

Primary Care Physician Referral Patterns for Behavioral Health Diagnoses

Kimberley H. Geissler, Ph.D., and John E. Zeber, Ph.D.

Objective: This study examined whether visits to primary care physicians (PCPs) by patients with a primary behavioral health diagnosis were more likely to be associated with referral to another physician and if so, whether the association varied by clinical condition.

Methods: Using PCP visits (N=577,719,897) from the 2011–2015 National Ambulatory Medical Care Survey, the authors estimated logistic regression models of whether the probability of a referral differed between visits with and without a primary behavioral health diagnosis.

Results: Visits with primary behavioral health diagnoses were 4.3 percentage points ($p < 0.05$) more likely than

visits with other primary diagnoses to result in a referral, after the analyses controlled for patient, insurance, physician, and organizational characteristics. The probability of referral varied by behavioral health condition.

Conclusions: Referral patterns for behavioral health diagnoses are an important component of high-quality primary care. Optimizing referral patterns is a key way to improve coordination of care and resource allocation.

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Referrals to specialty clinicians are an important component of patient care, particularly for primary care physicians (PCPs; 1). Appropriate and timely referrals are especially important for individuals presenting with behavioral health conditions, including mental illness and substance use disorders. PCPs vary in their referral patterns (2), and differences are based on clinical specialty and physician characteristics (1, 3, 4). PCPs also differ in their ability to manage behavioral health conditions, resulting in variation in referral patterns (2).

Diagnosis and treatment of behavioral health conditions are critical components of primary care because of high population prevalence, the likelihood that PCPs are the first treatment contact (5), and specialist shortages (5, 6). Whereas depression can be managed by PCPs (5), other behavioral health conditions (e.g., schizophrenia) involve referral to a specialist as a component of providing guideline-concordant care (7). Substance use disorders have historically been treated in a specialty services sector (8). In addition, specialist supply and insurance networks constrain referrals. These issues are particularly salient in many areas for psychiatric and substance use disorder treatment (5, 8–10).

Despite the importance of PCP referrals for behavioral health conditions, no nationwide studies have examined the

frequency of these referrals and associated factors. In this study, we used national data to examine PCP referrals for behavioral health diagnoses, an important clinical consideration. Most previous studies have focused on PCP patients with depressive symptoms rather than all behavioral health conditions (2, 11); additionally, no previous studies have examined referrals in the U.S. health care system landscape.

HIGHLIGHTS

- Better understanding referral patterns, particularly for behavioral health conditions (the primary diagnosis in one of 29 primary care physician [PCP] visits in this study), is important for improving behavioral health care.
- Appropriate referrals from PCPs to specialists are an essential component of patient care; most PCP visits with a primary behavioral health diagnosis do not result in a referral.
- In this study, referrals were more likely for PCP visits with a behavioral health diagnosis, and the predicted probability of referral varied substantially on the basis of the specific behavioral health condition.

METHODS

Nationally representative data of PCP outpatient visits from the 2011–2015 National Ambulatory Medical Care Survey (12) were used to determine whether PCPs had different referral rates for visits with a primary behavioral health diagnosis compared with other visits and whether rates varied across different behavioral health conditions. The National Ambulatory Medical Care Survey uses a complex survey design, weighted to be nationally representative of all office-based physician outpatient visits, excluding physicians in community health centers and hospital outpatient departments. Surveyed physicians contribute detailed visit information, abstracted from medical records, for 30 randomly selected visits (12). The University of Massachusetts Amherst Institutional Review Board considered this study not human subjects research.

The analytic sample was outpatient PCP visits for patients age 18 or older with a new diagnosis or the acute exacerbation of a chronic condition as coded after the visit. We excluded visits with missing primary diagnosis ($N=220$) or regression covariates ($N=3,801$).

We used *ICD-9* diagnosis codes to determine whether the visit was primarily related to behavioral health and the specific diagnosis. We classified behavioral health conditions as psychoses, opioid use disorder, substance use disorder (excluding tobacco), depression, or all other behavioral health diagnoses (13, 14) [see online supplement]. We aggregated substance use disorder with and without opioid use disorder for the main results. The primary outcome was whether the visit resulted in a referral to another physician (without information about specialty or specific clinician).

We used *t*-tests and chi-square tests to determine whether differences between visits with and without referrals were statistically significant. Using whether the visit had a behavioral health primary diagnosis as the independent variable, a logit model was used to estimate whether the visit resulted in a referral (“unadjusted” results). To isolate associations between behavioral health conditions and referral probability, we estimated this regression while controlling for physician, organization, patient, and insurance characteristics (“adjusted” results). Specifically, we adjusted for patient sex, age, major reason for visit, number of diagnoses (maximum three in 2011–2013, five in 2014–2015), payment source, race-ethnicity, and patient comorbid conditions (i.e., arthritis, asthma, chronic renal failure, coronary artery disease, ischemic heart disease, diabetes, cerebrovascular disease, congestive heart failure, chronic obstructive pulmonary disease, hyperlipidemia, hypertension, obesity, and osteoporosis).

We also controlled for visit year, an interaction between year and number of diagnoses to account for measurement changes, geographic region, whether the physician was a full or part owner of the practice, office setting (private or group practice), whether the physician was in solo practice,

whether the practice was owned by a physician or physician group, whether the practice used electronic medical records, and metropolitan statistical area location. Average marginal effects (AMEs) were used to interpret results as the change in predicted probability of the visit resulting in a referral.

Next, we compared associations of specific behavioral health primary diagnoses and changes in the predicted probability of a PCP visit resulting in a referral. We estimated a logit model with categorical behavioral health diagnoses as the independent variable (unadjusted) and then adjusted for physician, organization, patient, and insurance characteristics described previously (adjusted). We included substance use disorder with and without opioid use disorder as a sensitivity analysis.

All analyses were weighted to make results representative of national visits, with standard errors accounting for the complex survey design. An alpha of 0.05 was considered to be statistically significant.

RESULTS

Population weighted results included 577,719,897 PCP visits (unweighted $N=20,313$) for a new condition or acute exacerbation in 2011–2015 [see online supplement]. A primary behavioral health diagnosis was present in 3.5% of visits. One in six visits resulted in a referral to another doctor, and primary behavioral health diagnoses were more common in visits with a referral. Referrals were statistically more common among visits with more diagnoses, visits paid by private insurance or Medicaid, and visits for patients with certain comorbidities.

Unadjusted results show that a behavioral health diagnosis was associated with an increase of 4.8 percentage points (unadjusted $AME=0.05$; 95% confidence interval [CI] = 0.00 to 0.09) in the predicted probability of a referral. When controlling for patient, visit, physician, and organizational characteristics, we found that a behavioral health diagnosis was associated with a 4.3–percentage point increase (adjusted $AME=0.04$; 95% CI = 0.00 to 0.09) in the predicted referral probability, a 26% increase in the referral rate.

Within behavioral health conditions, the unadjusted and adjusted predicted probability of referral varied by diagnosis (Figure 1). The predicted probability of referral was higher by 23.9 percentage points among visits with a psychosis diagnosis compared with visits without a primary behavioral health diagnosis, and the difference was statistically significant (adjusted $AME=0.24$, 95% CI = 0.06 to 0.42). The predicted probability of referral was 12.4 percentage points higher among visits with a diagnosis of substance use disorder compared with visits without a primary behavioral health diagnosis, but the difference was not statistically significant. No significant change in predicted probability of referral was associated with depression or other behavioral health conditions versus visits without a behavioral health diagnosis. Visits with a primary diagnosis of substance use

disorder excluding opioid use disorder had a statistically significantly increased probability of referral compared with visits without a primary behavioral health diagnosis (adjusted AME=0.28; 95% CI=0.04 to 0.52), a large increase in magnitude of the AME from the combined referral rate for substance use disorders including opioid use disorder.

DISCUSSION AND CONCLUSIONS

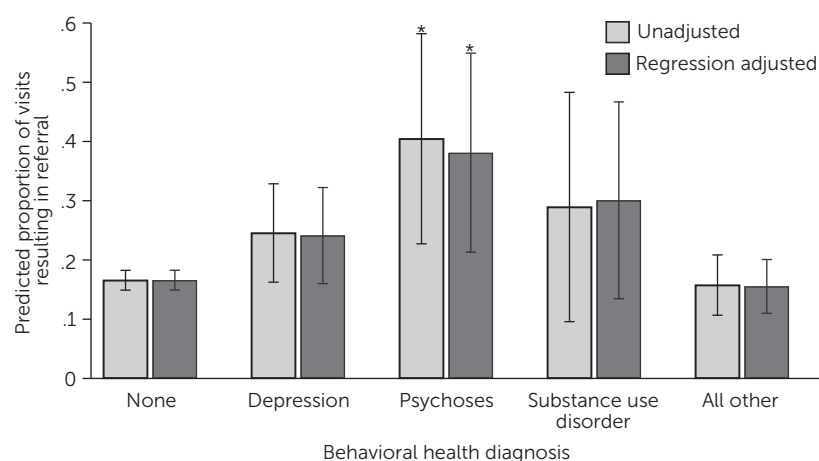
In this study, PCP ambulatory care visits with a behavioral health diagnosis were associated with a significantly increased probability of referral. One of 29 visits included behavioral health as the primary diagnosis. Understanding PCP referral patterns for patients with behavioral health conditions is essential to improving health care access and care coordination. If PCPs are not able to adequately manage the patient's clinical needs, referrals may be a necessary but not sufficient part of providing high-quality care for behavioral health conditions. In this study, we illuminated differences in referral rates for behavioral health conditions and quantified variation by specific diagnosis.

Differences across behavioral health diagnoses in regression-adjusted predicted probabilities of referrals showed that some diagnoses, including depression, were not associated with an increased probability of a referral. Yet, there was a significant positive association between referrals and a diagnosis of substance use disorder (excluding opioid use disorder) and psychoses. These differences align with expectations, in that PCPs commonly treat depression without a referral to a specialist (5). We observed substantially higher referral rates for visits with psychoses diagnoses, which seems appropriate considering that guideline-concordant care for schizophrenia requires referral to a mental health specialist (7). Higher referral rates for substance use disorder reflect treatment primarily occurring in a specialty services sector, particularly for substance use disorders other than opioid use disorder (8).

Our findings reflect clinical practice for new problems and acute exacerbations of chronic problems, including visits across the acuity spectrum and PCP experience with screening, diagnosis, and treatment of behavioral health conditions. Our results are in line with previous estimates of PCP referral rates (11%–36%), which vary widely and are based on psychiatric or depressive symptoms rather than behavioral health diagnoses (1, 2, 11).

This analysis had several limitations. First, because of survey limitations, we restricted analysis to office-based physicians and excluded visits in hospital outpatient departments, possibly underestimating outpatient referrals. Second, in line with previous literature, we used primary diagnosis codes to categorize visits (13, 14), reflecting PCP

FIGURE 1. Predicted probability of referral by a primary care physician for visits by patients with a behavioral health condition (2011–2015)^a



^a 95% confidence intervals are shown with vertical bars. Population-weighted results included N=577,719,897 PCP visits (unweighted N=20,313) for a new condition or acute exacerbation; a primary behavioral health diagnosis was present in 3.5% of visits. An asterisk indicates that the average marginal effect of condition type on probability of referral is statistically different from visits without a behavioral health diagnosis at $p < .05$.

screening and diagnosis patterns for behavioral health conditions. Third, the referral indicator does not estimate completed referrals; there are low completion rates for PCP referrals (15), and thus these referrals may not ultimately contribute to patient care. Fourth, we were not able to distinguish referral targets; the outcome is not limited to referrals to psychiatry or addiction medicine specialists. However, the limitation to primary diagnoses makes it more likely that the behavioral health condition was the referral reason. A better understanding of referral patterns supports ongoing efforts to integrate behavioral health and primary care and to improve quality of behavioral health treatment. In future studies, researchers should build on this report by examining to whom patients with behavioral health conditions are referred, hopefully by using more detailed visit-level data than are currently available on the national scale.

Our findings document clinically meaningful differences in PCP referral rates for patients with primary behavioral health diagnoses, which vary substantially by behavioral health condition. In future studies, researchers should examine whether referral rates represent adequate treatment for behavioral health conditions and influences on these referral patterns. Improved discernment of PCP referrals for behavioral health conditions contributes to improvements in determining how to allocate resources between primary and specialty care while optimizing patient care.

AUTHOR AND ARTICLE INFORMATION

School of Public Health and Health Sciences, University of Massachusetts Amherst. Send correspondence to Dr. Geissler (kgeissler@umass.edu). This study was presented in part at the Eighth Annual Conference of the American Society of Health Economists, June 23–26, 2019, Washington, D.C.

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