

***Impact of the COVID-19 Pandemic on Substance
Use Behaviors in People with Spinal Cord Injury***

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Background

What do we know about the COVID-19 pandemic impact on general population health?

- Direct: 248.78 Death per 100,000 population (<https://coronavirus.jhu.edu/data/mortality>)
- Indirect: Negative impacts
 - “Minority groups are disproportionately affected by chronic medical conditions and lower access to healthcare that may portend worse COVID-19 outcomes.” (Tai, Shah et al. 2021).
 - “Elevated levels of adverse mental health conditions, substance use, and suicidal ideation were reported by adults in the United States in June 2020” (Czeisler, Lane et al. 2020).

Background (cont'd)

Why do we study the people with spinal cord injury (SCI)?

- “Associated with mobility limitations, susceptibility to pulmonary infection, need for personal care attendant, and regular equipment and health care use” (Kirshblum and Lin 2018).
- “At risk for substance abuse related to depression, anxiety, and chronic pain” (Czeisler, Wiley et al. 2021).

➔ Health care professionals and researchers could take this opportunity to understand the substance use behaviors during the pandemic, optimize the health and safety of persons with SCI and be better prepared for future events.

Research Objectives

- Analyzing data from the National Spinal Cord Injury Model Systems (SCIMS), this study was conducted to examine differences in substance use behaviors, including the use of opioids, cannabis, cocaine, amphetamines, inhalants, hallucinogens, sedatives/sleeping pills, and others, before and during the pandemic in people with SCI.
- Also investigated the differences in substance use in the followings:
 - Sexes
 - Race/ethnic
 - Neurological
 - Geographic regions

Methods

- Secondary data analysis
- Source: SCIMS
 - enrolled new SCI patients since the early 1970s
 - follow-up data collection at post-injury years 1, 5, and every five years
 - captures 6% of new SCI cases in the United States

Methods (cont'd)

Source: <https://www.who.int/publications/i/item/978924159938-2>

- CURRENT SAMPLE SIZE: DURING 2016-2021 CYCLE, WE FOLLOW APPROXIMATELY 2,500
- Two populations: March-December 2020 & March-December 2017-2019
- The World Health Organization Alcohol, Smoking, and Substance Involvement Screening Test (WHO ASSIST):
 - 9-item tool to assess the frequency of substance use in the past three months.

BOX 3 Drug list for response card for clients
a Tobacco products (cigarettes, chewing tobacco, cigars, etc.)
b Alcoholic beverages (beer, wine, spirits, etc.)
c Cannabis (marijuana, pot, grass, hash, etc.)
d Cocaine (coke, crack, etc.)
e Amphetamine-type stimulants (speed, meth, ecstasy, etc.)
f Inhalants (nitrous, glue, petrol, paint thinner, etc.)
g Sedatives and sleeping pills (diazepam, alprazolam, flunitrazepam, midazolam, etc.)
h Hallucinogens (LSD, acid, mushrooms, trips, ketamine, etc.)
i Opioids (heroin, morphine, methadone, buprenorphine, codeine, etc.)
j Other - specify: _____

BOX 4 Frequency responses from response card	
Response card Last 3 months (ASSIST questions 2 to 5)	Response card Lifetime (ASSIST questions 6 to 8)
I Never: not used in the last 3 months.	I No, never.
I Once or twice: 1 to 2 times in the last 3 months.	I Yes, but not in the past 3 months.
I Monthly: average of 1 to 3 times per month over the last 3 months.	I Yes, in the past 3 months.
I Weekly: 1 to 4 times per week.	
I Daily or almost daily: 5 to 7 days per week.	

Methods

- Data analysis:
 - Descriptive statistics (frequency, percentages, mean standard deviations)
 - Student t-test, chi-square test, or Fisher Exact test: compare the prevalence of substance use behaviors before and during the pandemic.
 - Stratified by sex, race, neurological status, and regions.
 - Sexes (male and female)
 - Race/ethnic groups (non-Hispanic White, non-Hispanic Black, and Hispanic/Other)
 - Neurological status (tetraplegic with American Spinal Injury Association Impairment Scale [AIS] A, B, or C; paraplegic with AIS A, B, or C; and AIS D or E)
 - Geographic regions (Northeast, South, Midwest, and West).

Results

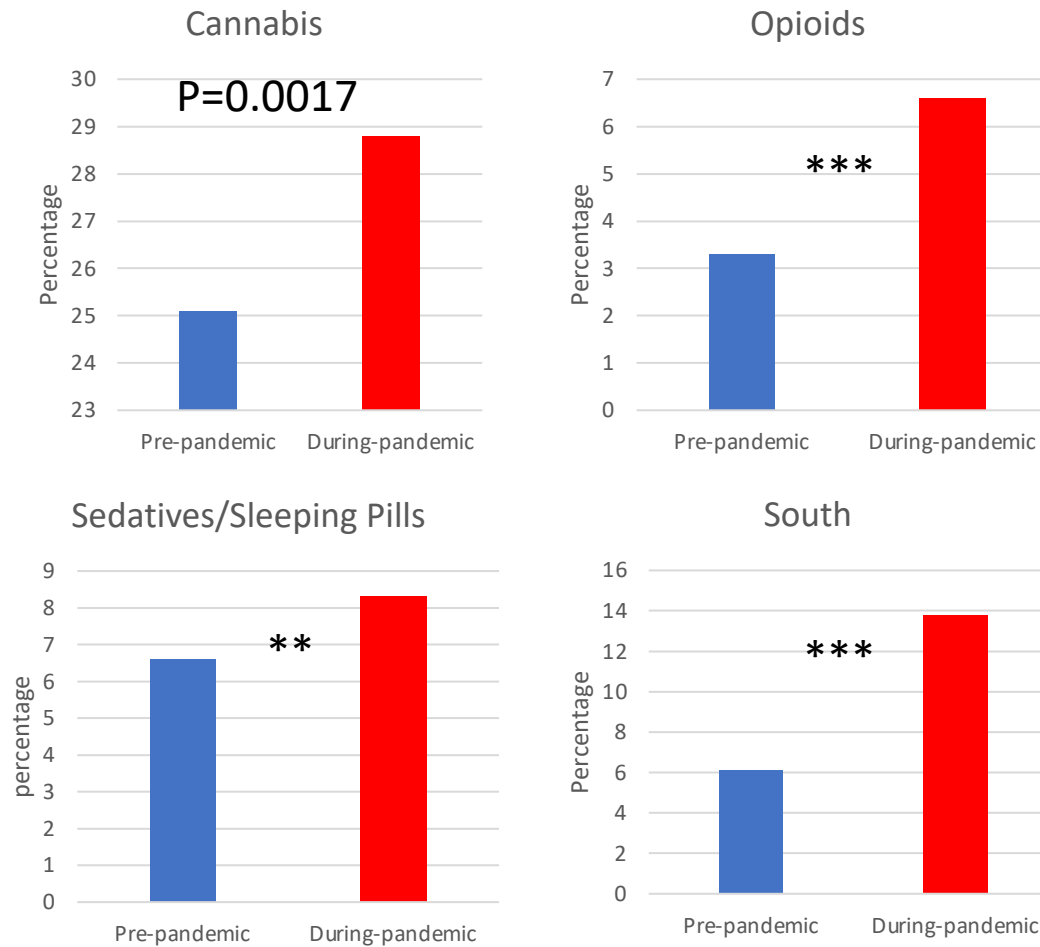
Participant Characteristics

- 8,257 persons eligible for this study (average age; 48.9 years): 6,368 from pre-pandemic (March-December 2017-2019) and 1,889 from during-pandemic (March-December 2020).
 - Average years since injury: 14.4 years
 - 78.1% were male
 - 65.1% were White
 - 33.2% had tetraplegic AIS ABC injuries, 39.5% had paraplegic AIS ABC injuries, and 27.4% had AIS D injuries.
 - 23.5% of study participants resided in the Northeast, while 14.9%, 36.4%, and 25.2% lived in the Midwest, South, and West, respectively
 - Only one of the participants is AIS E (because criteria to follow-up)
- There was no significant difference in demographics, injury-related factors, or geographic region of residence between the pre-pandemic and during pandemic groups.

Characteristics, n (%) or mean ± STD	Total	Pre-pandemic	During pandemic	P-value
Sample size	8,257	6,368	1,889	
Current age, mean std	48.9 ± 15.3	48.9 ± 15.2	49.0 ± 15.7	0.65
Sex,				0.90
Male	6,452 (78.1)	4,978 (78.2)	1,474 (78.0)	
Female	1,805 (21.9)	1,390 (21.8)	415 (22.0)	
Race/ethnicity				0.45
Non-Hispanic White	5,333 (65.1)	4,106 (65.0)	1,227 (65.8)	
Non-Hispanic Black	1,671 (20.4)	1,309 (20.7)	362 (19.4)	
Hispanic/Other	1,184 (14.5)	907 (14.4)	277 (14.8)	
Unknown	69			
Marital Status at follow up				0.62
Single/Other	4,836 (59.2)	3,740 (59.3)	1,096 (58.7)	
Married	3,334 (40.8)	2,563 (40.7)	771 (41.3)	
Unknown	87			
Education at follow up				0.77
<High school	721 (8.9)	564 (9.0)	157 (8.5)	
High school	3,801 (46.9)	2,932 (46.9)	869 (46.9)	
>High school	3,391 (41.9)	2,611 (41.8)	780 (42.1)	
Other	186 (2.3)	139 (2.2)	47 (2.5)	
Unknown	158			
Employment at follow up				0.25
Student/trainee	221 (2.7)	173 (2.8)	48 (2.6)	
Employed	2,007 (24.9)	1,532 (24.6)	475 (25.8)	
Unemployed	3,040 (37.7)	2,382 (38.2)	658 (35.7)	
Other	2,805 (34.8)	2,145 (34.4)	660 (35.6)	
Unknown	184			
Etiology				0.21
Vehicular	3,731 (45.2)	2893 (45.5)	838 (44.4)	
Violence	1,211 (14.7)	945 (14.9)	266 (14.1)	
Falls	1,799 (21.6)	1,348 (21.2)	431 (22.8)	
Sports	979 (11.9)	739 (11.6)	240 (12.7)	
Medical/surgical	199 (2.4)	163 (2.6)	36 (1.9)	
Other	351 (4.3)	275 (4.3)	76 (4.0)	
Unknown	7			
Neurologic status				0.98
Tetra ABC	2,581 (33.2)	1,995 (33.1)	586 (33.3)	
Para ABC	3,074 (39.5)	2,382 (39.6)	692 (39.3)	
AIS DE	2,130 (27.4)	1,646 (27.3)	484 (27.5)	
Unknown	472			
Year since injury, mean std	14.4 ± 12.7	14.4±12.6	14.6±13.0	0.58
Regions				0.14
Northeast	1,884 (23.5)	1,434 (23.2)	450 (24.4)	
Midwest	1,197 (14.9)	913 (14.8)	284 (15.4)	
South	2,919 (36.4)	2,233 (36.2)	686 (37.1)	
West	2,024 (25.2)	1,596 (25.8)	428 (23.2)	
Unknown	233			

Results

Prevalence of Substance Use



Results

- Limitations
- Because this is a cross-sectional study but not a longitudinal design, we could not examine the change in substance use within an individual.
- This study was also limited by the reliability of the self-reported data in sensitive questions (e.g., substance use) and the sensitivity of outcome measures in the assessment of the COVID-19 pandemic impact on the lives of people with SCI.

Conclusions

- There was a significant increase in substance use behaviors during the pandemic regardless of sex, race, and neurological status.
- The South experienced a disproportionate difference when compared with the other three regions.
- Significant increase in opioids uses behaviors across many categories (e.g. sex, neurological), implying a potential worsening of the ongoing national opioids crisis during the pandemic.
- New knowledge gained from this study can inform the work of practitioners and policymakers as they design programs and support systems to help people with SCI and other disabilities cope with this severe public health crisis and prepare for future events.

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