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Incremental Healthcare Costs for Persons With Treatment-resistant Depression in Managed Care Organizations

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BACKGROUND

Major depressive disorder (MDD) is a condition characterized by episodes of persistent depressed mood and/or loss of interest or pleasure in nearly every activity, accompanied by other criterion symptoms. Episodes last for at least 2 consecutive weeks, and patients experience remission of symptoms between episodes.¹ In 2016, an estimated 16.2 million adults in the United States had at least 1 major depressive episode in the past year.² Up to 60% of people with MDD do not experience adequate response to treatment.³ Treatment-resistant depression (TRD), which may be defined as failure to achieve remission after treatment with at least 2 different antidepressants at an established effective dose and duration, is a common finding in clinical practice.³

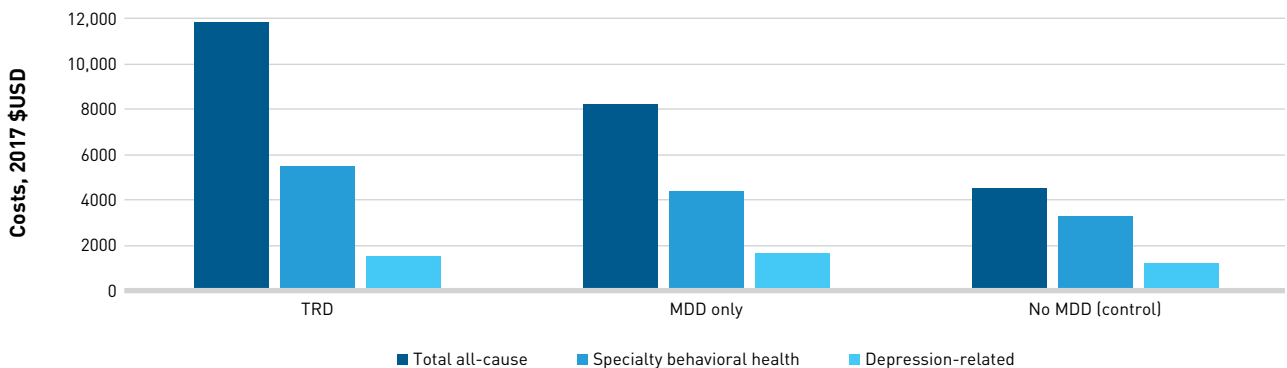
MDD treatment is costly, and a substantial proportion of expenses is related to TRD.⁴ Cost research in patients with TRD commonly involves analyses of pharmacy claims data; however, a drawback of using pharmacy claims data is that details regarding ongoing depressive symptoms are not captured, making it difficult to accurately classify patients as having TRD.⁵ A systematic method of identifying and monitoring TRD among patients with MDD is lacking.^{3,6} Patient-reported outcome measures are increasingly being incorporated into screening for depression and monitoring of symptoms, and use of the Patient Health Questionnaire-9 (PHQ-9), a validated patient-centric tool that may help providers monitor the severity and persistence of depression symptoms, may improve the identification of TRD.^{5,7}

METHODS

To improve understanding of healthcare costs associated with TRD and how they compare with costs associated with MDD of different severities, Lynch et al conducted a retrospective cohort study examining data from an integrated health delivery system servicing an area within a 75-mile radius of Portland, Oregon.⁵ The study also explored how PHQ-9 scores may be used to gain further insight into TRD and its associated costs across patient groups.⁵

Three groups of patients were evaluated: patients with TRD (n = 40,045), defined as those diagnosed with MDD who had completed 2 courses of adequate treatment and who discontinued or switched medication, presumably due to treatment failure; patients with a diagnosis of MDD with no indication of TRD (MDD only; n = 51,305); and patients with no indication of MDD during the study indexing period (n = 431,749) further described below, who served as a control group.⁵

Researchers analyzed data from the years 2014 to 2017 sourced from the Kaiser Permanente Northwest Center for Health Research Data Warehouse.⁵ Patients' index dates were between

Figure. Mean Annual Cost of Care by Study Group⁵

MDD indicates major depressive disorder; TRD, treatment-resistant depression; USD, US dollars.

January 2014 and December 2016 according to the date of patients' first diagnosis (those with MDD only) or the date they met the criteria for TRD. The index dates for patients with no MDD were selected according to the date of an in-person encounter during the same time period, selected at random.⁵ Outcomes were calculated for 1 year from the index date, and all costs were adjusted to 2017 US dollars to account for inflation.⁵ Generalized linear modeling was used to compare costs associated with care for depression, specialty behavioral health, and total all-cause health among the groups.⁵ Among patients included in the study, PHQ-9 data were available for 36,753 patients with TRD, 40,260 with MDD only, and 76,995 patients without MDD.⁵

RESULTS

Patients with TRD had a mean age of 51.8 years (SD = 16.1), compared with a mean age of 46.5 (17.7) years for those with MDD only and 47.0 (17.2) years for those without MDD. Across all groups, patients were more likely to be female (71.8% in the TRD group, 64.8% in the MDD-only group, and 59.8% in the no-MDD group) and white (90.4%, 81.9%, and 75.2% in the TRD, MDD-only, and no-MDD groups, respectively).⁵ Most patients were insured by commercial or private insurance (67.3%, 68.4%, and 76.1% in the TRD, MDD-only, and no-MDD groups, respectively). The largest proportion of patients insured by Medicare was in the TRD group (30%, compared with 19.9% of patients with MDD only and 18.4% of patients with no MDD). Compared with the other groups, the MDD-only group included more patients covered by Medicaid (11.4%, compared with 2.1% for TRD and 5.1% for no MDD).⁵ Small but significant differences in education and income were observed across the 3 groups ($P < .0001$).⁵

For most behavioral and physical health comorbidities evaluated, the TRD and MDD-only groups had significantly higher proportions of patients with a comorbidity, compared with the control group.⁵ Compared with patients with no MDD, patients with TRD and MDD only were more likely to have behavioral health comorbidities.⁵

Behavioral health comorbidities included anxiety, attention-deficit/hyperactivity disorder, eating disorders, substance abuse, and self-inflicted injury; physical health comorbidities included chronic pulmonary disease, diabetes, peripheral vascular disease, cerebrovascular disease, and liver disease.⁵

The results of between-group comparisons of total all-cause healthcare costs and specialty behavioral healthcare costs showed that the mean annual cost of care was highest for patients with TRD and lowest for the control group (no MDD). Mean total all-cause healthcare costs for TRD, MDD only, and no MDD were \$11,770, \$8123, and \$4465, respectively; mean specialty behavioral healthcare costs were \$5407, \$4336, and \$3205, respectively. Mean depression-related healthcare costs were highest for the MDD-only group and were \$1411, \$1550, and \$1091, respectively (Figure).⁵

Higher PHQ-9 scores, which indicate more severe disease, were associated with higher all-cause healthcare costs and specialty behavioral healthcare costs within the TRD and MDD-only groups, but depression-related healthcare costs did not follow this pattern.⁵ For patients in the TRD group, a PHQ-9 depression level of moderately severe to severe was associated with an additional total all-cause healthcare cost of \$106 per quarter versus an additional cost of \$39 per quarter for patients with PHQ-9-rated mild to moderate depression compared with PHQ-9-rated none to minimal depression. In the MDD-only group, PHQ-9-rated moderately severe to severe depression was associated with an additional total all-cause healthcare cost of \$70 per quarter, compared with an additional \$47 per quarter for PHQ-9-rated mild to moderate depression compared with PHQ-9-rated none to minimal depression (Table).⁵

Limitations

A diagnosis of TRD or MDD was required for study inclusion; thus, some individuals without the presence of a diagnosis of MDD or TRD could have been included in the control group.⁵ Some providers might use the PHQ-9 as a screening tool and administer it without recording a formal diagnosis of depression, perhaps due to stigma; therefore,

Table. Associations Between Quarterly Healthcare Costs by Type of Cost and PHQ-9 Depression Level⁵

Group	PHQ-9 depression level	Costs of care								
		Total all-cause healthcare			Specialty behavioral health			Depression-related		
		Coefficient ^a	95% CI	P value	Coefficient ^a	95% CI	P value	Coefficient ^a	95% CI	P value
Overall population	Moderately severe to severe	97.7	48.9-146.6	<.001	66.5	23.7-109.2	.002	14.4	-1.6 to 30.4	.078
	Mild to moderate	43.8	-2.0 to 89.5	.061	38.3	-2.1 to 78.7	.063	-2.0	-17.6 to 13.5	.796
	None to minimal	Reference	NA	NA	Reference	NA	NA	Reference	NA	NA
MDD-only	Moderately severe to severe	70.2	-7.3 to 147.7	.076	60.5	-7.1 to 128.1	.079	19.7	-11.2 to 50.5	.758
	Mild to moderate	46.8	-23.3 to 116.8	.191	45.6	-16.6 to 107.8	.151	-4.6	-33.8 to 24.6	.212
	None to minimal	Reference	NA	NA	Reference	NA	NA	Reference	NA	NA
TRD	Moderately severe to severe	106.0	42.4-169.5	.001	63.2	7.6-118.7	.026	13.5	-5.3 to 39.3	.160
	Mild to moderate	38.7	-21.7 to 99.0	.209	25.8	-27.3 to 79.0	.341	-.5	-18.9 to 17.9	.958
	None to minimal	Reference	NA	NA	Reference	NA	NA	Reference	NA	NA

MDD indicates major depressive disorder; NA, not applicable; PHQ-9, Patient Health Questionnaire-9; TRD, treatment-resistant depression.

^aRegression coefficients represent quarterly costs.

patients in the control group could also have had PHQ-9 information without a diagnosis of MDD.⁵ Also, whereas total all-cause healthcare costs included pharmacy costs, behavioral health–related and depression-related pharmacy costs were not included.⁵ Finally, this study used data from 1 health system with limited racial and ethnic diversity in its patient population and with its own unique practice patterns; the results of this analysis may not apply to other systems with different patient populations and practices.⁵

CONCLUSIONS

The results from this study demonstrate that using data from PHQ-9 assessments can help to more fully characterize the total costs associated with TRD. Of patients with TRD, those who met the PHQ-9 criteria for moderately severe to severe depression had significantly higher costs than those who met the PHQ-9 criteria for none to minimal depression.⁵

Identifying patients with TRD by using previously employed methods (eg, analysis of pharmacy claims data) may inadvertently

include those who do not have ongoing symptoms of depression and exclude those who do.⁵ Use of patient-reported data obtained from the PHQ-9 may allow investigators to better identify TRD, potentially leading to improved treatment.⁵ •

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