

Claims-Based Analysis of the Prevalence, Characteristics, Healthcare Utilization and Costs of Adolescents and Young Adults with Non-Remission Major Depressive Disorder in the United States, 2016-2022

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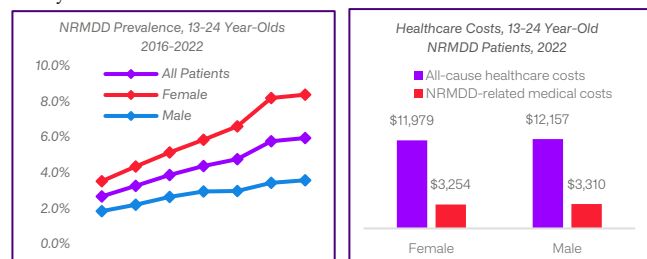
Study Summary

Study Question: What are the prevalence rates of non-remission major depressive disorder (NRMDD) among adolescents and young adults, and what is the healthcare resource use of patients with NRMDD?

- Study Design**
- Annual prevalence of NRMDD among patients aged 13-24 in 2016-2022
 - Patient characteristics and healthcare resource use in 2022



Study Results



Conclusion: NRMDD prevalence has risen consistently each year among adolescents and young adults, with an inflection point during the COVID-19 pandemic and a widening gap between females and males. However, there were no sex differences in healthcare costs among NRMDD patients in 2022.

Background

- Recent publications have highlighted the rise in depression among school aged children and young adults.^{1,2} The COVID-19 pandemic has increased awareness of the rising mental health issues in children.³ However, post-pandemic data for this population is lacking.

Objectives

- To examine the annual prevalence of non-remission major depressive disorder (NRMDD) among adolescents and young adults during both pre- and post-pandemic periods (2016-2022).
- To examine sex differences in patient characteristics and healthcare resource use and costs among adolescents and young adults with NRMDD in 2022.

Methods

Data Source

- Insurance claims from 2016 - 2022 in the Merative™ MarketScan® Commercial Database, which included medical claims for healthcare services performed in inpatient and outpatient settings along with outpatient pharmacy claims and enrollment data.

Study Sample

- Patients aged 13-24 who had 12 months continuous enrollment during the calendar years of 2016 - 2022. Adolescents: age 13-17; Young adults: age 18-24.
- Qualifying patients had at least one non-diagnostic claim with an NRMDD diagnosis (excluding diagnosis codes for MDD in remission) in at least one calendar year between 2016 and 2022.

Methods, Cont.

Outcomes

- Prevalence rates of NRMDD by calendar year (2016-2022), sex, and age group (adolescents vs. young adults). The denominator was the number of enrollees aged 13-24 with 12 months continuous enrollment during the calendar year; the numerator was the number of qualified enrollees with a diagnosis of NRMDD during the reporting year.
- All-cause healthcare utilization and costs, and NRMDD-related medical costs, were measured among adolescents and young adults with NRMDD during 2022, stratified by sex. NRMDD-related costs were identified from claims carrying an NRMDD diagnosis.
 - Healthcare costs were based on paid amounts of adjudicated claims, including insurer and health plan payments as well as patient cost-sharing in the form of copayment, deductible, and coinsurance.

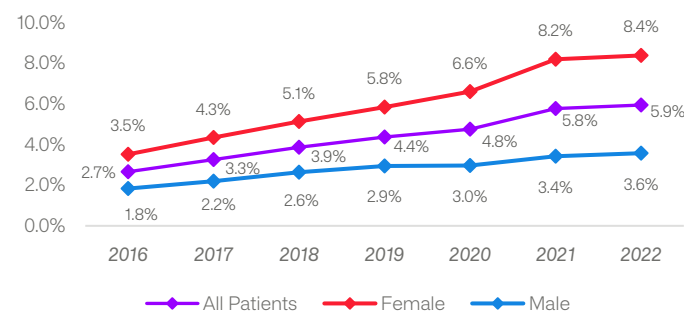
Other Variables

- For the 2022 NRMDD cohort, the following variables were reported and stratified by sex:
 - Demographic characteristics including age, geographic region, and insurance plan type were measured on 1/1/2022.
 - Mental health comorbidities (Table 1) were assessed during 2022.

Results

- Overall prevalence of NRMDD increased annually among adolescents and young adults, from 2.7% in 2016 to 5.9% in 2022 (Figure 1).
- Prevalence was consistently greater among females vs. males (3.5%-8.4% vs. 1.8%-3.6%), and the overall increase from 2016 to 2022 was driven more by females (138.4% increase) than males (94.6% increase) (Figure 1).
- Prevalence was consistently higher among young adults vs. adolescents (2.9%-6.7% vs. 2.3%-4.8%); this pattern held true for both females and males.
- There was a clear inflection point in 2020-2021 (overall: 4.8%-5.8%), driven by a sharp increase among females (Figure 1).

Figure 1. NRMDD Prevalence Rates Among Adolescents & Young Adults, 2016-2022



Results, Cont.

- A total of 125,452 patients were included in the 2022 NRMDD cohort, 69% females and 31% males. Young adults accounted for 2/3 of the cohort.
- The 3 most common mental health comorbidities were anxiety (75.3% female vs. 64.1% male), adjustment disorders (25.1% vs. 19.2%), and ADHD (23.3% vs. 31.1%).
- Females had higher rates of anxiety disorders, adjustment disorders, and eating disorders than males, while males had higher prevalence of ADHD, substance abuse, and pervasive developmental disorders (Table 1).
- Females with NRMDD had 25% more office visits and 28% more prescription claims than males. However, females were slightly less likely to use inpatient services than males (all p<0.001) (Table 2).
- Total healthcare costs were similar between females and males (total: \$11,979 vs. \$12,157, p=0.441), as were NRMDD-related medical costs (\$3,254 vs. \$3,310, p=0.530, Table 2).

Table 1. Characteristics of Adolescents & Young Adults with NRMDD, 2022

Patient Characteristics	Female		Male		p-value
	N	%	N	%	
Age category (N, %)					
13-17	28,864	33.1%	11,267	29.4%	<0.001
18-24	58,311	66.9%	27,010	70.6%	
Geographic region (N, %)					
Northeast	10,532	12.1%	5,020	13.1%	<0.001
North Central	24,633	28.3%	10,613	27.7%	
South	35,828	41.1%	15,158	39.6%	
West	15,549	17.8%	7,112	18.6%	
Unknown	633	0.7%	374	1.0%	
Insurance plan type (N, %)					
CDHP/HDHP	23,537	27.0%	10,603	27.7%	
Comprehensive/indemnity	2,415	2.8%	1,083	2.8%	<0.001
EPO/PPO	38,903	44.6%	16,818	43.9%	
HMO	13,274	15.2%	5,697	14.9%	
POS with or without capitation	7,388	8.5%	3,366	8.8%	
Other/unknown	1,658	1.9%	1	0.003%	
Mental health comorbidities (N, %)					
Anxiety disorders	65,681	75.3%	24,518	64.1%	<0.001
Reaction to severe stress/adjustment disorders	21,890	25.1%	7,339	19.2%	<0.001
ADHD	20,342	23.3%	11,917	31.1%	<0.001
Sleep disorders	11,061	12.7%	4,967	13.0%	0.159
Suicide attempt/ideation	9,731	11.2%	4,879	12.7%	<0.001
Phobic anxiety disorders	7,783	8.9%	3,123	8.2%	<0.001
Substance abuse	6,738	7.7%	5,117	13.4%	<0.001
Eating disorders	6,202	7.1%	691	1.8%	<0.001
Bipolar disorder	5,970	6.8%	2,158	5.6%	<0.001
Obsessive-compulsive disorder	4,868	5.6%	1,961	5.1%	0.001
Persistent mood disorders	4,467	5.1%	2,231	5.8%	<0.001
Personality disorders	3,832	4.4%	778	2.0%	<0.001
Pervasive developmental disorders	1,991	2.3%	2,434	6.4%	<0.001

ADHD: attention deficit hyperactivity disorder; EPO/PPO: exclusive provider organization/preferred provider organization; POS: point-of-service; HMO: health maintenance organization; CHDP/HDHP: consumer-driven health plan/high-deductible health plan; NRMDD: non-remission major depressive disorder

Table 3. Healthcare Resource Use & Costs Among Adolescents & Young Adults with NRMDD, 2022

Healthcare Resource Use & Costs	Female		Male		p-value
	N/Mean	%/SD	N/Mean	%/SD	
Healthcare Utilization					
Inpatient					
Patients with an admission (N, %)	9,697	11.1%	4,867	12.7%	<0.001
Number of admissions (Mean, SD)	0.17	0.63	0.20	0.68	<0.001
Outpatient					
ER visits					
Patients with an ER visit (N, %)	24,611	28.2%	9,592	25.1%	<0.001
Number of ER visits (Mean, SD)	0.58	1.62	0.48	1.37	<0.001
Outpatient office visits					
Patients with an office visit (N, %)	81,620	93.6%	34,271	89.5%	<0.001
Number of visits (Mean, SD)	5.7	5.0	4.5	4.5	<0.001
Other outpatient visits					
Patients with a visit (N, %)	86,541	99.3%	37,580	98.2%	<0.001
Number of visits (Mean, SD)	19.8	19.3	16.7	19.4	<0.001
Outpatient pharmacy					
Patients with a prescription (N, %)	79,774	91.5%	33,758	88.2%	<0.001
Number of prescriptions (Mean, SD)	16.7	16.2	13.1	14.5	<0.001
Healthcare Costs (Mean, SD)					
Inpatient	\$3,242	\$23,458	\$3,786	\$30,740	0.001
Outpatient	\$6,834	\$14,166	\$6,368	\$21,366	<0.001
Outpatient pharmacy	\$1,903	\$12,362	\$2,003	\$14,782	0.214
Total healthcare costs	\$11,979	\$34,115	\$12,157	\$44,753	0.441
Total NRMDD-related medical costs	\$3,254	\$15,185	\$3,310	\$12,951	0.530

NRMDD: non-remission major depressive disorder; SD: standard deviation

Limitations

- Identification of NRMDD was based on diagnoses recorded on healthcare claims, which are subject to coding limitations and data entry errors.
- Healthcare costs may be underestimated as services covered by capitation were not adjusted for their \$0 costs.
- Study patients were employees or dependents of employees with employer-sponsored commercial insurance; results may not be generalizable to uninsured adolescents and young adults or those with other types of insurance such as Medicaid.

Conclusions

- These data suggest an exacerbation of the rising youth prevalence of NRMDD by the COVID-19 pandemic, with a widening gap between females and males.
- These results may indicate a need for additional mental health screening among males, and/or real biopsychosocial sex differences in MDD etiology.
- Despite significant sex differences in healthcare utilization, healthcare costs are similar between adolescent and young adult females and males with NRMDD.

References

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- Anxiety and depression in children: Get the facts | CDC. Accessed March 2024
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Disclosure

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