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Temporal trends in habitual fentanyl use among patients with a history of Schizophrenia Spectrum disorders during the Toxic Drug Crisis: Quadratic Age-Period-Cohort Analysis

BC MENTAL HEALTH & SUBSTANCE USE SERVICES
Provincial Health Services Authority

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Introduction

- Opioid use is a consistent risk factor in fatal and non-fatal overdoses.
- People with severe mental illnesses and substance use disorders are disproportionately affected. Among them, patients diagnosed with SSD are particularly at risk

Objectives

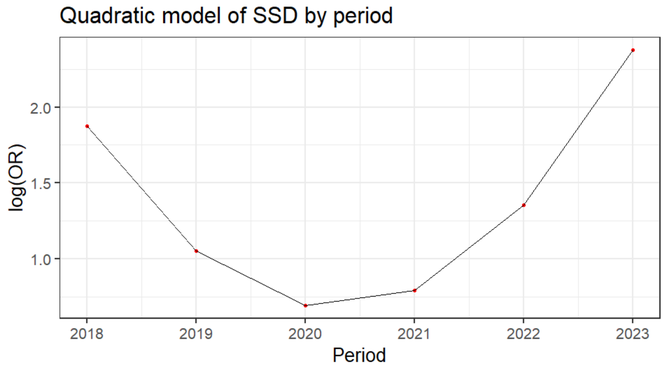
- Identify temporal and cohort trends in fentanyl habits (Fe30) in patients with concurrent mental health and substance-use disorders.
- Examine trends among patients with or without psychotic disorders (SSD).

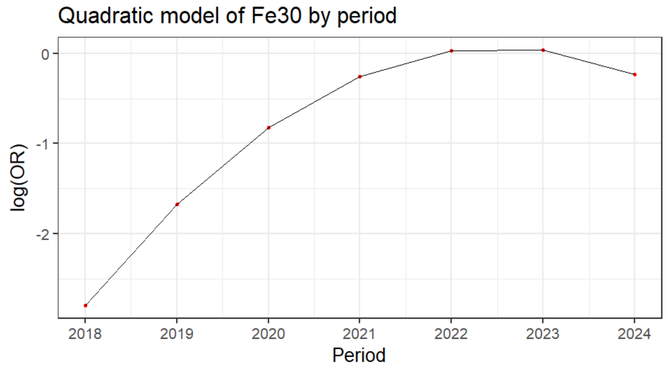
Methods

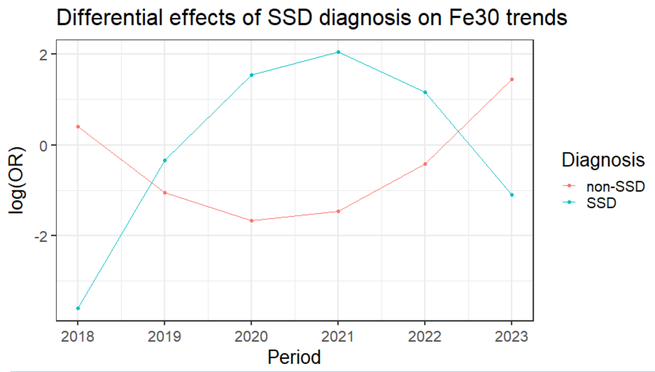
- Data combined the CAPU (cross-sectional survey of individuals with SCD) and baseline assessments of ROAR (longitudinal observation study of individuals with SCD)
- Outcomes were 30-day fentanyl use before treatment (Fe30) from the Maudsley Addiction profile and diagnosis of Schizophrenia Spectrum Disorder (SSD) from chart review
- Median Polish Analysis identifying age, period and cohort effects on Fe30 and SSD.
- Quadratic logistic regression estimating APC effects and moderation effects of SSD on Fe30.

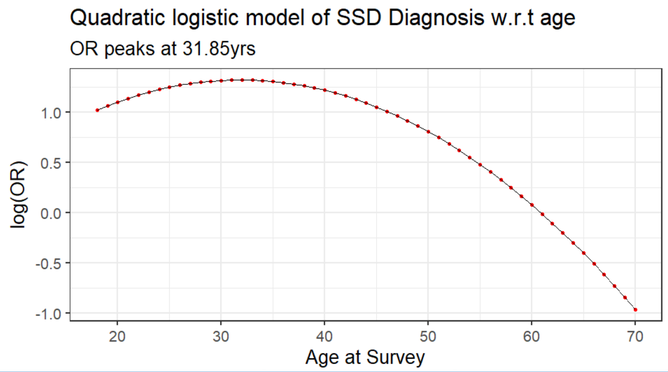
Results

- SSD diagnoses have been increasing post-2020.
- Fe30 remains unlikely but was more prevalent in 2024 compared to earlier years.
- SSD was a statistically significant moderator of Fe30 between 2018 and 2024.









Fe30 Model comparison	Df	Log-likelihood	Chisq	Pr(>Chisq)
Age	2	-288.07	4.89	0.0866
Period	2	-266.69	47.64	<0.001
Cohort	5	-263.6	53.83	<0.001
Period:Cohort	3	-263.6	6.19	0.1025
SSD Model comparison				
Age	2	-185.09	7.11	0.028
Period	2	-183.13	11.04	<0.001
Cohort	5	-177.5	22.3	<0.001
Period:Cohort	3	-177.5	11.26	0.0104
Age:Cohort	3	-177.5	15.19	<0.001
Fe30 interactions Model comparison	**Df**	**Residual Deviance**	**Deviance**	**Pr(>Chi)**
Age	5	416.01	10.26	0.06816
Period	5	372.94	53.33	<0.001

Top left: Period effect on SSD estimated by a quadratic function of period **Top right:** Period effect on Fe30 suggesting that habitual use peaked between 2022-2023 **Bottom left:** Differential effect of SSD on Fe30 suggests that SSD patients developed an inclination for fentanyl between 2020-2022 **Bottom right:** Estimated cohort effects suggesting fewer older patients between 2020 and 2023 which corresponds to peaks of Fe30; phenomenon maybe linked to mortality due to fentanyl overdose

Table: Likelihood ratio tests and analysis of deviance results for estimated Age, Period and cohort effects on Fe30 and SSD. Tests failed to detect age and cohort effects for Fe30 but found evidence of a quadratic period effect. Cohort effect model provided a better explanatory model of SSD

Discussion

- Patients with SSD are at a higher risk of Fe30 than those without.
- Comprehensive treatment for comorbid SUD and SSD is paramount.
- Indirect evidence that mortality burden of Fe30 may be borne disproportionately by older SSD patients.

Limitations and future directions

- Fe30 outcome was self-reported
- Findings may not generalize to populations with less severe clinical presentations
- SSD diagnoses may be confounded with substance-induced psychosis
- Future studies should characterize overdose risks and polysubstance use patterns among SSD.
- Future studies could also assess mortality risk among patients with SSD who use opioids

Acknowledgement

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