

Poison Control Center Cases of Prescription Stimulant Misuse, Abuse, and Self-Harm Among U.S. Teenagers and Young Adults, Before and During COVID-19



Christina Greene¹, Candice Collins¹, Rose Radin¹, Amy Seitz¹, Judy Staffa², Jana Mcaninch¹

¹FDA, CDER, DEPI-II Nonmedical Use (NMU), ²FDA, CDER, OSE

Abstract*

Background: Prescription stimulant dispensing has increased in recent years, and these medications are commonly prescribed to adolescents and young adults. This group has experienced profound changes in education during the COVID-19 pandemic, the most notable being a shift to remote learning. It is important to understand any associated changes in nonmedical use of prescription stimulants. Purpose: Examine trends in poison control center (PCCs) cases of misuse, abuse, and self-harm involving prescription stimulants among teenagers and young adults, before and during the COVID-19 pandemic (March 2020 forward).

Methodology: PCC calls capture near real-time data on drug exposures, including related harms and specific drugs involved. Data were extracted from the National Poison Data System, which houses data from the nation's 55 PCCs. Micromedex product codes for prescription stimulants were used to identify the exposures of interest. Cases of misuse, abuse, and self-harm involving prescription stimulants were tabulated by month from January 2018-September 2020.

Results: Among teenagers aged 13-19 years, the median number of self-harm cases involving prescription stimulants was 213 per month, and the median number of misuse/abuse cases was 51 per month. In 2018 and 2019, the monthly number of self-harm cases involving prescription stimulants in teenagers was highest during the typical school months, September to May (median: 223), and dropped during the summer months (June-August, median:165). In 2020, this seasonal drop occurred earlier, coinciding with COVID-related school closures, with lower numbers of cases in April (n=169) through August (n=203). In young adults (ages 20-29), a similar pattern was observed, but with lower case numbers. Monthly cases of misuse/abuse among teenagers peaked at 76 in November 2019, then declined during COVID-19, from 40 in March to 21 in August 2020. The monthly numbers of misuse/abuse cases in young adults during 2020 were consistent with previous years.

Conclusion: These results suggest that educational and social changes associated with the COVID-19 pandemic may have altered previously observed patterns of prescription stimulant misuse, abuse, and self-harm, among U.S. teenagers. Future collaboration with the education community may be helpful in understanding the association between prescription stimulant involved misuse, abuse, and self-harm and school attendance.

***Note:** Methods, Results, and Conclusion in this poster have been updated from the approved abstract to include five recent months of data (October 2020-February 2021). Findings presented in methods, figures, and text within this poster reflect the results of updated analyses spanning from January 2018 to February 2021.

Introduction and Purpose

- Approximately 1.8 million individuals ages 12-17 and 4.3 million individuals ages 18-25 reported any use of prescription stimulants in the last year, according to the National Survey on Drug Use and Health (NSDUH) in 2019 (1).
- An estimated 430,000 individuals between 12-17 and 1.95 million individuals between 18-25 reported prescription stimulant misuse in the past year.
- Due to the COVID-19 pandemic, both teenagers and young adults have experienced a change to remote learning and increased social isolation.
- While other studies have found evidence of increased rates of stress (2) and increased frequency of cannabis and alcohol use in adolescents due to the pandemic (3), no study has analyzed how COVID-19 may have impacted intentional misuse of prescription stimulants among teenagers and young adults.
- As a result, we investigated the impact of the COVID-19 pandemic on suspected suicide and misuse/abuse exposures in young adults and teenagers.

Materials and Methods

- We performed analyses using the poison control center (PCC) case call data to examine patterns of abuse, misuse, or suspected suicide involving prescription stimulants and identify emerging trends.
- Data were extracted from the National Poison Data System (NPDS), which houses data from the nation's 55 PCCs. Micromedex product codes for prescription stimulants were used to identify exposures to prescription stimulants in calls.
- Our analyses examined the monthly number of misuse or abuse, or suspected suicide cases from January 2018 to February 2021. The definitions of these exposure reasons are provided in Table 1.
- For this analysis, misuse and abuse exposures were combined into one category, referred to as "misuse/abuse".
- We examined the monthly number of cases of misuse/abuse and suspected suicide involving prescription stimulants in teenagers (ages 13-19 years) and young adults (20-29 years).

Intentional Exposure Reason Categories from NPDS

Intentional Exposure Reasons	NPDS Definition
Suspected Suicides ⁹	"An exposure resulting in the inappropriate use of a substance for self-harm or self-destruction or manipulative reasons."
Abuse	"An exposure resulting from the intentional improper or incorrect use of a substance where the victim was likely attempting to gain a high, euphoric effect or some other psychotropic effect", including recreational use of a substance for any effect.
Misuse	"An exposure resulting from the intentional improper or incorrect use of a substance for reasons other than the pursuit of a psychotropic effect."

Table 1. NPDS Definitions for Intentional Exposure Reason Categories

Results and Discussion

- Prior to COVID-19, among teenagers aged 13-19 years, the monthly number of suspected suicides involving prescription stimulants was highest during the typical school months (September-May) and dropped during the summer months of (June- August, **Figure 1**).
- In 2020, the number of cases of suspected suicides dropped substantially from March (n=249) to April (n=174), remaining lower through August (n=203, Figure 1).
- The number of cases generally increased from September 2020 - February 2021, mirroring a similar trend observed during the same time period in the previous year (**Figure 1**).
- The number of suspected suicides involving prescription stimulants was much lower in young adults ages 20-29 (median: 71) with little seasonal variation observed during 2018 and 2019. The median monthly number of suspected suicides in young adults ages 20-29 also did not change much after March 2020, the approximate start of the COVID-19 pandemic (pre-COVID: 74 , post-COVID: 69, **Figure 1**).

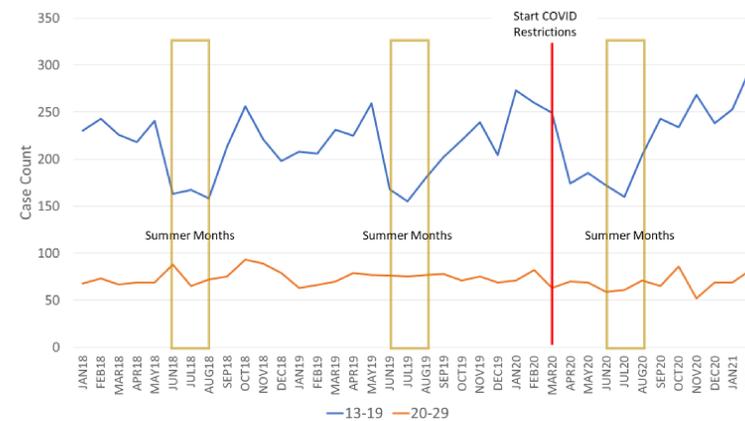


Figure 1. Monthly Number of Suspected Suicides⁹ involving Prescription Stimulants in individuals 13-19 years and 20-29 years, U.S. PCC, Jan 2018- Feb 2021

- Among teenagers (13-19 years), monthly cases of misuse/abuse appeared to be slightly higher during the school months (September-May, median: 57) compared to the summer months (June-July, median: 40) in 2018 and 2019 (**Figure 2**).
- Among teenagers in 2020, the number of cases dropped from February (n=68) to March (n=40), reached its lowest point in August (n=21) rising again from September- February 2021 (**Figure 2**).

SNote: Includes non-fatal and fatal cases

- Among young adults (20-29) the median monthly number of combined cases of misuse/abuse was similar to that of teenagers, however, there was no seasonal pattern detected (**Figure 2**).
- In young adults (20-29), the median monthly number of misuse/abuse cases did not change much after March 2020, (pre- COVID: 43, post-COVID: 41, **Figure 2**).

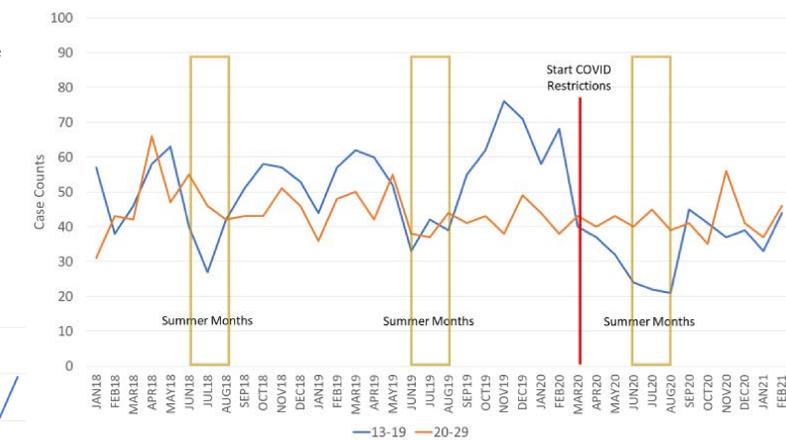


Figure 2. Monthly Number of Misuse/Abuse Cases involving Prescription Stimulants in individuals 13-19 years and 20-29 years, U.S. PCC, Jan 2018- Feb 2021

Conclusion

- Poison center case patterns suggest that the COVID-19 pandemic may have differentially impacted suspected suicide and misuse/abuse exposures involving prescription stimulants, depending on the individual's age.
- Nationwide school closings in March 2020 were associated with an earlier decline in suspected suicide poison control cases in teenagers, compared to seasonal patterns seen in previous years.
- Misuse/abuse poison control cases involving prescription stimulants in teenagers appeared to decline during the COVID-19 pandemic compared to previous years.
- Assessing educational modifications at the community-level could provide insight into how schooling methods impact prescription stimulant involved misuse, abuse, and self-harm in U.S. teenagers.

References:

1. Center for Behavioral Health Services and Quality. (2021). 2019 National Survey on Drug Use and Health: Detailed Tables. Rockville, MD. Retrieved 4/8/2021 from: <https://www.samhsa.gov/data/report/2019-nsduh-detailed-tables>.
2. Jones, E.A.K., A.K. Mitra, and A.R. Bhuiyan, Impact of COVID-19 on Mental Health in Adolescents: A Systematic Review. International Journal of Environmental Research and Public Health, 2021. 18(5): p. 2470.
3. Dumas, T.M., W. Ellis, and D.M. Litt, What Does Adolescent Substance Use Look Like During the COVID-19 Pandemic? Examining Changes in Frequency, Social Contexts, and Pandemic-Related Predictors. Journal of Adolescent Health, 2020. 67(3): p. 354-361.