

Comorbid Substance Use Disorders in Individuals with Diagnosed Eating Disorders: a Multi-State and Real-Time Analysis of Real-World Administrative Data

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Abstract

- Objective: We aimed to use real-world data to characterize the burden of psychiatric comorbidities related to substance use in individuals with eating disorders (EDs) relative to peers without EDs.
- This retrospective cohort study used a large federated multinational network of real-time electronic health records (EHR).
- Our cohort consisted of 14,524 individuals receiving their index (first-ever) ED diagnosis, compared to peers without EDs receiving antidepressants. Propensity score matching and multivariable logistic regression were used to compare risk of psychiatric comorbidity related to substance use arising in the year following the index event (first ED diagnosis or first antidepressant prescription).
- EDs were associated with substance use disorders, cannabis use disorder, and alcohol use disorder. They were not significantly associated with opioid use disorder, nicotine use disorder, or other stimulant use disorder.
- Comorbid substance use disorders are prevalent among individuals with EDs, which may present an important treatment gap in this population.

Introduction

- Eating disorders (EDs) are surging in the U.S. and worldwide.
- The prevalence of co-occurring mental health problems in youths with EDs are not well understood, and under-treated mental health comorbidities are known to portend worse ED outcomes.
- Screening and treatment for substance use disorder (SUD) should be offered to people receiving treatment for ED because co-occurrence of ED and SUD is known to be relatively common.
- Additionally, specific patterns of co-occurring alcohol use and eating disorder behaviors to avoid weight gain from alcohol consumption have been identified.
- Up-to-date, population-level data on the prevalence of comorbid SUD in people with ED are lacking, thus, we used real-time electronic health records to estimate rates of SUD comorbidity in young people with ED.

Methods

- This is a retrospective cohort analysis of the TriNetX databases, a large deidentified federated multinational network of healthcare organizations with access to real-time EHR data.
- We compared psychiatric comorbidities in the 365 days preceding index events in two groups: patients diagnosed with EDs* (n=14,524), and peers without EDs initiating antidepressants (n=110,051).
- We then curated a 1:1 propensity score** matched cohort of people receiving index ED diagnoses (study cohort; n=13,707), and peers without EDs initiating antidepressants (control cohort; n=13,707) between 1/1/2022 and 12/31/2022.
- 1-year risk of comorbidities related to substance use were estimated using multinomial logistic regression, represented as adjusted odds ratios (aOR) and 95% confidence intervals (CI) comparing the ED cohort to controls.

*Patients diagnosed with EDs identified by International Classification of Diseases-10 Clinical Modification (F50).

**The propensity score was estimated on the basis of age, sex, and ethnoracial covariates, depicted in Table 1.

Results

Table 1: Baseline demographic and clinical characteristics of cohorts 1 year preceding first diagnosis of ED or first date of antidepressant prescription.

Variables	Before Matching				P-Value	Std diff.	After Matching					
	Eating Disorders	%	No EDs, Initiating Antidepressants	%			Eating Disorders	%	No EDs, Initiating Antidepressants	%		
N	14,524	100%	110,051	100%		13,707	100%	13,707	100%			
Current Age	17.5 ± 4.6		19.3 ± 4.7		<0.001	0.39	17.5 ± 4.6		17.2 ± 4.6	<0.001	0.07	
Age at Index	15.9 ± 4.6		17.8 ± 4.7		<0.001	0.41	15.9 ± 4.6		15.7 ± 4.6	0.00	0.04	
Sex												
Female	11,498	79.2%	71,926	65.4%	<0.001	0.31	10,739	78.3%	10,643	77.6%	0.16	0.02
Male	2,802	19.3%	36,106	32.8%	<0.001	0.31	2,756	20.1%	2,933	21.4%	0.01	0.03
Ethnicity												
Not Hispanic or Latino	10,380	71.5%	71,506	65.0%	<0.001	0.14	9,767	71.3%	9,062	66.1%	<0.001	0.11
Unknown Ethnicity	2,272	15.6%	28,682	26.1%	<0.001	0.26	2,184	15.9%	2,907	21.2%	<0.001	0.14
Hispanic or Latino	1,872	12.9%	9,863	9.0%	<0.001	0.13	1,756	12.8%	1,738	12.7%	0.74	0.00
Race												
White	9,978	68.7%	71,849	65.3%	<0.001	0.07	9,335	68.1%	9,320	68.0%	0.85	0.00
Black or African American	1,004	6.9%	11,884	10.8%	<0.001	0.14	983	7.2%	1,307	9.5%	<0.001	0.09
Other Race												
Other Race	856	5.9%	5,827	5.3%	0.00	0.03	818	6.0%	772	5.6%	0.24	0.01
Asian	452	3.1%	2,300	2.1%	<0.001	0.06	431	3.1%	287	2.1%	<0.001	0.07

Results (continued)

- Our sample encompassed 13,707 people with EDs (10,643 females, mean age 15.9 years; 68.1% White) and 13,707 matched controls.
- After propensity score matching, EDs were significantly associated with: substance use disorders, cannabis use disorder, and alcohol use disorder
- EDs were not significantly associated with opioid use disorder, nicotine use disorder, or other stimulant use disorders.

Table 2: Diagnosis of psychiatric comorbidities related to substance use between people with EDs and peers without EDs receiving antidepressants.

No ED, receiving antidepressants	ED	No ED, Initiating Antidepressants	aOR	95% CI	P-value
Substance use disorders	1,093 (8.0%)	890 (6.5%)	1.25	(1.14, 1.37)	<0.001
Cannabis use disorder	614 (4.5%)	445 (3.2%)	1.40	(1.23, 1.58)	<0.001
Alcohol use disorder	245 (1.8%)	153 (1.1%)	1.61	(1.32, 1.98)	<0.001
Opioid use disorder	56 (0.4%)	48 (0.4%)	1.17	(0.79, 1.72)	0.432
Nicotine use disorder	418 (3.0%)	379 (2.8%)	1.11	(0.96, 1.27)	0.161
Other Stimulant use disorders	56 (0.4%)	45 (0.3%)	1.25	(0.84, 1.85)	0.273

Conclusions and Future Directions

- Comorbid substance use disorders are prevalent among individuals with diagnosed EDs, with elevated risk relative to peers without EDs initiating antidepressants.
- This high burden of comorbid substance use disorders may present an important treatment gap in this population, which is understudied.
- These findings may inform more comprehensive psychiatric approaches to these patients, as treatments for and research on EDs tend to be siloed within psychiatry.
- The associations between substance use and eating disorders we present here may warrant future study on the relationships between these psychiatric pathologies.
- Generalizability of our findings is limited by the fact that TriNetX only represents patients ill enough or systemically-enfranchised enough to receive care. Thus, this data may not reflect the full spectrum of individuals living with EDs.

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