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The Association of General Medical and Psychiatric Comorbidities with Receipt of Guideline-Concordant Care for Depression

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Abstract

Objective—The objective is to describe the effect of medical and psychiatric comorbidities on receipt of guideline-concordant depression care.

Methods—2003-6 pharmacy, medical and behavioral claims and enrollment data from OptumHealth were linked for 1,835 adults with a new depression diagnosis or antidepressant fill. Multiple logistic regression was used to estimate the association of comorbidities with receipt of guideline-concordant pharmacotherapy, psychotherapy, and any therapy.

Results—Respectively 11%, 23% and 33% of study patients received guideline-concordant psychotherapy, pharmacotherapy and any therapy. Having a psychiatric but no medical comorbidity was associated with higher rates of guideline-concordant psychotherapy and overall guideline concordance; the converse was true for having a medical but no psychiatric comorbidity. Associations of comorbidities were with the probability of receiving any therapy, not improved guideline-concordance among patients already receiving therapy.

Conclusions—Patients with medical comorbidities may not receive psychotherapy referrals, perhaps due to well-established relationships with their primary care providers.

Keywords

depression; quality of care; medical morbidity and mortality in psychiatric patients; psychotherapy; psychopharmacology/general

Introduction

Depression is common [1] and associated with disability and high social costs. Evidence-based guidelines are available to facilitate clinical decisionmaking, and guideline-concordant treatment improves outcomes [2]. Yet despite the high prevalence of depression, its associated disability, and availability of effective treatments, only 17-36% of depressed patients receive guideline-concordant care [1-5].

Understanding potential reasons for low rates of guideline-concordant depression treatment is critical to quality improvement efforts. For example, patients with medical comorbidity may be more likely to receive depression treatment in the primary care sector, while those with psychiatric comorbidity may be treated in the specialty sector; in turn, provider specialty might affect adequacy of depression treatment. Those with more comorbidity may have more contacts with the healthcare system and hence greater opportunity to obtain depression treatment, suggesting that both medical and psychiatric comorbidities lead to better quality of depression care [1, 6]. Conversely, primary care clinicians (PCCs) may have limited time and resources to meet clinical goals for both mental illness and chronic medical disease, implying that medical comorbidity will "crowd out" high-quality depression care [4, 6-9].

Earlier studies yielded mixed conclusions. Depressed patients with other psychiatric diagnoses are more likely to receive "minimally adequate treatment" [5]. Canadians with depression who had chronic medical disorders were more likely to receive guideline-concordant pharmacotherapy [10]. Among elderly Americans with depression, those with hypertension or diabetes (but not heart disease or arthritis) were more likely to get guideline-concordant care [11]. Other studies have not found statistically significant adjusted associations of medical comorbidity with quality of depression treatment [1, 4, 6, 12, 13].

However, the earlier studies relied on self-reported data for service use, medications, and medical diagnoses. Administrative data are considered to be more reliable than self-reports, which may under- or overstate actual utilization [14, 15] and bias estimates of the predictors of utilization [16]. Self-reported diagnoses are less sensitive than claims diagnoses [17]. Other limitations of these studies included small sample size [4], exclusion of non-elderly [11], use of a non-U.S. sample [10], inclusion of few medical conditions [11, 12], and the inability to establish the relative timing of diagnoses vs. treatment, allowing the possibility that the medical condition developed after the depression was treated [1, 5, 10, 11, 13]. Some studies did not examine guideline-concordance, e.g., due to lack of data on antidepressant duration or dosage [1, 10-13]. Our study seeks to address the limitations of self-reported data [14-17] by using administrative data from OptumHealth.

Methods

We used eligibility data linked to medical, behavioral and pharmaceutical claims from a large OptumHealth employer group (primarily white-collar workers from the banking industry) between November 1, 2003 and November 30, 2006. The study cohort included patients ≥21 with a new depression diagnosis or antidepressant prescription following a "wash-out" period of ≥4 months without any indication of depression. Individuals were excluded if they had bipolar disorder or did not have continuous medical, behavioral and pharmaceutical coverage through OptumHealth for the washout period and at least one year following the index date of first diagnosis or antidepressant fill after the washout period. Among our final cohort (N=1,835), 1,117 entered the study due to an antidepressant prescription, 631 due to a depression diagnosis, and 87 due to both (occurring on the same index date). Inclusion of discontinuously enrolled patients did not alter the conclusions.

Outcomes were indicators of guideline-concordant psychotherapy, guideline-concordant pharmacotherapy, and any guideline-concordant depression treatment starting within six months of the index date. Guideline-concordant psychotherapy was defined as six or more psychotherapy sessions during the six months following the index date using a “strict” definition, and two or more using a “lenient” definition. Psychotherapy visits corresponded to Current Procedural Terminology codes for initial assessment, office, and facility psychotherapy visits without medical evaluation.

An antidepressant treatment episode had to begin within six months of the index date and last six or more months to meet the strict definition of guideline-concordance (two for the lenient definition). Dosages had to be within the minimum and maximum limits recommended by Micromedex, with the exception of tapering (lower doses for the first and last prescriptions in the episode). Low-dosage tricyclics were excluded due to alternative medical uses.

Each individual's pharmacy claims were ordered sequentially and all claims with a fill date within 30 days of the fill date+days supply of the last claim were included in the same episode. Duration was calculated as the number of days between the fill date of the first prescription and the fill date+days supply from the last prescription in the episode. Episodes that included claims for multiple antidepressants treated them as separate medications (i.e., at least one had to be guideline-concordant on its own). Estimates were similar when using alternative methods of calculating episode duration and/or handling multiple antidepressants.

We used all diagnoses from the washout period to create indicators for psychiatric comorbidities (somatization, substance abuse, adjustment, anxiety, ADHD and other disorders originating in childhood, psychotic and other psychiatric disorders) and medical comorbidities (arthritis, asthma, congestive heart failure, chronic obstructive pulmonary disease, diabetes, hypertension, malignant cancer and stroke). We then used this information to create aggregate indicators for psychiatric comorbidity only, medical comorbidity only, and both (with no comorbidity as the omitted category). We also estimated alternative specifications using: (i) the number of comorbidities; (ii) indicators for the number of comorbidities (1, 2, 3+ vs. 0); and (iii) indicators for each specific comorbidity with an additional indicator for having both medical and psychiatric comorbidity.

Multiple logistic regression was used to estimate differences in predicted probabilities associated with each covariate along with 95% bias-corrected empirical confidence intervals, bootstrapped using 1000 replicate samples. All regressions controlled for gender and age group (in five-year increments).

Results

About two-thirds of the study cohort were female and over half were in their 30s or 40s. The most common comorbidities were hypertension (15%), anxiety (14%), and arthritis (13%). 52% of the sample had no comorbidities, 14% had psychiatric comorbidities only, 24% had medical comorbidities only, and 10% had both.

Among the entire cohort, 443 (24%) had any psychotherapy visits and 1,425 (78%) had any antidepressant prescription during the six-month followup. 1,200 individuals (65%) received only pharmacotherapy, 218 (12%) received only psychotherapy, 225 (12%) received both and 192 (10%) had a diagnosis but neither psychotherapy nor antidepressant therapy.

Among the entire cohort, 203 patients (11%) received guideline-concordant psychotherapy using the strict definition (≥6 psychotherapy visits in 6 months) and 350 (19%) using the

lenient definition (≥2 psychotherapy visits). Of the 443 individuals who received any psychotherapy, 46% received guideline-concordant treatment using the strict definition and 79% using the lenient definition.

Among the entire cohort, 430 (23%) received guideline-concordant antidepressant treatment using the strict definition and 811 (44%) using the lenient definition. Among the 1,425 individuals receiving any antidepressant treatment, 30% received guideline-concordant treatment using the strict definition and 57% using the lenient definition. Overall, 33% of the sample received any guideline-concordant treatment using strict definitions and 58% using lenient definitions.

Table 1 summarizes the regression results using strict definitions of guideline-concordance. Use of lenient definitions yielded similar patterns, generally with greater statistical significance. The top rows show the estimates for the full sample. The bottom rows show the estimates for patients receiving the therapy.

Among the full sample, having a psychiatric but no medical comorbidity increased the predicted probability of guideline-concordant psychotherapy from .09 to .21 (difference = .12, 95% CI = .06, .17). It also raised the probability of receipt of any guideline-concordant treatment from .32 to .41 (difference = .08, 95% CI = .02, .15), but had no effect on the rate of guideline-concordant pharmacotherapy. Conversely, having a medical but no psychiatric comorbidity reduced the predicted probability of guideline-concordant psychotherapy from .09 to .06 among the full sample (difference = -.03, 95% CI = -.06, -.01) but had no significant associations with guideline-concordant pharmacotherapy or overall guideline-concordant treatment. Having both psychiatric and medical comorbidities had no significant associations with guideline-concordant depression care.

After limiting the sample to individuals receiving either psychotherapy or pharmacotherapy respectively, there were no significant effects for any type of comorbidity. In other words, psychiatric and medical comorbidities were associated with the receipt of guideline-concordant treatment only as a result of their associations with the receipt of any treatment.

Sensitivity Analyses

In analyses not shown, there were no consistent patterns of association of individual medical comorbidities with the outcomes. However, the positive association of psychiatric comorbidities with guideline-concordant psychotherapy treatment among the full sample appeared to be driven primarily by anxiety and adjustment (mood) disorders. In both the full and conditional samples, substance abuse was associated with lower rates of guideline-concordant pharmacotherapy and hence lower overall guideline-concordance. Results from the models examining the number of comorbidities suggested that effect sizes might increase with more comorbidities, but small sample sizes prohibited drawing definitive conclusions regarding the existence of such a gradient. Finally, stratifying the regressions by the basis for study inclusion (depression diagnosis vs. antidepressant prescription) yielded marginal effects that were similar but reduced statistical significance among the smaller subsample of patients with a diagnosis.

Discussion

Based on administrative data from a large employer group, we found suboptimal rates of guideline-concordant treatment for patients with depression; even using the most lenient definitions, only two-thirds of the sample received either psychotherapy or pharmacotherapy consistent with treatment guidelines. Furthermore, even our “strict” definition of guideline-concordant psychotherapy was relatively lenient, and we are unable to determine whether

the psychotherapies used were evidence-based, so true rates of guideline-concordance are likely to be even lower.

The probability of receiving guideline-concordant psychotherapy was higher among patients with a psychiatric but no medical comorbidity, and lower among those with a medical but no psychiatric comorbidity. No significant associations were found with receipt of guideline-concordant pharmacotherapy, and patients with both types of comorbidities had guideline-concordant treatment rates that were insignificantly different from those of patients without comorbidities. Our results were robust to a range of definitions; at a minimum, our conclusions would not have changed for any definition of guideline concordance that fell between the strict and lenient definitions.

Interestingly, the associations with guideline-concordant psychotherapy were due entirely to the likelihood of receiving any psychotherapy at all. Our findings provide no evidence that comorbidities were associated with guideline-concordance of psychotherapy among those receiving it. The finding that differences in rates of guideline-concordant psychotherapy were due to lack of initiation of treatment might be explained by differential referrals to psychotherapy.

Our findings are subject to certain imitations. We studied continuously enrolled patients from a single employer group and excluded patients with untreated and undiagnosed depression, so results may not generalize. Our prevalence rates for medical and psychiatric comorbidities were somewhat lower than epidemiological estimates. Our study patients were also younger than most primary care-based depression research subjects.

A few patients may have received antidepressants for conditions other than depression. Rates of guideline-concordant pharmacotherapy may be overstated because we analyzed prescription fills, not actual pills taken. Multiple comparisons could lead to spurious results, although our significant findings seemed generally consistent with broader patterns across outcomes. We were unable to adjust for clinical severity or sociodemographic characteristics other than age and gender, so cannot rule out the possibility of confounding. However, it is difficult to think of omitted variables that could fully explain the pattern that psychiatric comorbidity increased rates of guideline-concordant psychotherapy while medical comorbidity reduced them.

Finally, it is outside the scope of our current study to examine the reasons why patients did not receive guideline-concordant care (e.g., inadequate insurance benefits, medication side effects, rapid improvement) or distinguish between patient non-adherence and provider behavior.

Despite these limitations, to our knowledge our study is the first to examine the associations of comorbidity with rates of guideline-concordant treatment among a large, naturalistic patient population, using claims rather than self-reports to document receipt of services, prescriptions filled and diagnoses. In contrast to most of the earlier literature, which did not find significant associations of medical comorbidity with quality of depression care based on self-reports, our claims-based study identified an important link between guideline-concordant psychotherapy and both psychiatric and medical comorbidities.

Conclusions

Even using relatively lenient criteria, rates of guideline-concordant depression care are low, both for patients with and without comorbidity. The negative associations of guideline-concordant psychotherapy with medical comorbidity, apparently due to the lower likelihood of receiving any psychotherapy, suggests that patients with medical comorbidities may not

be receiving referrals for mental health services. It may be that patients with chronic medical problems have well-established relationships with their PCCs, so when depression develops, their physicians choose to treat the patients themselves, using antidepressants, rather than referring them to the mental health specialty sector for psychotherapy. Conversely, those with psychiatric comorbidity may already get care from a mental health specialist and therefore already receive psychotherapy or have an immediate referral source for obtaining it. Although it is outside of the scope of this paper to address mediation, an appendix describing additional analysis of provider specialty is available upon request from the authors.

The lower rates of psychotherapy use among patients with medical comorbidities, together with existing evidence on effectiveness of combination pharmaco- and psychotherapy treatment for depressed patients [18], suggest that it may be desirable to integrate systems of care to facilitate referrals among medical and behavioral health providers for patients for whom co-management is appropriate. Although referrals from primary care to specialty mental healh care have increased, they remain low, at about five referrals per family practitioner per year [19, 20]. PCCs reporting poor access to mental health specialists as a barrier tend not to refer, instead providing depression treatment themselves [21].

Managed behavioral health carve-outs have in part contributed to the divide separating medical and behavioral healthcare, increasing the barriers for patients to be treated in both sectors. Although health maintenance organizations are naturally equipped for integrated medical-behavioral services, open systems of care can also develop infrastructure, processes and procedures that facilitate integrated service delivery, not usually present in independent practitioner offices. Using administrative databases, healthcare organizations can identify and flag cases where combination treatment is warranted or where there is medication non-adherence or treatment drop-out. Coordination of health care can be facilitated by co-location of medical and behavioral care managers, who in turn co-manage cases [22]. These collaborative systems of care delivery can help improve referral rates when appropriate, monitor medication adherence and treatment compliance, and may increase receipt of guideline-concordant care among patients appropriate for co-management of depression treatment [22].

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Table 1

Associations of Psychiatric and Medical Comorbidities with Guideline-Concordant Depression Care

	Either Therapy				Pharmacotherapy				Psychotherapy			
	Prob	**CI**	**Diff**	**CI**	**Prob**	**CI**	**Diff**	**CI**	**Prob**	**CI**	**Diff**	**CI**
Full Sample (N=1,835)												
No comorbidity (reference)	.32	.29, .35	-		.23	.21, .26	-		.09	.08, .11	-	-
Psychiatric comorbidity only	.41	.35, .47	.08*	.02, .15 *	.24	.19, .29	.004	-.05, .06	.21	.16, .26	.12*	.06, .17*
Medical comorbidity only	.28	.24, .33	-.04	-.10, .01	.23	.19, .27	-.004	-.05, .05	.06	.04, .08	-.03*	-.06, -.01*
Both psychiatric and medical	.36	.29, .43	.03	-.04, .11	.25	.18, .31	.01	-.06, .08	.16	.11, .21	.06	.01, .12
Conditional Sample Receiving Therapy												
No comorbidity (reference)	-		-		.30	.26, .33	-		.45	.38, .52	-	-
Psychiatric comorbidity only	-		-		.31	.25, .37	.01	-.06, .08	.51	.42, .61e	.06	-.05, .18
Medical comorbidity only	-		-		.30	.25, .34	-.002	-.06, .06	.39	.26, .51	-.07	-.22, .08
Both psychiatric and medical	-		-		.33	.26, .41	.04	-.05, .12	.45	.32, .57	-.01	-.16, .14

Note: Prob = predicted probability. CI = confidence interval. Diff = difference in predicted probabilities.

* denotes significance at $\alpha \leq .05$. Regressions control for a constant, gender and age group. 95% confidence intervals are in parentheses, calculated using bias-corrected empirical bootstrapping with 1000 replicate samples. Guideline-concordant psychotherapy is defined as ≥ 6 visits in six months; guideline-concordant pharmacotherapy is defined as ≥ 6 months duration with appropriate doses.