2018). Additionally, the research included specific groups, such as prisoners in Moroccan prisons (Fuentes et al., 2020), Native American adolescents (Qeadan et al., 2023), and twins from the Australian Twin Registry (Dash et al., 2023). This research highlighted specific risk and protective factors relevant to these populations.

Sample sizes varied considerably, ranging from small qualitative samples to large-scale surveys involving tens of thousands of participants. The age range primarily focused on adolescents and young adults. This variation in sample size and demographic focus underscores the importance of tailoring interventions to specific age groups and backgrounds.

A range of theoretical frameworks were utilized across the studies, reflecting the multidimensional complexity of substance abuse. Risk and Protective Factor Theory was applied in several studies. This theory emphasizes the balance between factors that increase or decrease the likelihood of substance abuse (Gmel et al., 2015; Öngel Atar et al., 2016; Silva et al., 2014). Social and developmental theories were also used, including the Social Development Model (Qeadan et al., 2023), Social Control Theory (Forsyth et al., 2022), and the Social-Ecological Model (Nichols et al., 2021). These theories highlighted the impact of social interactions and environmental contexts on substance use behavior. Psychological and

behavioral theories were also applied, including Sensation Seeking and Impulsivity Theory (Goliath & Pretorius, 2016; Nichols et al., 2021), Attachment Theory (Huang et al., 2023; Öngel Atar et al., 2016), Psychological Empowerment Theory (Opara et al., 2022), and Grit Theory (Guerrero et al., 2016). These theories focused on individual traits and coping mechanisms. Some studies adopted biopsychosocial approaches. These approaches considered biological, psychological, and social factors, including genetic influences (Dash et al., 2023; Sajjadi et al., 2015; Tyler & Ray, 2019). Applying these diverse theoretical frameworks demonstrates a comprehensive understanding of substance abuse, integrating insights from various disciplines.

The analysis revealed a complex array of risk factors across the studies. Social and environmental factors emerged as significant contributors. Peer pressure and influence were consistently identified as strong risk factors (Goliath & Pretorius, 2016; Guerrero et al., 2016; Nasir et al., 2014; Schinke et al., 2017; Shafie et al., 2023; Silva et al., 2014; Wongtongkam et al., 2014; Zapolski et al., 2016). High-risk environments were also significant risk factors. These high-risk environments included slums, marginalized communities, and urban settings. These environments were associated with increased substance abuse, likely due to greater substance availability and normalization of use within these contexts (Forsyth et al., 2022; Goliath & Pretorius, 2016; Nasir et al., 2014; Shafie et al., 2023). Adverse environmental conditions also contributed to higher risk levels. These adverse ecological conditions included exposure to violence or abuse (Shafie et al., 2023; Spillane et al., 2021; Tyler & Ray, 2019).

Family and parental factors also played a critical role. Lack of parental supervision, unstable family conditions, negative parental attitudes, and family conflict were frequently reported as risk factors (Brook et al., 2015; Iranpour et al., 2016; Marin et al., 2019; Nichols et al., 2021; Öngel Atar et al., 2016; Sajjadi et al., 2015). Parental substance use issues and adverse family history of substance abuse further increase risk, indicating intergenerational transmission of substance use behaviors (Nichols et al., 2021; Tyler & Ray, 2019).

Psychological and behavioral factors at the individual level were also significant. High sensation-seeking tendencies, impulsivity, poor coping strategies, and low self-control were identified as risk factors (Gmel et al., 2015; Goliath & Pretorius, 2016; Qeadan et al., 2023; Sajjadi et al., 2015; Spillane et al., 2021). Mental health issues such as depression, aggression, and negative self-image were also associated with substance abuse, indicating a need for integrated mntal health interventions (de Almeida Raimundo et al., 2016; Rodríguez-Ruiz et al., 2021; Sajjadi et al., 2015; Schinke et al., 2017; Zapolski et al., 2016). Genetic and

biological factors were also relevant. These factors included a family history of substance abuse and specific genetic influences. These factors point to inherent vulnerabilities that may predispose individuals to substance use disorders (Dash et al., 2023; Nichols et al., 2021; Sajjadi et al., 2015).

Substance availability and perception also played a significant role. Easy access to drugs, perceived availability, and low perceived risk of substance use were important facilitators (Iranpour et al., 2016; Sajjadi et al., 2015; Schleimer et al., 2020). Early initiation and prior substance use, including polydrug use, increased the likelihood of continued abuse, emphasizing the critical window during adolescence for prevention efforts (de Almeida Raimundo et al., 2016; Wongtongkam et al., 2014; A. M. Zuckermann et al., 2020).

Socioeconomic factors such as low socioeconomic status, unemployment, and poverty were associated with higher rates of substance abuse, thus underscoring the influence of economic conditions on health behaviors (de Almeida Raimundo et al., 2016; Guerrero et al., 2016; Nasir et al., 2014; Sfendla et al., 2018; Shafie et al., 2023). Conversely, several protective factors were identified that can mitigate the risk of substance abuse. Family attachment and parental involvement were consistently reported as protective factors. Strong parent-child relationships, active parenting, and parental supervision were associated with reduced substance use. These findings highlight the importance of family-based interventions (Brook et al., 2015; Huang et al., 2023; Khalid & Kausar, 2016; Öngel Atar et al., 2016; Tyler & Ray, 2019). Positive family influences and supportive family relationships enhance resilience against substance abuse, suggesting that strengthening family dynamics can be a crucial strategy in prevention efforts (Nasir et al., 2014; Shafie et al., 2023).

Religiosity and moral beliefs were frequently associated with lower rates of substance abuse, specifically evident in studies conducted in countries where religious practices are highly integrated into daily life. Involvement in religious activities can provide individuals with supportive communities and value frameworks that discourage substance use (Afifi et al., 2020; Forsyth et al., 2022; Khalid & Kausar, 2016; Nasir et al., 2014; Silva et al., 2014; Wongtongkam et al., 2014)

Positive peer relationships also functioned as protective factors. Interactions with prosocial peers and disengagement from negative influences reduced the likelihood of substance use, thereby indicating the potential effectiveness of peer-led interventions and programs that promote healthy social networks (Brook et al., 2015; Goliath & Pretorius, 2016; Huang et al., 2023; Khalid & Kausar, 2016; Shafie et al., 2023)

Psychological resilience and coping skills were identified as protective traits. High self-esteem, self-efficacy, and strong coping skills enabled individuals to resist peer pressure and manage stress without resorting to substance use (Khalid & Kausar, 2016; Sajjadi et al., 2015; Schinke et al., 2017; Sfendla et al., 2018; Tyler & Ray, 2019). Psychological empowerment and grit contributed to resistance against substance abuse. Therefore, interventions fostering these qualities are likely beneficial (Opara et al., 2022; Sfendla et al., 2018). Involvement in prosocial activities was also a protective factor. These prosocial activities included sports, recreational activities, and school involvement. These activities were associated with decreased substance abuse. They provide structured environments and opportunities for positive social interaction, which can deter substance use (Brook et al., 2015; Sfendla et al., 2018; Shafie et al., 2023; Wongtongkam et al., 2014).

Community and cultural factors also emerged as protective. Community attachment, cultural reinforcement, and ethnic identity were protective factors in specific populations. This evidence emphasizes the importance of culturally sensitive interventions (Huang et al., 2023; Spillane et al., 2021). Supportive community conditions and social support enhance resilience. This suggests that community-level interventions can significantly impact the situation (Brook et al., 2015; Schleimer et al., 2020; Sfendla et al., 2018).

This review highlighted several patterns in the dynamics of risk and protective factors. Protective factors often offset the impact of risk factors. For example, strong family attachment mitigates the effects of peer pressure and high-risk environments. This dynamic indicates interactions between individual and contextual factors (Brook et al., 2015; Khalid & Kausar, 2016; Nasir et al., 2014). The significance of specific factors varied across cultural contexts. Religiosity played a prominent protective role in some countries. Psychological empowerment and ethnic identity were more relevant in others (Opara et al., 2022; Sfendla et al., 2018). Adolescents and young adults were particularly vulnerable to peer influence and sensation-seeking behaviors. This vulnerability underscores the need for early interventions during these critical developmental stages (Rodríguez-Ruiz et al., 2021; Wongtongkam et al., 2014; A. M. Zuckermann et al., 2020).

The reviewed studies had several methodological limitations. The dominance of cross-sectional designs limits the ability to establish causal relationships between risk and protective factors with substance abuse. Longitudinal studies are needed to understand better temporal relationships and causality (Doggett et al., 2022; Guttmannova et al., 2021; Wongtongkam et al., 2014). Because many studies focused on specific populations or demographic groups, the generalizability of the findings is limited (de Almeida Raimundo et

al., 2016; Opara et al., 2022; Rodríguez-Ruiz et al., 2021). Expanding research to include diverse and representative populations would enhance the applicability of results across various contexts. Some studies had small sample sizes or did not adequately control for confounding variables, affecting the robustness and validity of the results (Sajjadi et al., 2015; Silva et al., 2014) Additionally, not all studies explicitly applied theoretical models, which can hinder the integration of findings into existing theoretical constructs and the development of comprehensive intervention strategies (Afifi et al., 2020; Doggett et al., 2019; Rodríguez-Ruiz et al., 2021; Schleimer et al., 2020).

In summary, these findings affirm the complexity of risk and protective factors influencing substance abuse. Effective interventions must consider these multifaceted social, family, psychological, and cultural contexts. Implementing approaches tailored to specific populations and environments and grounded in strong theoretical frameworks is crucial for developing effective prevention and intervention strategies.

Table 1
Summary of Risk and Protective Factors for Substance Abuse (2014-2023)

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
(Nasir et al., 2014) Indonesia	Qualitative study using semi-structured interviews	Young men living in a slum area in Makassar, Indonesia	45 (young males)	Bourdieu's Theories of Capital, Jahoda's Manifest and Latent Functions of Employment, Risk and Protective Factors Theory	High-risk environment, peer pressure, social and economic deprivation	Employment, education, supportive social networks, religiosity
(Wongtongkam et al., 2014) Thailand	Cross-sectional	Students from nine general engineering colleges in Bangkok and Nakhon Ratchasima Province, Thailand	1,778 students	No specific theory mentioned	Low school commitment, delinquent friends, peer drug use, and high sensation-seeking	Moral solid beliefs, involvement in religious activities, and social skills
(Brook et al., 2015) United States	Cross-sectional	Adolescents living in foster care in the United States	1,595 adolescents (average age 14.7 years old)	Risk reduction and protective factor enhancement approach	Negative peer influence, unstable family conditions, and high-risk community environment	Positive peer relationships, school activity involvement, and strong community support
(Silva et al., 2014) Brazil	Quantitative	Users of psychoactive substances	50 (average 35 years old)	Concepts from addiction treatment and	Lack of family support,	Religiosity, support groups,

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
		undergoing chemical dependency treatment		relapse prevention	negative feelings, social context that facilitates drug use, withdrawal from support groups	family support, self-will
(Gmel et al., 2015) Switzerland	Longitudinal cohort	Young Swiss men enrolled during mandatory army recruitment	5,987 (19-21.5 years old)	Empirical research on substance use behaviors and risk/protective factors	Peer pressure, early substance use, public alcohol consumption, negative family history	Active parenting, religiosity, participation in sports
(Sajjadi et al., 2015) Iran	Causal-comparative	Young adults attending addiction withdrawal centers and control group (non-addicted)	100 (16 to 33 years old)	Multivariate approach considering biological, psychological, and social factors	Easy access to drugs, depression, aggression	High self-esteem, family socioeconomic status, responsibility
(Iranpour et al., 2016) Iran	Cross-sectional	Male students from 9th and 10th grade public high schools in Kerman, Iran	235 students (14-18 years old)	Social Development Model (SDM)	Weak family bonding, poor parental monitoring, incorrect perceptions and assumptions related to substance use, peer substance use	Bonding to parents, family rules on substance consumption, drug resistance skills, parental monitoring
(Zapolski et al., 2016) United States	Cross-sectional	Juvenile justice-involved youth referred for psychological assessment by the juvenile court in United States	226 (12-18 years old)	Social Learning Theory	Parental substance use history, high parent-child conflict, affiliation with delinquent - substance used peer groups, Externalizing behaviors and Low self-regulation	Parental monitoring and communication, Positive parent-child relationships, association with non-substance-using peers, negative perceptions of substance use and high self-regulation and coping skills
(Guerrero et al., 2016) United States	Cross-sectional	Latino adolescents in Los Angeles, United States,	1270 (Typically 14-15 years old)	The Theory of Grit	Alcohol and marijuana use, involvement	Grit, authoritative parenting style, parental

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
		living in low-income neighborhoods			in fights, and delinquent behaviors	employment, high self-efficacy scores
(de Almeida Raimundo et al., 2016) Brazil	Cross-sectional	Drug users under treatment at a Psychosocial Care Center for Alcohol and Drugs	140 (18-50 years old)	No specific theory explicitly mentioned	Use of crack, cocaine, and polydrug use and severe levels of alcohol dependence	Not explicitly identified
(Khalid & Kausar, 2016) Pakistan	Cross-sectional	Young male drug users in Lahore, Pakistan	200 (18-25 years old)	Social Development Model, Primary Socialization Theory	Poor coping strategies (e.g., avoidant coping), peer pressure	Religiosity, family attachment, interaction with prosocial peers
(Schinke et al., 2017) United States	Cross-sectional	Hispanic adolescents across the United States	507 (Mean age 14.1 years old)	Informed by learning theory and social cognitive theory, focusing on cognitive-behavioral variables	Negative self-image, higher levels of stress, weaker coping skills, peer drug use, lower levels of self-control	Higher self-image, stronger coping skills, higher levels of self-control, better goal-setting and problem-solving skills
(Goliath & Pretorius, 2016) South Africa	Qualitative-narrative inquiry research design	Adolescents from a marginalized community in Port Elizabeth, South Africa	39 (16 to 18 years old)	Risk and Protective Factors Theory	Drug-using peers, peer pressure, social context that normalizes drug use, negative family history	Non-drug-using peers, disengagement from negative influences, peer resistance skills, witnessing the negative impact of drug use
(Öngel Atar et al., 2016) Turkey	Matched case-control study	Adolescents with substance use disorder and a control group of healthy adolescents	100 adolescents (14 to 18 years old)	Family Systems Theory, Attachment Theory	Poor parental supervision, low parental involvement and negative parental attitudes	Strong parent-child relationship and Positive parental attitudes
(Sfendla et al., 2018)Morocco	Cross-sectional	High-risk male prisoners and outpatients	177 prisoners (average age 38.3 years) & 54 outpatients (average age 30.8 years old)	No specific theory mentioned	Low education, unemployed, childless, and diagnosed with depression	Higher education, having children, and employed
(Kovács, 2018) Central and Eastern European countries	Cross-sectional	College students in Central and Eastern Europe	2,017 students (average: 22.4 years old)	Various socio-cultural and psychological frameworks	Health risk behaviors, with socio-economic status and peer	Participation in recreational activities and sports, strong parental and community ties,

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
					influence (particularly in smoking, binge drinking, and drug use) playing key roles. A lack of recreational activities also increases vulnerability to these behaviors	and a clear sense of purpose and trust in others
(Afifi et al., 2020) Lebanon	Cross-sectional	High school students	986 (Mean age 16.7 years old)	No specific theory mentioned	Bullying victimization	Religiosity
(Doggett et al., 2019) Canada	Cross-sectional	Canadian youth, specifically students in grades 9 to 12	46957 (14-18 years old)	No specific theory mentioned	High screen time, particularly internet use and messaging	Not explicitly identified
(Marin et al., 2019) Iran	Cross-sectional	Iranian high school students in Kermanshah province, Iran	1104 (15-18 years old)	No specific theory mentioned	Negative-stability and negative-globality domains of optimism	Higher levels of optimism
(Schleimer et al., 2020) Argentina, Chile, Uruguay	Cross-sectional	Adolescents enrolled in secondary education in Argentina, Chile, and Uruguay	700,178 (13-18 years old)	No specific theory mentioned	Lower perceived risk of marijuana use, higher perceived availability of marijuana	Not explicitly identified
(Tyler & Ray, 2019)United States	Cross-sectional	Youth experiencing homelessness (YEH) in the Midwestern United States	322 (16 to 26 years old)	Life Stress Framework	Child physical and sexual abuse, parental substance use problems, street victimization, trading sex for survival needs, depressive symptoms	Parental monitoring and high self-efficacy (especially for LGB youth)
(A. M. Zuckermann et al., 2020) Canada	Prospective cohort	Canadian high school students in grades 9-12, from Ontario and Alberta	91,774 (14-18 years old)	Not explicitly applied	Regular cannabis use, particularly daily and weekly use	Cessation of cannabis use

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
(Fuentes et al., 2020) Spain	Cross-sectional	Adolescents	644 (12-17 years old)	No specific theory mentioned	Low social self-esteem	Academic, family, and physical self-esteem
(Nichols et al., 2021) United States	Cross-sectional	Adolescents with histories of substance use disorders (SUDs) recently discharged from treatment programs, along with their parents	294 (Mean age 16 years, range 13-19 years old)	Social-ecological model (Bronfenbrenner's ecological systems theory)	Antisocial traits in adolescents, parent history of substance abuse, perceived availability of substances in the community	None explicitly identified
(Rodríguez-Ruiz et al., 2021) Spain	Longitudinal prospective	Students from eight schools	879 participants (ages 9-17 in the first wave and 10-18 in the second wave)	No specific theory mentioned	Low responsible decision-making, poor self-management, and low affective empathy	Social and emotional competence, affective empathy
(Guttmannova et al., 2021) United States	Longitudinal study	Young adults aged 18–25 years in Washington State, USA	774 (18-25 years old)	No specific theory mentioned	Higher frequency of cannabis use	None explicitly identified
(Spillane et al., 2021) Canada	Cross-sectional survey	Adolescents living in rural First Nation reserve communities in Eastern Canada	106 (11 to 18 years old)	Competing Life Reinforcers (CLR) model, rooted in Behavioral Theories of Choice (BTC)	Not explicitly identified	Cultural, social, and extracurricular reinforcers
(Forsyth et al., 2022) United States	Cross-sectional	Students in grades 6, 8, 10, and 12 from rural and urban areas	90,437 students (grades 6, 8, 10, and 12)	Social Control Theory, Protective Factors Model	Urban students: Higher rates of marijuana, hallucinogens, cocaine, and ecstasy use. Rural students: Higher rates of alcohol use	Rural students: Higher protective factor scores in areas such as religiosity, interaction with prosocial peers, and belief in the moral order
(Opara et al., 2022) United States	Cross-sectional	Black adolescent girls living in urban communities in northeastern	340 (13-17 years old)	Psychological Empowerment Theory and Ethnic Identity	Drug use has been identified as a significant risk factor for engaging in	Social support, ethnic identity, and psychological empowerment

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
		New Jersey, United State			risky sexual behavior	
(Doggett et al., 2022) Canada	Longitudinal study	Canadian youth in grades 9-12	17,161 (Approximately 14 to 18 years old)	No specific theory mentioned	Higher frequency of cannabis use, use of multiple modes of cannabis consumption	Not explicitly identified
(Shafie et al., 2023) Malaysia	Qualitative, using Focus Group Discussions (FGD)	Youth living in high-risk areas for drug abuse	50 (19 to 39 years old)	Theory of Protective and Risk Factors; Risk and Protective Factors Theory for Adolescent Substance Abuse and Delinquency	Curiosity, poor religious knowledge, stress relief, weak coping skills, seeking fun, negative peer and family influence, lack of parenting, adverse neighborhood, and occupation type	Religious knowledge and practice, assertiveness skills; positive family influence, positive peer influence, knowledge of drug abuse
(Chebet et al., 2023) Lesotho	Qualitative	Policymakers, PrEP users (current and former), PrEP decliners, health providers	106 interviews (23-63 years old)	Grounded Theory	Concerns about side effects, doubts about efficacy, stigma, lack of support, access barriers	Strengthening social relationships, safer conception, personal sexual health control, harm reduction
(Qeadan et al., 2023) United States	Survey	American Indian, Alaskan Native, or Native Hawaiian (AI/AN/NH) college students	8,094 (18-25 years old)	Stress Process Model and other empirical models	Opioid misuse, use of other substances, multiple sexual partners, fraternity/ sorority membership, low GPA, rural living, anxiety, depression, exposure to violence or abuse	Living with parents/guardians, living on campus, drug misuse education, supportive campus and family conditions

First Author, Year & Country	Study Design	Population	Sample Size (Age Range)	Theory Applied	Risk Factors Identified	Protective Factors Identified
(Huang et al., 2023) United States	Quantitative	American Indian adolescents in Arizona	2,494 (13-18 years old)	Attachment Theory	Sibling prescription drug use, ease of access to prescription drugs, gang involvement	Community attachment, drug-free friends, parental disapproval of drug use
(Dash et al., 2023) Australia	Multivariate twin study	Individual twins from the Australian Twin Registry	7,164 (22 to 43 years old)	Explores the specificity in genetic and environmental risk for prescription opioid misuse (POM) and heroin use	Substantial drug-specific genetic influence (for POM), Influence from general factors shared with other drug use (for heroin use)	None explicitly identified

Discussion

This systematic review elucidates the dynamic and complex interplay between risk and protective factors influencing substance abuse among adolescents and young adults across diverse cultural contexts. The findings underscore that substance abuse is not a result of isolated factors but rather emerges from the interrelation of various antecedents and consequences interacting directly and indirectly. These interactions, in turn, shape individual behavior within their environmental context.

A central theme identified is the profound impact of social and environmental factors on substance abuse. These factors often serve as both antecedents and catalysts for individual behavior. Peer pressure and influence were consistently highlighted as potent risk factors. Crucially, these factors do not operate in isolation; instead, they interact with individual psychological traits and family contexts. This interaction can either exacerbate or mitigate the likelihood of substance use. For instance, adolescents in high-risk environments, such as slums or marginalized communities, are demonstrably more susceptible to peer influence. This heightened vulnerability is due to both the normalization of substance use and the increased drug availability within these settings. Such environmental exposure can also indirectly affect psychological factors, manifesting in increased sensation-seeking behaviors or reduced perception of risks associated with substance use.

Family factors also interact dynamically with social influences to shape substance abuse outcomes. Lack of parental supervision and unstable family conditions function as direct risk

factors, and they also indirectly amplify the impact of peer pressure by increasing adolescent vulnerability to external influences. Furthermore, parental substance use and a negative family history create an antecedent context where genetic predispositions and modeled behaviors further elevate susceptibility to substance abuse. Conversely, strong parent-child relationships and active parenting can moderate the adverse effects of negative peer influences and high-risk environments by providing emotional support and establishing norms that discourage substance use. These dynamics highlight a bidirectional relationship: family factors can both influence and be influenced by social contexts.

Psychological and behavioral factors act as key mediators in the relationship between environmental exposures and substance abuse. High sensation-seeking and impulsivity predispose individuals to seek novel and risky experiences, and these traits can amplify the impact of both peer pressure and environmental temptations. Poor coping strategies and low self-control, which may be consequences of or exacerbated by adverse family and social conditions such as exposure to violence or lack of supportive relationships, also contribute to risk. Moreover, mental health issues like depression and aggression can arise as consequences of negative environmental and family factors. Still, they can also serve as antecedents, increasing vulnerability to substance use as a form of self-medication.

Genetic and biological factors introduce yet another layer of complexity, interacting with environmental influences in what is often termed gene-environment interactions. Genetic predispositions, such as a family history of substance abuse, are not deterministic causes of substance use disorders. However, they do interact with environmental exposures to amplify risk. For example, individuals with genetic vulnerabilities may exhibit heightened sensitivity to stressors like socioeconomic hardship or family instability. This increased sensitivity to stressors, in turn, elevates the likelihood of substance abuse upon exposure to these risk factors. The multivariate twin study by (Dash et al., 2023) underscores this intricate interaction, demonstrating that while genetic influences on prescription opioid abuse are significant, they are also contingent on environmental contexts.

Socioeconomic factors, including low socioeconomic status, unemployment, and poverty, are direct risk factors and contexts amplifying other risks. Economic hardship can precipitate increased stress and mental health problems, which subsequently drive individuals toward substance use as a coping mechanism. Furthermore, socioeconomic deprivation frequently correlates with high-risk environments characterized by greater substance availability and fewer protective resources. Thus, socioeconomic factors exert an indirect influence on substance abuse through multiple pathways.

Protective factors, however, emerge as critical moderators within this dynamic system, capable of altering the trajectory from risk exposure to substance abuse. Family attachment and parental involvement offer direct support, instilling values and coping skills that enable individuals to resist peer pressure and navigate high-risk environments more effectively. Positive peer relationships are a crucial buffer against negative influences, providing alternative social networks reinforcing prosocial behaviors. Psychological resilience and strong coping skills equip individuals to manage stress and adversity without resorting to substance use. Consequently, these factors mediate the impact of both environmental and family risk factors.

Cultural and community factors further reveal the intricate interplay of risk and protective elements. Religiosity and moral beliefs stand out as protective factors in certain cultural contexts, discouraging substance use through moral precepts and providing supportive communities that enhance social capital and reinforce positive behaviors. Conversely, in contexts where cultural identity and psychological empowerment are more salient, these factors function as protective mechanisms, fostering a strong sense of self and community belonging that can counteract the marginalization and stress often contributing to substance abuse, as exemplified by minority groups in the United States.

Substance availability and perception also engage in dynamic interactions with other factors. Easy access to drugs and low perceived risk can amplify the influence of peer pressure and individual predispositions to substance use. Early initiation, often stemming from these interactions, can lead to sustained abuse patterns and polydrug use, a tendency particularly pronounced when combined with other risk factors such as family substance use or psychological vulnerabilities.

The interplay of all these factors underscores a complex network where direct and indirect relationships, antecedents and consequences, and reciprocal influences collectively shape substance abuse behavior. For example, socioeconomic deprivation can trigger a cascade of negative outcomes, leading to stress and family instability, subsequently resulting in poor parental supervision and heightened exposure to high-risk environments. This sequence, in turn, can contribute to the development of psychological vulnerabilities, such as poor coping strategies or mental health issues, which then further increase susceptibility to peer pressure and substance use. However, protective factors can interrupt this detrimental sequence at various points. Ultimately, this intricate interplay of vulnerabilities and protective factors highlights the critical importance of multifaceted interventions that address multiple levels of influence.

These dynamic relationships underscore the necessity for comprehensive interventions considering the interconnectedness of risk and protective factors. Addressing only individual factors without accounting for the broader social and environmental context can limit the effectiveness of prevention and treatment efforts. For instance, enhancing parental involvement and family functioning alone may not fully mitigate substance abuse risks if adolescents remain exposed to high-risk environments, potent peer influence, and easy drug access. Similarly, interventions solely focused on reducing substance availability may prove insufficient if underlying psychological and family risk factors remain unaddressed.

Methodological limitations within the reviewed studies further emphasize the need for future research to clarify these complex dynamics. The dominance of cross-sectional designs limits the capacity to infer causality and understand the temporal sequencing of factors. Longitudinal studies are crucial for capturing developmental trajectories and interactions over time. Furthermore, expanding research to encompass more diverse and representative samples can enhance the generalizability of findings and illuminate context-specific dynamics. Finally, incorporating robust theoretical frameworks and sophisticated analytical methods, such as structural equation modeling, can disentangle the direct and indirect pathways among these multifaceted factors.

In summary, the dynamic interaction of social, family, psychological, environmental, and genetic factors creates a complex web influencing substance abuse. Understanding these intricate interactions is paramount for developing effective interventions. Strategies that simultaneously target multiple risk factors and bolster protective factors at individual, family, and community levels are most likely to yield success. Culturally sensitive approaches that leverage existing strengths and resources within communities can further amplify the effectiveness of these interventions. Future research must continue exploring these complex dynamics, utilizing longitudinal designs and diverse samples to deepen our understanding and inform evidence-based practices to prevent and reduce substance abuse.

Conclusion

This systematic review definitively affirms that substance abuse is a complex phenomenon shaped by a multitude of interacting risk and protective factors. Key risk factors identified include peer influence, substance accessibility, inadequate parental supervision, unstable family dynamics, and psychological vulnerabilities such as impulsivity and mental health disorders. Conversely, robust protective factors, including strong family bonds, active

social engagement, religiosity, and well-developed coping skills and resilience, demonstrably contribute to reducing the risk of substance abuse.

These findings collectively reinforce a multidisciplinary understanding of substance abuse, encompassing social, psychological, and economic dimensions. To effectively address this complex issue, a holistic approach to research and intervention is crucial for fully understanding the intricate interplay between risk and protective factors. For future research, longitudinal designs are strongly recommended to more deeply explore causal pathways and the long-term development of substance abuse. Moreover, expanding the scope of research populations to include more diverse and representative groups, particularly minority and vulnerable populations, is essential to enhance the generalizability of findings and ensure the cultural relevance of future interventions.

From a policy standpoint, the robust results of this review provide a solid evidence base for developing informed regulations that carefully consider both social and cultural contexts. Increased resource allocation towards long-term, evidence-based prevention programs is anticipated to reduce substance abuse rates effectively. For prevention program developers, multifaceted interventions incorporating education, social skills enhancement, and robust family and community involvement represent promising strategies for mitigating substance abuse risks.

In clinical practice, the implementation of early screening protocols for substance abuse risk factors can significantly aid in early detection and facilitate more effective intervention. Furthermore, integrating family-based approaches and mental health services into comprehensive rehabilitation programs is crucial to enhancing treatment effectiveness for individuals with a history of substance abuse. At the community and educational levels, strategic implementation of awareness campaigns, school-based programs, and robust inter-agency collaboration are essential for building a more comprehensive and effective support system.

Strategic and evidence-informed steps can be implemented by thoughtfully considering these key findings in developing policies, targeted intervention programs, and clinical and community practices. These steps are crucial to effectively reduce the prevalence of substance abuse among adolescents and young adults and, consequently, improve broader societal well-being.

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