

# Antidepressant Use by Youth with Minimal or Mild Depression: Evidence from 3 Health Systems

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## ABSTRACT

**Background:** There is concern about the prevalence of prescribing antidepressant medications to youth without appropriate diagnoses or who have subthreshold (mild) depression. **Methods:** Electronic records data from 3 large healthcare systems identified youth aged  $\leq 21$  years starting a new episode of antidepressant treatment between January 1, 2009, and December 31, 2013. For those with a diagnosis of depression, Patient Health Questionnaire (PHQ9) scores at the time of treatment initiation were used to examine the distribution of symptom severity and patients' demographic and clinical characteristics. **Results:** Of the 15,460 episodes of treatment, a depression diagnosis was recorded in 95% of the cases. PHQ9 scores were available for 4,329 youth with a diagnosis of depression. Younger age, sex, previous treatment, co-occurring anxiety, treatment setting, concurrent psychotherapy, and site were significant predictors of completing a PHQ9. Among youth with a baseline score, 87% reported moderate or severe symptoms (PHQ9 score  $\geq 10$ ) and 13% reported mild or minimal symptoms (PHQ9  $< 10$ ). The proportion reporting PHQ9  $< 10$  when starting treatment decreased with age, ranging from 19% in those aged 13–14 years and 12% in those aged 18–21 years. Patients treated by psychiatrists were 1.54 times (95% Confidence Interval [CI], 1.21–1.97) more likely to have PHQ9 scores  $< 10$  compared with primary care physicians. Patients with prior treatment history (odds ratio = 1.76; 95% CI, 1.45–2.13) and concurrent psychotherapy (odds ratio = 1.24; 95% CI, 1.02–1.52) were more likely to have PHQ9  $< 10$ . **Conclusions:** In these health systems, prescribing of antidepressant medication to adolescents for minimal or mild depression is much less common than previous reported. (*Pediatr Qual Saf* 2017;2:e017; doi: 10.1097/pq9.000000000000017; Published online March 22, 2017.)

## INTRODUCTION

Rates of antidepressant use among youth increased substantially in the 2000s.<sup>1–8</sup> At least some of the increase was due to the identification of undertreated depression in youth.<sup>9</sup> More recently, routine systematic screening for behavioral health problems has been as-

sociated with increases in psychotherapy use but not antidepressant use.<sup>10</sup> However, there is lingering concern that a significant amount of antidepressant use among youth is by those without a diagnosis of depression or who have subthreshold (mild) depression.<sup>11,12</sup>

The American Academy of Pediatrics guideline on treating adolescent depression recommends the use of standardized depression assessment tools such as the Patient Health Questionnaire (PHQ9) to aid in diagnosis.<sup>13–15</sup> When using the PHQ9, a score  $< 10$  is

considered mild depression, and treatment thresholds for youth are the same as those for adults with a PHQ9  $\geq 10$  being the recommended level of symptom severity to begin pharmacotherapy.<sup>16</sup> In cases of mild depression, clinicians should consider a period of active support and monitoring before starting other evidence-based treatment, and if symptoms persist, treatment with psychotherapy should be offered as first-line therapy.<sup>15–18</sup> In the United Kingdom, the National Institute of Health and Care Excellence guideline for depression in children and young people explicitly recommends against using antidepressants as first-line treatment for youth with mild depression.<sup>18</sup>

To date, population studies reporting the use of antidepressants in youth for mild or subthreshold depression have relied on data from administrative claims or sur-

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veys.<sup>11</sup> In the current study, we use electronic health record data from 3 health systems in the Mental Health Research Network (MHRN), which contain structured PHQ9 scores for youth initiating a new episode of antidepressant treatment. To our knowledge, this is the first large-scale study of antidepressant use in which a validated clinical measure of depressive symptoms was available for youth beginning treatment. We hypothesized that most youth initiating antidepressant treatment would report moderate or severe symptoms at the time of the first prescription.

## METHODS

### Population

The population of youth in this study included all individuals aged  $\geq 13$  to  $\leq 21$  years, filling a new outpatient prescription for an antidepressant medication from a group model healthcare system provider (see definition of “group model” below) between January 1, 2009 and December 31, 2013. A new antidepressant prescription was defined as an antidepressant fill preceded by a 270-day period with no antidepressant use. We have previously used this definition (longer than that used by Healthcare Effectiveness Data Set measures<sup>19</sup>). Our choice of interval was based on the observed temporal distribution of antidepressant refills and chart review of a sample of clinical notes.<sup>19</sup>

We selected the first treatment episode with a recorded PHQ9 during the study period for youth with multiple episodes of treatment. The study sample included new episodes of antidepressant treatment where the individual met age and enrollment criteria at the date of the prescription fill and had no diagnosis of bipolar or psychotic disorder in the prior 2 years. Episodes were classified as having a diagnosis of depression, anxiety, or other mental health diagnosis in the period covering 15 days before the index prescription and up to 15 days after (a grouper of mental health *International Classification of Diseases, 9th Revision, Clinical Modification* diagnosis codes is available from the MHRN github site: <https://github.com/MHRResearchNetwork/MHRN-Central>). Some individuals with treatment episodes did not have a mental health diagnosis in this period. Subsequent analyses of antidepressant use further limited the sample to episodes having a depression diagnosis and a PHQ9 questionnaire completed between 15 days before and up to 3 days after the index prescription.

All providers belonged to 1 of the 3 systems participating in the MHRN. The MHRN is a National Institute of Mental Health–funded consortium of research centers affiliated with 13 large, not-for-profit–integrated healthcare systems. The MHRN is a subset of healthcare systems that participate in the Health Care Systems Research Network.<sup>20</sup>

The 3 MHRN health systems contributing data to this report included Group Health Cooperative, HealthPartners, and Kaiser Permanente of Colorado. Youth were

enrolled through a mixture of (parents’) employer-sponsored insurance and individual insurance plans or managed care Medicaid. Members served by these systems are generally representative of each system’s geographic service area. Group Health Cooperative and HealthPartners provide care through both group model (employee) and externally contracted clinicians, but this sample was limited to patients visiting group model providers because PHQ depression scores were only available from internal electronic medical records.

We included all antidepressant medications approved by the US Food and Drug Administration for treatment of major depression, excluding trazadone (whose primary indication is insomnia). A list of included medications is available on the MHRN resources Web site.

### Data

Data were drawn from electronic health records, pharmacy records, insurance claims, and other administrative data. Data from each of the health systems have been organized in a Virtual Data Warehouse to facilitate population-based healthcare research.<sup>21,22</sup>

### Patient Health Questionnaires

All the participating health systems included in this study recommended the use of the PHQ9 for initial assessment and follow-up monitoring for depression care.<sup>23–25</sup> Each system recommends the use of the PHQ9 for youth aged  $\geq 13$  years when: youth or parents are concerned about depressed mood, and/or when the clinician suspects depression during a visit, and/or when initiating antidepressant medication in primary care, and/or when monitoring depressive symptoms at primary care visits, and/or at all specialty mental health visits (regardless of diagnosis). None of the health systems conducts routine screening of youth for depression using the PHQ9; thus, our approach is limited to the population of youth with suspected or identified depression.

The PHQ9 scores used for this study were extracted from the electronic medical records of youth. Some youth completed the adult version of the PHQ9, whereas others completed the PHQ9-A (adolescent); we treat both versions as equivalent in this study. For individuals with multiple scores, the value prior to and closest to the index date was selected as the baseline value. For descriptive purposes, we categorized severity of depression symptoms according to the PHQ9 with a score of 0–4 classified as “minimal,” 5–9 as “mild,” 10–14 as “moderate,” 15–19 as “moderately severe,” and 20–27 defined as “severe.” For our main analyses, we categorized depression symptom severity as minimal or mild symptoms (PHQ9 score less than 10) or moderate-to-severe (PHQ9 score of 10 or greater).

### Outcome Definition

Our scientific question of interest was to measure the presence of minimal or mild depression symptom severity among youth with depression initiating antidepressant

treatment. We first examined predictors of presence/absence of a PHQ9 score in the -15 days to +3 days of treatment initiation. The primary outcome under investigation was defined among youth with a PHQ9 at baseline and was a binary variable indicating whether the youth had a PHQ9 score less than 10 or greater than or equal to 10.

### Covariates

Our study measured information on several factors including diagnosis of an anxiety disorder, age at index prescription, sex, race, neighborhood income, neighborhood education, provider specialty, provider volume of adolescent and young adult patients, site (health system), prior specialty mental healthcare use, prior PHQ9 scores, and concurrent use of psychotherapy.

### Statistical Analysis

Descriptive statistics were used to examine characteristics of youth administered PHQ9s at baseline. Multivariate logistic regression was used to model the odds of an individual completing a PHQ9 at baseline. We also described rates of minimal or mild depression among youth with a diagnosis of depression and initiating antidepressants and the characteristics of those individuals. Multivariate logistic regression was used to model the odds of an individual who has initiated antidepressant treatment having a PHQ9 score  $\geq 10$  versus a score  $< 10$  accounting for all covariates listed above. We report odds ratios (ORs) for patient demographic characteristics and provider characteristics associated with prescribing to youth who had a PHQ9 score  $< 10$  or  $\geq 10$ . All data analyses were performed in SAS 9.4 (SAS Institute Inc., Cary, NC).<sup>26</sup>

Institutional review boards and privacy boards at each health system approved all study procedures and granted waivers of consent for this research use of de-identified records data.

## RESULTS

There were 15,460 episodes of antidepressant initiation among 14,663 individuals aged 13–21 years who met enrollment criteria. Of these episodes, 95% (14,718/15,460) had a diagnosis of depression within -15 days and +15 days of treatment initiation. About 31% (4,807/15,460) had a prior or current anxiety diagnosis. There were 15,079 (97.5%) episodes with a diagnosis of either depression or anxiety and 381 (2.5%) with no diagnosis at treatment initiation.

Of the 14,663 youth (we restricted analyses to 1 episode per person), 29.5% (4,329/14,663) had a completed PHQ9; thus, there were 4,329 individuals included in the final sample.

Table 1 shows the frequencies and ORs for completing a PHQ9 at initiation of treatment for the 14,663 individuals initiating a first episode of antidepressant treatment during the study period. Age was a significant predictor of completing a PHQ9 with younger individuals being less

likely than those aged 18–21 years to complete the instrument. Race was also a significant predictor with Asian and African American youth being significantly more likely to have a PHQ9 at baseline. Treatment history, previous PHQ9 completion, treatment setting, and clinician (prescriber) volume were also significant predictors. Gender, neighborhood income, neighborhood education, and comorbid anxiety were not significant predictors.

Table 2 shows the proportion of youth in each severity stratum among those initiating antidepressants among the 4,329 youth with a PHQ9 score at baseline. The proportion of individuals with minimal or mild depression among youth initiating treatment was 11.7% at Group Health (n = 251/2,152), 13.0% at Health Partners (n = 85/569), and 15.1% (n = 230/1,523) at Kaiser Permanente Colorado.

Table 3 shows the results of the multivariate logistic regression model for the binary outcome of having a PHQ9 score less than 10 at treatment initiation. Males were approximately 33% more likely to have minimal or mild symptoms compared with females given the initiation of antidepressant treatment (OR = 1.33; 95% Confidence Interval [CI], 1.10–1.06). Youth aged 13 (OR = 1.62; 95% CI, 1.0–2.53) and 14 (OR = 1.60; 95% CI, 1.14–2.26) years were more likely to have PHQ9 scores  $< 10$  compared with young adults aged 18–21. Prescriber specialty was also a significant predictor with patients treated by psychiatrists being much more likely to have PHQ9 scores  $< 10$  compared with patients treated by primary care physicians (OR = 1.54; 95% CI, 1.21–1.97). Other significant predictors included comorbid anxiety (OR = 1.23; 95% CI, 1.02–1.49), concurrent psychotherapy use (OR = 1.24; 95% CI, 1.02–1.52), and completion of a PHQ9 before the baseline period (OR = 1.76; 95% CI, 1.45–2.13). Race, neighborhood income, neighborhood education, and prescriber volume were not significantly associated with youth and young adults having PHQ9 scores  $< 10$ , given the initiation of antidepressant treatment.

## DISCUSSION

In this study of 4,329 treatment episodes for youth and young adults with depression diagnoses and PHQ9 scores, we found little evidence of mild or subthreshold symptoms among youth using antidepressants. Among youth with a diagnosis of depression and a PHQ9 score initiating treatment, the proportion with minimal or mild symptoms was only about 12% to 15% of individuals. These results broadly replicate previously reported findings in adults.<sup>19</sup>

The results of this study would seem to contradict the assertion that the majority of patients initiating antidepressants do not have symptoms severe enough to warrant treatment with antidepressants. Indeed, we find that about 81% to 88% (across age groups) of individuals administered a PHQ9, aged 13–21 years initiating antidepressant therapy in these 3 health systems, have PHQ9

Table 1. Odds of Completing a PHQ9 at Initiation of Antidepressant Treatment (n = 14,663)

Covariates	No Baseline PHQ, n (%)	Has Baseline PHQ, n (%)	Odds Ratio*	95% CI	Pr > $\chi^2$
Sex					
Female	6,597 (70.1)	2,814 (29.9)	1		
Male	3,737 (71.2)	1,515 (28.8)	0.97	0.89–1.05	0.42
Age (y)					
18–21	5,077 (68.9)	2,296 (31.1)	1		
17	1,365 (69.8)	591 (30.2)	0.78	0.69–0.89	0.0002†
16	1,377 (72.1)	533 (27.9)	0.62	0.54–0.71	<0.0001†
15	1,159 (71.7)	458 (28.3)	0.58	0.50–0.67	<0.0001†
14	845 (74.1)	296 (25.9)	0.50	0.42–0.59	<0.0001†
13	511 (76.7)	155 (23.3)	0.38	0.30–0.47	<0.0001†
Race/ethnicity					
Non-Hispanic White	4,389 (60.1)	2,914 (39.9)	1		
Asian	176 (46.6)	202 (53.4)	1.43	1.14–1.80	0.002†
African American	377 (58.2)	271 (41.8)	1.31	1.09–1.57	0.004†
Hispanic	557 (57.2)	416 (42.8)	0.91	0.78–1.05	0.20
Hawaiian/Pacific Islander	34 (44.7)	42 (55.3)	1.32	0.81–2.13	0.26
Native American	111 (61.0)	71 (39.0)	0.80	0.58–1.11	0.17
Unknown	4,690 (91.9)	413 (8.1)	0.20	0.18–0.23	<0.0001†
Anxiety disorder					
No	7,449 (73.0)	2,755 (27.0)	1		
Yes	2,885 (64.7)	1,574 (35.3)	0.98	0.89–1.07	0.62
Any PHQ before baseline					
No	9,006 (77.5)	2,613 (22.5)	1		
Yes	1,328 (43.6)	1,716 (56.4)	1.85	1.68–2.04	<0.0001†
Prior other treatments					
No	5,637 (78.0)	1,594 (22.0)	1		
Yes	4,697 (63.2)	2,735 (36.8)	1.55	1.38–1.74	0.0003†
Any prior psychotherapy					
No	4,492 (81.2)	1,037 (18.8)	1		
Yes	5,842 (64.0)	3,292 (36.0)	1.26	1.11–1.43	0.0003†
Neighborhood income					
≥ \$25,000	9,391 (69.6)	4,093 (30.4)	1		
< \$25,000	943 (80.0)	236 (20.0)	0.85	0.71–1.02	0.08
Neighborhood education					
≥ 25% College	6,329 (69.7)	2,747 (30.3)	1		
< 25% College	4,005 (71.7)	1,582 (28.3)	1.09	0.99–1.19	0.07
Prescriber specialty					
Primary care	6,862 (76.1)	2,161 (23.9)	1		
Psychiatry	2,206 (54.4)	1,849 (45.6)	1.50	1.34–1.68	<0.0001†
Other	1,223 (79.3)	319 (20.7)	1.42	1.22–1.67	<0.0001†
Prescriber volume—youth total (patients per year)					
1–5	8,993 (75.7)	2,881 (24.3)	1		
6–10	299 (45.2)	363 (54.8)	1.65	1.37–1.98	<0.0001†
11–15	95 (42.0)	131 (58.0)	2.69	1.99–3.64	<0.0001†
16+	947 (49.8)	954 (50.2)	1.70	1.47–1.96	<0.0001†
Site					
Group Health	3,334 (60.8)	2,152 (39.2)	1		
Kaiser Permanente CO	2,060 (57.5)	1,523 (42.5)	0.61	0.55–0.68	<0.0001†
HealthPartners	4,940 (88.3)	654 (11.7)	0.27	0.24–0.30	<0.0001†

\*Adjusted OR of an individual having a PHQ9 recorded at antidepressant treatment initiation; estimate from multivariate logistic regression model included all covariates listed in the table.

†Significant at  $\alpha = 0.05$ .

Pr, probability.

Table 2. Distribution of Baseline PHQ9 Depression Scores among Adolescent and Young Adult Outpatients Starting Antidepressant Treatment in 3 Healthcare Systems

System/PHQ9	Minimal, 0–4	Mild, 5–9	Moderate, 10–14	Moderately Severe, 15–19	Severe, 20–27	Total
Group Health, N (%)	41 (2)	210 (10)	573 (26)	748 (35)	580 (27)	2,152 (100)
HealthPartners, N (%)	18 (3)	67 (10)	183 (28)	236 (36)	150 (23)	654 (100)
KP Colorado, N (%)	46 (3)	184 (12)	414 (27)	505 (33)	374 (25)	1,523 (100)
Total, N (%)	105 (2)	461 (11)	1,170 (27)	1,489 (34)	1,104 (26)	4,329 (100)

scores  $\geq 10$ , indicating at least moderate depression. A significant proportion of youth also have an anxiety disorder or other mental health diagnosis for which an antidepressant might be indicated. Only 2.5% of youth had no mental health diagnosis recorded at treatment initiation.

In contrast to results previously reported for adults, we find that the likelihood of youth having minimal or mild symptoms was highest among the youngest individuals (youth aged 13–14 years) compared with older individuals (18–21 years). Among adults, individuals aged 65 years or



**Table 3. Odds of Starting Antidepressant Treatment with Baseline PHQ9 Depression Scores above or below a Threshold of 10 (n = 4,329)**

Covariates	Baseline PHQ9 < 10, n (%)	Baseline PHQ9 ≥ 10, n (%)	OR* PHQ9 < 10	95% CI	Pr > $\chi^2$
Intercept			0.07	0.08–0.12	<0.0001
Sex					
Female	333 (12)	2,481 (88)	1		
Male	233 (15)	1,282 (85)	1.33	1.10–1.60	0.003†
Age (y)					
18–21	272 (12)	2,024 (88)	1		
17	73 (12)	518 (88)	0.98	0.74–1.31	0.900
16	69 (13)	464 (87)	0.96	0.71–1.31	0.808
15	68 (15)	390 (85)	1.23	0.90–1.68	0.199
14	55 (19)	241 (81)	1.60	1.14–2.26	0.007†
13	29 (19)	126 (81)	1.62	1.03–2.53	0.036†
Race/ethnicity					
Non-Hispanic White	406 (14)	2,508 (86)	1		
Asian	23 (11)	179 (89)	0.78	0.50–1.24	0.297
African American	29 (11)	242 (89)	0.77	0.51–1.16	0.206
Hispanic	50 (12)	366 (88)	0.80	0.58–1.11	0.176
Hawaiian/Pacific Islander	3 (7)	39 (93)	0.56	0.17–1.86	0.346
Native American	5 (7)	66 (93)	0.52	0.21–1.31	0.165
Unknown	50 (12)	363 (88)	0.95	0.69–1.31	0.738
Anxiety disorder					
No	313 (11)	2,442 (89)	1		
Yes	253 (16)	1,321 (84)	1.23	1.02–1.49	0.029†
Any PHQ before baseline					
No	264 (10)	2,349 (90)			
Yes	302 (18)	1,414 (82)	1.76	1.45–2.13	<0.0001†
Psychotherapy in –30 to +30 days					
No	385 (14)	2,416 (86)			
Yes	181 (12)	1,347 (88)	1.24	1.02–1.52	0.034†
Neighborhood income					
≥ \$25,000	537 (13)	3,556 (87)	1		
< \$25,000	29 (12)	207 (88)	1.00	0.65–1.54	0.995
Neighborhood education					
≥ 25% College	382 (14)	2,365 (86)	1		
< 25% College	184 (12)	1,398 (88)	0.86	0.70–1.05	0.132
Prescriber specialty					
Primary care	224 (10)	1,937 (90)	1		
Psychiatry	312 (17)	1,537 (83)	1.54	1.21–1.97	0.001†
Other	30 (9)	289 (91)	0.80	0.52–1.23	0.305
Prescriber volume—youth total (patients per year)					
1–5	336 (12)	2,545 (88)	1		
6–10	46 (13)	317 (87)	0.86	0.60–1.22	0.387
11–15	17 (13)	114 (87)	0.76	0.43–1.35	0.357
16 Or more	167 (18)	787 (82)	0.98	0.73–1.33	0.915
Site					
Group Health	251 (12)	1,901 (88)	1		
Kaiser Permanente Colorado	230 (15)	1,293 (85)	1.22	0.96–1.55	0.110
HealthPartners	85 (13)	569 (87)	1.41	1.05–1.90	0.022†

\*Adjusted OR from multivariate logistic regression predicting the binary outcome of a PHQ9 score of <10 or ≥10 include all covariates listed in the table.

†Significant at  $\alpha = 0.05$ . Pr, probability.

more were more likely to have a PHQ9 <10 than individuals aged 18–29 years.<sup>19</sup> We also report no statistically significant difference by race or socioeconomic status (neighborhood income and education), whereas these demographic factors were shown to be significant predictors of minimal or mild symptoms among adults.<sup>19</sup> However, although the relationship between PHQ9 category and race reported here is similar to that reported in adults (ie, in the same direction), the counts in each cell are much smaller (see in particular the cell counts by race for youth with PHQ9 scores <10); thus, our finding may be due to lack of statistical power.

Prior engagement in treatment as well as concurrent psychotherapy use were also important predictors of PHQ9 <10. Any PHQ9 completion prior to our baseline window

was a particularly strong indicator, suggesting that youth engaged in treatment with well-managed depression and/or anxiety were starting a new episode of treatment to prevent an exacerbation of depressive symptoms.

Patients treated by psychiatrists were more likely to have PHQ9 scores <10. Although this may reflect a lower threshold of prescribing for psychiatrists or unmeasured differences in comorbid mental health conditions in the population of youth and young adults seen in specialty mental health settings, initiating a new episode of antidepressant treatment when the PHQ9 is low is likely intended to prevent increases in symptom severity among youth with prior episodes of depression, given the results regarding treatment engagement above. Nevertheless, and

again as reported in adults, we find no evidence of an increase in antidepressant treatment in primary care being associated with use by individuals with minimal or mild depression as has been previously reported.<sup>11,12</sup>

### Limitations

The health systems included in this study may not be representative of other health systems or private practices across the United States. Each of the systems had a policy to measure baseline symptom severity and monitor severity with the PHQ9.

Although we find no evidence of overuse by youth with minimal or mild depressive symptoms, only 29% of youth with depression initiating antidepressant treatment had a PHQ9 measured at baseline. This could bias our assessment of baseline severity of illness. Our results regarding completion of baseline PHQ9s clearly show that older youth, Asian and African American youth, youth with prior or ongoing treatment, initiation outside primary care, and prescribing volume are all significant predictors of having a PHQ9 recorded.

It is also likely that we have overestimated the proportion of youth with minimal or mild symptoms because providers may skip the baseline measurement for individuals who have previously used antidepressants. Conversely, clinicians who administer a PHQ9 at baseline may be more careful in their prescribing than clinicians who do not—leaving the possibility that prescribing for minimal or mild symptoms is higher in the population of youth who did not complete a PHQ9. Our previous article on adults showed that missing baseline PHQ9 data did not bias the results.<sup>19</sup>

A further limitation of the study is that we do not know the specific indication for which the medication was prescribed. For example, antidepressant medication could be prescribed for anxiety or sleep disturbance. Although everyone in our final analytic sample had a diagnosis of depression, the PHQ9 would not be the appropriate measure of symptom severity if the primary indication were anxiety (for example), and this is borne out by our model results including anxiety diagnoses.

Finally, we did not fully account for treatment history in our models. Individuals with a history of major depression might reinstate antidepressant treatment when their PHQ9 score is low to prevent their depression from becoming more severe. These patients are more likely to be seen in psychiatry, which may explain, in part, the higher likelihood of minimal or mild symptoms among those treated by psychiatrists. Clearly, some antidepressant use among youth and young adults with minimal or mild depression is appropriate.

### CONCLUSIONS

Our finding that 13% of adolescents and young adults initiating a new episode of antidepressant treatment and completing a PHQ9 experienced minimal or mild depres-

sion does not seem overly troubling. The contrast with prior studies is likely explained by the availability of a validated clinical measure of symptom severity in this population rather than relying on administrative claims. Diagnosis codes contain little information about severity, and historical self-report may be particularly biased because patients who experience remission are less likely to recall prior symptoms of depression.<sup>27</sup> We believe that the data presented in this report better reflect the true patterns of depression symptoms of youth and young adults initiating antidepressant medication.

### DISCLOSURE

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