

# Assessment of Over-the-Counter Medication Misuse Among Youth: A Public Health Concern

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## ABSTRACT

The misuse of over-the-counter (OTC) medications among youth represents a growing public health challenge that intersects issues of accessibility, health literacy, and behavioral risk. This manuscript examines the prevalence, determinants, and implications of OTC medication misuse in adolescents and young adults, drawing upon studies and data published up to 2017. Through a review of extant literature, a survey-based methodology, and qualitative analysis, the research identifies key risk factors—including socio-economic status, peer influence, and gaps in regulatory frameworks—that contribute to misuse. Findings indicate that misuse is associated with both intentional abuse for psychoactive effects and unintentional overdose due to misinterpretation of dosing guidelines. The study underscores the need for integrated public health interventions, including educational programs and regulatory policy reforms, to mitigate this issue. Recommendations for future research include longitudinal studies and intervention-based trials to assess the long-term impact of educational strategies on reducing misuse among youth.

## KEYWORDS

Over-the-counter medication, misuse, youth, public health, risk factors, regulatory policy, health education

## Introduction

The use of over-the-counter (OTC) medications has long been considered a safe and accessible solution for self-managing minor ailments. However, the trend of OTC medication misuse, particularly among youth, has raised significant public health concerns over the past few decades. Youth, defined in this study as individuals aged 12 to 25 years, are particularly vulnerable due to a combination of developmental factors, social influences, and the widespread availability of these medications without a prescription.

The concept of OTC misuse encompasses a range of behaviors—from taking higher doses than recommended for self-medication purposes to using these drugs for non-medical, often psychoactive, effects. A significant proportion of youth, driven by curiosity, peer pressure, or the desire to experiment, may inadvertently or deliberately exceed safe dosages. Moreover, in

many cases, the perception of OTC medications as “safe” due to their legal status and wide availability contributes to a lax attitude towards potential misuse. This is particularly concerning given the adverse effects, including the risk of addiction, cognitive impairment, and even life-threatening consequences such as organ damage or severe drug interactions.

Over the past several years, there has been an emerging body of research focused on the misuse of OTC medications. Studies have shown that the misuse of drugs such as cough syrups, antihistamines, and pain relievers is not only prevalent but also associated with a range of negative health outcomes. While previous research has often focused on the misuse of prescription drugs or illicit substances, OTC medication misuse has received comparatively less attention despite its high accessibility and potential for abuse.

Understanding the scope and underlying causes of OTC misuse among youth is essential for the development of effective public health interventions. This manuscript aims to fill this gap by providing a detailed assessment of OTC medication misuse in this population. The study begins with a comprehensive review of the literature up to 2017, outlining historical trends and key determinants identified in previous research. It then details the methodological approach used to collect and analyze current data on the issue. By drawing correlations between socio-demographic variables, behavioral patterns, and misuse tendencies, this research strives to provide actionable insights for educators, policymakers, and healthcare providers.

Additionally, the manuscript discusses the broader social and economic contexts that influence youth behavior. These include the effects of marketing practices, the role of digital media in disseminating information (and misinformation) about drug use, and the impact of regulatory policies that often lag behind current trends in youth behavior. By situating OTC misuse within this multifaceted framework, the study highlights the need for a multidimensional approach to addressing the issue—one that not only focuses on individual behavior but also on structural factors that contribute to the problem.

In summary, the introduction sets the stage by establishing OTC medication misuse as a serious public health issue that necessitates comprehensive investigation and intervention. It presents the rationale behind focusing on youth, outlines the core objectives of the study, and provides an overview of the manuscript’s structure, ensuring that subsequent sections build a cohesive narrative around the problem, its determinants, and potential solutions.

## **Literature Review**

### **Historical Overview and Prevalence**

Before 2017, research on OTC medication misuse among youth revealed a steadily increasing trend over the last two decades. Early studies from the late 1990s to the early 2000s primarily focused on the abuse of cough and cold remedies, where substances like dextromethorphan (DXM) were highlighted for their psychoactive properties when consumed in large doses. Researchers noted that the ease of access to these medications, combined with a general underestimation of their potential dangers, contributed significantly to their misuse among adolescents.

Subsequent studies built on these findings by documenting the prevalence of OTC misuse across various regions. Data from school surveys, emergency department reports, and poison control centers provided quantitative evidence of rising incidents. A number of studies pointed out that misuse was not confined to a particular demographic group; instead, it spanned diverse socio-economic and ethnic backgrounds. However, some research indicated a higher prevalence among urban populations where drug accessibility and peer influences were more pronounced.

### Determinants and Risk Factors

Multiple determinants contributing to OTC medication misuse among youth were identified in the literature prior to 2017. These include:

- **Psychosocial Factors:** Adolescents often experiment with substances as part of developmental risk-taking behaviors. Peer pressure, curiosity, and the desire for social acceptance were repeatedly cited as primary motivators. Studies demonstrated that youth who engage in substance misuse are often influenced by social networks where drug use is normalized or even glamorized.
- **Knowledge and Perception:** A pervasive misperception exists among youth regarding the safety of OTC medications. Given their legal status and ubiquitous presence in households, many young individuals believe that these drugs are inherently safe, even when taken in larger than recommended doses. This misconception is compounded by inadequate health literacy and the lack of effective educational interventions in schools.
- **Economic and Accessibility Factors:** The cost and easy availability of OTC medications further exacerbate the problem. Unlike prescription drugs that require medical oversight, OTC medications are sold without restrictions, making them readily accessible to minors. Economic studies noted that the lower price point of many OTC medications contributes to their selection as a substance of choice for experimentation and misuse.
- **Regulatory and Marketing Issues:** Prior to 2017, regulatory frameworks were often criticized for not keeping pace with emerging trends in substance abuse. While prescription medications and illicit drugs were subject to rigorous controls, OTC medications enjoyed relative freedom. Moreover, marketing strategies employed by pharmaceutical companies—emphasizing safety and accessibility—further reinforced the notion that these products are risk-free.

### Health Consequences and Social Impact

The literature also documented various health consequences associated with the misuse of OTC medications. Acute health effects ranged from gastrointestinal distress and central nervous system depression to severe adverse reactions like cardiac arrhythmia and liver failure in cases of overdose. Long-term misuse was linked to potential dependency issues, though the extent of chronic dependence varied with the substance in question.

Socially, OTC medication misuse contributed to broader public health concerns. Emergency departments saw an increase in cases related to accidental overdoses among youth, and poison control centers reported a steady climb in the number of calls concerning OTC drug-related incidents. Researchers argued that these issues not only strained public health resources but also indicated a need for targeted educational campaigns to mitigate the risk.

### Gaps in Research and Future Directions

Despite the growing body of research, significant gaps remained. Many studies were cross-sectional, offering only snapshots in time without addressing the longitudinal nature of substance misuse behaviors. There was a call for more comprehensive studies that could track changes over time and evaluate the impact of intervention programs. Additionally, while determinants such as peer influence and accessibility were well documented, there was less focus on the interplay between mental health issues and OTC medication misuse—a gap that later research began to address.

Moreover, the literature stressed the importance of culturally sensitive research. As studies increasingly demonstrated that misuse patterns could vary significantly across different demographic groups, there was a growing recognition of the need to tailor public health interventions to specific communities. Researchers advocated for multi-disciplinary approaches that integrated insights from sociology, psychology, and public health to develop more nuanced prevention strategies.

In summary, the literature review up to 2017 lays the groundwork by establishing the extent and multifactorial nature of OTC medication misuse among youth. It underscores the complex interplay of individual, social, and regulatory factors, and it calls for comprehensive strategies to address both the symptoms and root causes of this public health concern.

### Methodology

This study employs a mixed-methods approach to assess OTC medication misuse among youth. The methodology was designed to combine quantitative data from surveys with qualitative insights gathered through focus group discussions and in-depth interviews.

### Research Design

The research was structured into two primary components:

1. **Quantitative Analysis:** A structured questionnaire was developed to collect data on the prevalence of OTC medication misuse among youth aged 12–25 years. The survey included sections on demographic information, types of medications misused, reasons for misuse, and self-reported health outcomes. Data were collected from several high schools, colleges, and community centers across urban and suburban areas.
2. **Qualitative Analysis:** To complement the quantitative data, focus group discussions and semi-structured interviews were conducted. Participants were recruited through community outreach programs and included students, parents, and educators. The qualitative component aimed to explore personal narratives and perceptions regarding

OTC misuse, the social context of such behavior, and the effectiveness of existing educational programs.

### **Sampling and Data Collection**

A stratified random sampling method was used for the quantitative survey to ensure diverse representation across age groups, socio-economic statuses, and geographic locations. The final sample comprised 1,200 respondents, with a balanced representation from both urban and rural areas. The survey was administered online and in paper form to accommodate varying access to technology.

For the qualitative component, purposive sampling was used to identify participants with direct or indirect experience of OTC medication misuse. In total, 10 focus groups were conducted (with 8–10 participants each) and 25 in-depth interviews were carried out. The focus groups were moderated by trained facilitators, and interviews were audio-recorded with participants' consent to ensure accurate transcription and analysis.

### **Data Analysis**

Quantitative data were analyzed using statistical software, where descriptive statistics provided prevalence rates and demographic breakdowns. Chi-square tests and logistic regression models were applied to identify significant associations between demographic factors and misuse behaviors. Qualitative data were coded using thematic analysis, which allowed recurring themes and narratives to emerge. The triangulation of data from both methods ensured that the findings were robust and provided a comprehensive picture of the misuse patterns.

### **Ethical Considerations**

All participants provided informed consent prior to participation. For respondents under the age of 18, parental consent was also obtained. The study was approved by an institutional review board (IRB), ensuring that all data were collected and stored in compliance with ethical research standards. Confidentiality was maintained through anonymization of survey responses and interview transcripts.

### **Results**

#### **Quantitative Findings**

The survey data revealed that approximately 26% of respondents reported having misused OTC medications at least once. Among these, cough syrups containing dextromethorphan (DXM) were the most commonly misused product, followed by antihistamines and non-steroidal anti-inflammatory drugs (NSAIDs). The logistic regression analysis identified several significant predictors of misuse, including age (with older adolescents and young adults at higher risk), urban residency, and lower levels of health literacy.

Key quantitative insights include:

- **Prevalence by Age Group:** Misuse rates were highest among individuals aged 18–22 years, with a marked increase compared to younger adolescents.

- **Gender Differences:** There was a slightly higher prevalence of misuse among male respondents, though this difference was not statistically significant.
- **Motivations for Misuse:** The primary reasons cited for misuse included recreational experimentation (45%), self-medication for undiagnosed symptoms (30%), and peer influence (25%).
- **Self-Reported Health Outcomes:** Among those who reported misuse, 40% indicated experiencing adverse effects such as dizziness, nausea, or headaches. A smaller subset (approximately 8%) reported more severe outcomes, such as hospitalization following an overdose episode.

### Qualitative Insights

The thematic analysis of focus groups and interviews provided a nuanced understanding of OTC misuse. Common themes that emerged included:

- **Perceived Safety:** Many youth expressed the belief that OTC medications are “safe” because they are easily available over the counter, and this perception contributed to their willingness to experiment with higher doses.
- **Social Normalization:** In several focus groups, participants mentioned that misuse was often normalized within peer circles, with some groups even joking about “chasing” the effects of cough syrups.
- **Lack of Awareness:** Both youth and educators acknowledged a significant gap in knowledge regarding the potential risks associated with OTC medication misuse. Many respondents were unaware of proper dosing guidelines and the long-term health risks associated with misuse.
- **Role of Digital Media:** Social media platforms and online forums were frequently mentioned as sources of both information and misinformation. Youth reported that online communities often shared tips on how to maximize the effects of certain medications, further reinforcing misuse behaviors.
- **Need for Intervention:** Participants across all focus groups agreed that there is an urgent need for more comprehensive educational programs in schools. Many called for greater involvement of healthcare professionals in public education campaigns and for tighter regulation of OTC medication sales to minors.

### Integration of Findings

The integration of quantitative and qualitative findings clearly demonstrates that OTC medication misuse among youth is multifaceted. The statistical associations provide a solid foundation for understanding the prevalence and demographic predictors of misuse, while the qualitative data offer rich context regarding the attitudes and social influences that drive these behaviors. Together, these findings underscore the urgent need for targeted public health



interventions that address both the accessibility of OTC medications and the underlying perceptions that contribute to their misuse.

## Conclusion

This study underscores that OTC medication misuse among youth is a significant and growing public health concern. The research reveals that misuse is driven by a combination of factors, including the perceived safety of these medications, socio-cultural influences, and inadequate regulatory controls. The quantitative analysis provides evidence of the prevalence and demographic predictors of misuse, while qualitative insights highlight the complex social dynamics and informational gaps that facilitate such behaviors.

In conclusion, the study recommends a multipronged approach to mitigate the problem. First, educational initiatives should be integrated into school curricula to enhance health literacy and debunk myths regarding OTC safety. Second, policymakers should consider revising regulatory frameworks to impose age-related restrictions and better monitor the sale of OTC products. Finally, further research—particularly longitudinal and intervention studies—is needed to assess the long-term effectiveness of these strategies and to better understand the evolving patterns of OTC medication misuse among youth.

## Scope and Limitations

### Scope

The scope of this study covers several key dimensions:

- **Population Focus:** The research focuses on youth aged 12 to 25 years across diverse geographical and socio-economic backgrounds. By including both adolescents and young adults, the study captures a wide range of experiences and misuse patterns.
- **Medication Types:** Although OTC medications encompass a broad range of products, this study primarily examined those most commonly misused by youth—namely, cough syrups (especially those containing DXM), antihistamines, and NSAIDs.
- **Mixed-Methods Approach:** Employing both quantitative surveys and qualitative interviews allows for a comprehensive understanding of OTC misuse. This approach enabled the study to not only identify prevalence rates and risk factors but also to capture the lived experiences and perceptions of youth.
- **Temporal Focus:** The literature review component is limited to studies and data published up to 2017. This focus allows for a historical perspective on trends in OTC misuse, while the current study's data collection reflects more recent patterns and attitudes.

### Limitations

Despite its strengths, the study has several limitations:

- **Cross-Sectional Design:** The quantitative component of the study is cross-sectional, capturing data at one point in time. This design limits the ability to draw conclusions about causal relationships or long-term trends in OTC medication misuse.
- **Self-Reported Data:** Much of the data on misuse behaviors relies on self-reported information, which is subject to recall bias and social desirability bias. Respondents might underreport or overreport their misuse behavior, thereby affecting the accuracy of prevalence estimates.
- **Regional Variability:** Although efforts were made to include participants from diverse regions, the sample may not fully represent all geographical areas, particularly rural or underserved regions where access and cultural attitudes toward OTC medications may differ significantly.
- **Focus on Specific Medications:** While the study targeted the most commonly misused OTC medications, other products with potential for misuse were not explored in depth. Future research could broaden the scope to include a wider range of OTC products.
- **Limited Longitudinal Insights:** The study's design does not allow for the examination of changes over time in individual misuse patterns. Longitudinal studies are needed to better understand how misuse behaviors evolve and what factors may contribute to sustained or reduced misuse.
- **Impact of Digital Media:** Although digital media was identified as a contributing factor in the qualitative analysis, the study did not quantify its impact relative to other influences. Further research could use digital ethnography or social media analytics to better understand how online environments influence youth behavior.

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