



# The Impact of Pathological Behavior on Adolescent Health: A Systematic Literature Review

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**Abstract:** Adolescence is a critical transitional stage marked by vulnerability to negative influences, including drug abuse, classified as pathological behavior. Such abuse not only harms physical health but also poses serious risks to mental and social well-being. This study systematically examines the impact of drug abuse on adolescent health using findings from empirical research. A systematic literature review was conducted following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Articles were retrieved from the Scopus database with inclusion criteria: publications from 2016–2025, in English, and focusing on adolescents aged 12–19 years. Descriptive analysis was applied to identify health impact patterns. From 10 eligible studies, results showed that adolescent drug abuse is strongly associated with psychological disorders, including depression, anxiety, sleep disturbances, and suicidal behavior. Physical consequences include impaired nervous system function and weakened immunity. These findings indicate that drug abuse exerts multidimensional harm, disrupting overall adolescent development. The review also identifies potential interventions, such as medication-assisted treatment, family-based approaches, and gamification to enhance engagement. These strategies highlight the need for integrated prevention and rehabilitation programs. The evidence can guide policymakers, educators, and healthcare providers in designing measures to reduce adolescent drug abuse and its long-term consequences.

**Keywords:** Adolescents; Drug abuse; Health impacts; Pathological behavior; Prevention

## Introduction

Adolescence represents a critical developmental period marked by rapid biological, psychological, and social changes (Ike et al., 2020; Leclercq et al., 2020). During this phase, individuals often experience increased curiosity, sensitivity to peer influence, and a growing desire for autonomy, all of which can lead to risk-taking behaviors (Dzakiyyah et al., 2025; Jasmanedi et al., 2025; Sari et al., 2025; Selviani et al., 2025). Among these, drug abuse stands out as one of the most alarming pathological behaviors observed in adolescents globally.

Defined as the harmful or hazardous use of psychoactive substances, including illicit drugs, it is associated with numerous short- and long-term consequences affecting physical, mental, and social health (Indika et al., 2023; Prasetyo et al., 2024; Sari et al., 2023).

Pathological behavior refers to patterns of conduct that deviate from social norms and healthy psychological development (L. Li et al., 2023; Portalés et al., 2023; Powell & Swerdlow, 2023; Ren et al., 2023), often leading to maladaptive functioning in daily life (Ilham et al., 2024; Sari, et al., 2023; Selviani et al., 2023). In clinical contexts, these behaviors are frequently linked

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to underlying emotional or mental health issues and may emerge as dysfunctional coping mechanisms in response to stress, trauma, or adverse environmental factors (Ilham et al., 2024; Padli et al., 2024; Selviani et al., 2023). In adolescents, such behaviors include self-harm, eating disorders, aggression, digital addiction, and notably, substance abuse (Chung et al., 2021; Y. Li et al., 2020; Liu et al., 2021). When adolescents engage in drug abuse, it reflects not only behavioral deviation but also deeper psychosocial vulnerabilities which, if left unaddressed, may result in long-term developmental harm (Dai et al., 2021; Padli et al., 2024; Setoyama et al., 2021).

The prevalence of drug abuse among adolescents has been steadily increasing in various regions, raising public health concerns and prompting urgent calls for effective prevention and intervention strategies (Gellner et al., 2021; Zhang et al., 2021). Adolescent drug users are more prone to suffer from social dysfunction, emotional instability, cognitive deficits, and academic underachievement, according to studies (Hu et al., 2021; X.-K. Li et al., 2021; Vacher et al., 2021; Xu et al., 2021). Additionally, the likelihood of substance use disorders in adulthood is greatly increased by early drug exposure, which feeds the cycle of reliance and declining health (de Diego Díaz Plaza et al., 2022; Leonardi et al., 2022; Lieberman et al., 2021).

Despite growing awareness, the complexity of factors contributing to adolescent drug abuse—such as family dynamics, socio-economic status, peer pressure, and mental health issues—makes it a challenging issue to address comprehensively (Nyoman et al., 2024; Prasetyo et al., 2024; Rinaldi et al., 2025; Sari et al., 2025). Understanding the multifaceted impacts of drug abuse on adolescent health, particularly when approached as a form of pathological behavior, is therefore essential for informing policy, developing targeted interventions, and promoting holistic youth development.

The uniqueness of this study lies in its integrative perspective, framing adolescent drug abuse not only as a public health and social problem but as a manifestation of pathological behavior closely intertwined with emotional disorders and psychosocial vulnerabilities. While most prior studies tend to examine drug abuse in isolation—either focusing on its medical impacts, social consequences, or psychological aspects—this research synthesizes empirical findings from the past decade to construct a comprehensive picture of its multidimensional effects on adolescent health (X.-Y. Li et al., 2024; Portalés et al., 2023; Rappeneau & Castillo Díaz, 2024; Zhou et al., 2024). By bridging these domains, the study moves beyond descriptive prevalence data to reveal underlying mechanisms, contextual risk factors, and interrelated health outcomes, thereby offering a

more holistic foundation for designing targeted, evidence-based interventions.

The purpose of this study is to conduct a comprehensive evaluation of the body of research on the effects of drug misuse, which is regarded as a pathological behavior, on the health of adolescents. This study aims to clarify the health consequences of teen drug use by combining empirical data from the last ten years and identifying knowledge gaps that need to be filled in current research and practice.

## Method

### Study Design

To find and compile the available data on the effects of drug abuse—which is regarded as a pathological behavior—on adolescent health, this study used a systematic literature review methodology. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards were followed in conducting the review. Sari et al., (2025) to ensure methodological rigor and transparency.

### Data Sources and Search Strategy

Three significant electronic databases were thoroughly searched, including Scopus. Publications dating from 2016 to 2025 were included in the search period. Boolean operators and keyword combinations, such as "adolescents," "drug abuse," and "health impact," were used as search phrases. To allow for regional research, the search was limited to English-language publications.

### Inclusion and Exclusion Criteria

**Table 1.** describes the inclusion and exclusion standards used in the selection of the study.

Criteria	Inclusion	Exclusion
Population	Adolescents aged 12-19 years	Adults or non-adolescent populations
Behavior Focus	Drug abuse/substance use as pathological behavior	Other behavioral disorders or non-drug related behaviors
Outcomes	Physical, mental, or social health impacts	Studies lacking relevant health outcomes
Study Type	Empirical research (quantitative or qualitative)	Reviews, editorials, commentaries, case reports
Publication Period	2016 -2029	Outside specified period
Language	English	Other languages
Full-text Availability	Full text accessible	Abstract-only or inaccessible full text

*Study Selection and Data Extraction*

After removing duplicates, two separate reviewers looked through abstracts and titles to find research that could be of interest. Selected articles' full texts were evaluated in light of the inclusion and exclusion criteria. A third reviewer was consulted or a consensus was reached to settle disagreements. Data on research characteristics, participant demographics, medication kinds, health outcomes, and key findings were gathered using a standardized data extraction form.

*Quality Assessment*

The Critical Appraisal Skills Program (CASP) checklist for qualitative research (Sari et al., 2024). and the Newcastle-Ottawa Scale (NOS) for cohort and case-

control studies (Ilham et al., 2024), were used to evaluate the methodological quality of the eligible studies. Studies that did not meet the predefined quality criteria were not included in the final analysis. Using the PICO framework (Population, Intervention, Comparison, and Outcome), the chosen publications will be examined.

*Data Synthesis*

A narrative synthesis was carried out since study designs, demographics, and outcome measures varied widely. The findings were arranged according to the three types of health impact: social, mental, and physical. Descriptive statistics summarized key study features and prevalence rates where reported. The Figure 1 is the flowchart of PRISMA.

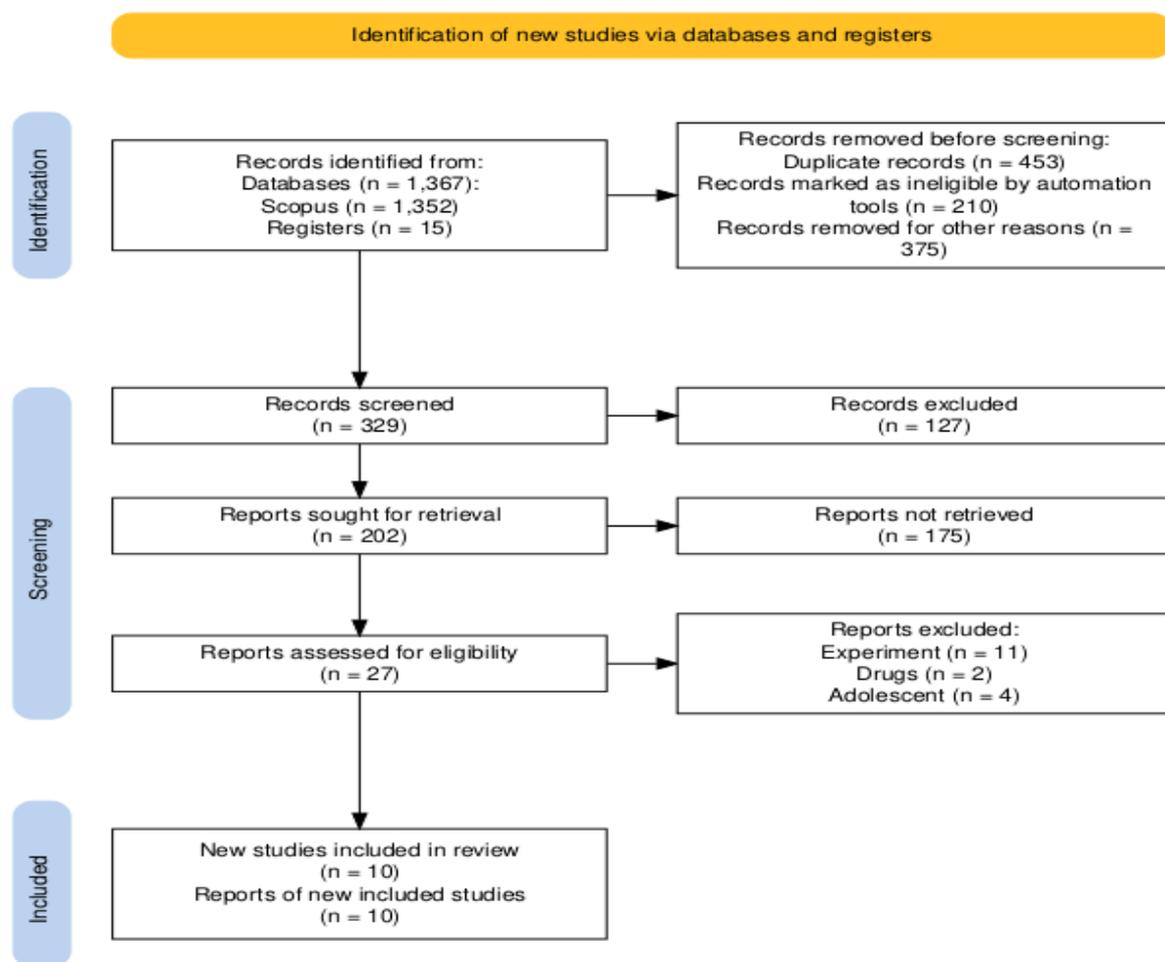


Figure 1. PRISMA Flow Diagram

**Result and Discussion**

The findings of the research data from the ten papers that make up this literature review are articles on health and pathology. Asia, Europe, Africa, and the Americas were all represented in the papers that were examined. The following themes were found in the literature: 1) The efficacy of therapies for persons with

drug addiction. Scopus served as the foundation for finding credible and prospective articles in the article database search. Ten papers were deemed appropriate following an examination of the whole text, abstract, and title. Ten peer-reviewed publications that satisfied the review's inclusion requirements were found during the whole search. The following table displays the chosen articles.

**Table 2.** Article review results based on the PICO framework

Article Identity	Population	Intervention	Comparison	Outcome
Unlocking treatment success: predicting atypical antipsychotic continuation in youth with mania (Yang et al., 2024)	Children and adolescents with mania	Risperidone therapy	Machine learning models (GLM and SL)	Prediction of risperidone continuation using machine learning models
Effectiveness and Safety of OnabotulinumtoxinA in Adolescent Patients with Chronic Migraine (Gómez-Dabó et al., 2024)	Adolescents with chronic migraine	OnabotulinumtoxinA (BTX-A)	Pre and post treatment analysis	Reduction in migraine days and improvement in quality of life
Drugs Abuse Behavior Prevention Model through Family Approach in Adolescents in Kendari City (Rachman et al., 2022)	Adolescents in Kendari City	Drug abuse prevention model using family approach	Pre and post intervention data	Increased family knowledge and attitudes towards drug abuse prevention
Vaccine Impact and Effectiveness of Meningococcal Serogroup ACWY Conjugate Vaccine Implementation in the Netherlands (Ohm et al., 2022)	Adolescents and teenagers in the Netherlands	MenACWY conjugate vaccine	Pre and post vaccine implementation data	Reduction in meningococcal disease incidence
Evaluation of a Mobile Application for Preventing the Use of Alcohol and Other Drugs among Adolescents (Chaves et al., 2024)	Adolescents	Mobile application for substance abuse prevention	Pre and post intervention data	Increased knowledge and improved attitudes toward substance use prevention
Impact of hemispherotomy on quality of life and burden of caregivers in children and adolescents (Daniel et al., 2024)	Children and adolescents with epilepsy	Hemispherotomy surgery	Pre and post-surgery quality of life data	Improved quality of life but no significant reduction in caregiver burden
The impacts of tobacco control legislation on public view of e-cigarette usage in Macao (Chan et al., 2023)	Residents of Macao, focusing on adolescents	Tobacco control legislation and e-cigarette regulation	Analysis of public views before and after legislation	Changed public views, with particular focus on adolescents
Personal care product use and lifestyle affect phthalate and DINCH metabolite levels in teenagers and young adults (Stuchlík Fišerová et al., 2022)	Teenagers and young adults in Czechia	Analysis of phthalate and DINCH metabolite levels	Exposures based on personal care product use and lifestyle	Phthalate exposure and its metabolites in connection with product usage and lifestyle
The effect of gamification-based training on the knowledge, attitudes, and academic achievement of male adolescents in preventing substance and internet addiction (Taghipour et al., 2023)	Male adolescents	Gamification-based training for addiction prevention	Pre and post training knowledge, attitude, and academic achievement	Improved knowledge, attitude, and academic achievement in addiction prevention
Antibiotics for appendectomy in children and adolescents during the perioperative period (Roque et al., 2019)	Children and adolescents undergoing appendectomy	Preoperative antibiotic use	Review of clinical protocols and antibiotic usage	Reduction in surgical wound infections with varied antibiotic protocols



immune suppression. These findings underscore that drug abuse during adolescence is not an isolated behavior but a complex pathological condition closely linked to emotional, social, and physiological vulnerabilities. More broadly, the results support the generalization that addressing adolescent substance abuse requires integrated approaches that simultaneously target mental health, physical well-being, and social support systems.

In practical terms, the evidence indicates that prevention and intervention strategies should move beyond single-focus programs and adopt comprehensive measures such as medication-assisted treatment, family-centered interventions, and innovative engagement methods like gamification to improve youth participation. Policymakers, educators, and healthcare providers can utilize these insights to design coordinated, evidence-based programs aimed at breaking the cycle of substance dependence, reducing long-term health risks, and fostering healthy developmental outcomes in adolescents.

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#### Author Contributions

This article was written by two authors, Conceptualization A. A.; methodology, validation, data curation, A.A., E. Z. S, N.H., and S. N; Writing—original draft preparation, A.A and S.N.; writing—review and editing, A.A and N.H. All authors collaborated at every stage of writing the article.

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#### Conflicts of Interest

No conflicts of interest are disclosed by the authors.

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