



Published in final edited form as:

Gen Hosp Psychiatry. 2008 ; 30(6): 528–535. doi:10.1016/j.genhosppsy.2008.07.002.

Quality of Depression Care for People with Coincident Chronic Medical Conditions

Carrie Farmer Teh, Ph.D.¹, Charles F. Reynolds III, M.D.¹, and Paul D. Cleary, Ph.D.²

¹*Western Psychiatric Institute and Clinic, University of Pittsburgh*

²*School of Public Health, Yale University*

Abstract

Objective—Depression is common and associated with poor outcomes for people with chronic medical conditions (CMCs). The goals of this study were (1) to determine the effect of CMCs on the use and quality of depression care and (2) to understand whether the patient-provider relationship mediates the relationship between CMCs and depression care quality.

Method—Using data from the 1997-1998 National Survey of Alcohol, Drug, and Mental Health Problems (Healthcare for Communities), the relationships between CMCs, depression recognition, receipt of minimally adequate depression care, and the patient-provider relationship were assessed with multivariate linear and logistic regression models for 1,309 adults who met criteria for major depressive disorder.

Results—Depressed patients with a CMC were more likely to have their depression recognized by a provider (OR=2.10; 95% CI 1.32-3.35) and to take antidepressant medications (32% vs. 19%, $p=0.02$) than those without a CMC. However, having a CMC was not associated with receiving minimally adequate depression care or patient satisfaction. Depression recognition was associated with number of medical visits (OR=1.12; 95% CI 1.09-1.15), having a usual source of care (OR=3.57; 95% CI 2.26-5.63), and provider trust (OR=1.07; 95% CI 1.04-1.11).

Conclusion—Depressed people with a comorbid CMC are more likely to have their depression recognized than those without a CMC, though were no more likely to receive minimally adequate depression care. Aspects of the patient-provider relationship, including trust and continuity of care, may help to explain the increased rate of depression recognition among patients with severe CMCs.

Keywords

chronic illness; depression; quality of care; patient-provider relationship

1. Introduction

Depression is characterized by prolonged feelings of sadness, hopelessness and loss of interest in life, affects 6 percent of the U.S. population annually, and is associated with high levels of disability and impairment [1-3]. The prevalence of depression is 3 to 5 times higher among

Correspondence to: Carrie Farmer Teh.

CORRESPONDING AUTHOR: Carrie Farmer Teh, Ph.D. Western Psychiatric Institute and Clinic 3811 O'Hara Street Pittsburgh, PA 15213 Phone: 412-383-5139 Fax: 412-383-5412 Email: tehc@upmc.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

people with a chronic medical condition (CMC) than in the general population [4-6]. Moreover, depressed patients with a CMC have 4 to 5 times greater levels of morbidity, premature mortality, health services use, and health care expenditures compared to non-depressed patients with a CMC [7,8].

Depression treatment in the U.S. is often of poor quality [9-11]. Yet despite numerous reports on the overall quality of depression care, the quality of depression treatment for people with CMCs is not well understood. Theoretically, comorbid CMCs could affect depression care quality in one of two ways. First, patients or providers could prioritize CMC treatment over depression treatment, resulting in worse quality of depression care [12,13]. Second, patients with CMCs have more regular visits with their providers, which could enhance the patient-provider relationship as well as provide increased opportunity to recognize and treat depression, resulting in better quality of depression care. In either case, it is likely that the patient-provider relationship plays a strong mediating role in the relationship between CMCs and depression care quality.

Reports that have examined the association between depression care quality and comorbid conditions suggest that depression care quality is similar or slightly better for patients with than without CMCs. However, these studies do not consider CMC severity and were limited by small sample size [14], examining just a single CMC [15], only addressing this issue in a geriatric population [16], and by use of a depression scale that is difficult to interpret for a medically ill population [17,18]. None of these reports have explored the patient-provider relationship as a possible mediator.

To address these issues, we analyzed data from a large, well-conducted nationally representative survey of community-based individuals to describe the use and quality of depression care for people with one or more CMCs and to examine its relationship with aspects of the patient-provider relationship. We hypothesized that depressed patients with CMCs would receive better depression recognition but worse quality of depression treatment, and that the patient-provider relationship would mediate these effects.

2. Research design and methods

2.1. Study setting and sample

We analyzed data from the National Survey of Alcohol, Drug, and Mental Health Problems [19] (Healthcare for Communities, HCC). HCC was a national household telephone survey of 14,985 adults, funded by the Robert Wood Johnson Foundation (RWJF) and fielded in 1997-1998. HCC respondents were a stratified probability sample of participants in the 1996-1997 Community Tracking Study (CTS) [9,15], a nationally representative study of the US civilian, noninstitutionalized population. The HCC sampling strategy was designed to increase the power to study low-income and psychiatrically ill populations; to that end, individuals who reported low income, psychiatric distress, or use of mental health specialty services in the CTS were oversampled. All analyses reported here were weighted to be representative of the US population. There was a 64% response rate, with 9,585 individuals completing the telephone survey.

HCC is a unique data source in that comprehensive data are available on mental health diagnoses, physical health conditions, and mental health services use. Other large health surveys (e.g. Health and Retirement Survey, National Health Interview Survey, National Medical Expenditure Survey) either include no or very little information on the use, frequency and type of mental health services used by respondents or include very few questions to assess mental health status.

Major depressive and dysthymic disorders were assessed in the HCC using the screening version of the Composite International Diagnostic Interview Short-Form (CIDI-SF). Since our outcome of interest was the quality of depression treatment and current depression treatment guidelines are written exclusively for the treatment of major depressive disorder (MDD) [20], we excluded respondents who met CIDI-SF criteria for dysthymia. Our sample included only those respondents who met CIDI-SF criteria for MDD (N=1,309) [21].

2.2. Demographic and socioeconomic characteristics

Four racial/ethnic groups were used: White, Black, Hispanic, and other. Age and education were included as continuous variables. Two dichotomous groups were created for marital status (married vs. unmarried) and rural residence (rural vs. urban/suburban). Gender, type of insurance, and whether insurance covered mental health care were also included as demographic characteristics.

2.3. Severity of depression, comorbid mental health conditions, and mental health status

Severity of depression was assessed by the presence of suicidal ideation (respondent thought about committing suicide in past 12 months). Comorbid generalized anxiety disorder was assessed using the CIDI-SF, panic disorder was assessed using screening items from the CIDI 2.1 [22] and the Depression Patient Outcomes Research Team (PORT) study [23]; and psychotic disorder was defined as having received a diagnosis of schizophrenia or having been hospitalized for symptoms of psychosis [24]. Mental health status was assessed by the MHI-5, a 5-item general mental health measure [25].

2.4. Chronic medical conditions

Respondents indicated whether or not they had one or more of the following conditions: asthma, arthritis or rheumatism, high blood sugar or diabetes, hypertension or high blood pressure, emphysema or chronic lung disease, cancer, chronic back problems, migraine or other chronic severe headaches, other chronic pain conditions, angina or heart failure or coronary artery disease, chronic liver disease, neurological conditions, or stroke/paralysis. Since these conditions vary considerably in the degree to which they cause symptoms and interfere with a patient's life, we categorized respondents who had at least one CMC according to their self-reported health status. To do this, we used responses on two items from the SF-12, global health status and limitations in activities of daily living (ADLs). Global health status was dichotomized as excellent, very good, or good health versus fair or poor health. Previous studies have found that global health status serves as a good indicator of morbidity in chronically ill populations [26-28]. To assess ADL limitations, respondents were asked whether they were limited a lot, limited a little, or not limited in their ability to perform vigorous activities such as running; moderate activities such as bowling; and climbing stairs. We created a scale from these responses, where the range was 0= no ADL limitations to 6= limited a lot in all ADLs. Finally, we used these variables to create a composite measure of CMC-related health status using the following schema: severe: self-reported fair/poor health and ADL score >1; moderate: (a) excellent/very good/good health and ADL score greater >1 or (b) fair/poor health and ADL score <2; mild: excellent/very good/good health and ADL score <2; or no CMCs.

2.5. Patterns of mental health care use

Mental health care use in the previous 12 months was determined based on self-report. We recorded the number of mental health specialty visits, primary care visits where mental health was discussed for at least five minutes, and antidepressant medications.

2.6. Recognition of depression

Recognition of depression by a health care provider was based on self-reported use of mental health services and was defined as having received any depression treatment (any antidepressant medication, any mental health specialist visit, or any primary care mental health visit) in the previous 12 months.

2.7. Minimally adequate depression treatment

Our definition of “minimally adequate depression treatment” was based on the Agency for Healthcare Policy and Research (AHCPR) depression treatment guidelines [20]. For these analyses, respondents were considered to have received “minimally adequate depression treatment” if they reported that they received either (1) an antidepressant medication at an adequate daily dose for at least two months in the past 12 months [20], or (2) four or more visits with a mental health specialist [29] within the previous 12 months. Analyses assessing minimally adequate depression treatment were limited to those respondents whose depression was recognized (had received any depression treatment).

2.8. Patient satisfaction

Patient satisfaction was defined as being “very satisfied” or “satisfied” with the health care available for personal or emotional problems during the past 12 months.

2.9. Patient-provider relationship (PPR)

Previous research has shown that trust and communication are important indicators of the quality of the PPR [30-34]. To assess trust, we created a scale based on responses to the following statements: “I think my doctor may not refer me to a specialist when needed”; “I trust my doctor to put my medical needs above all other considerations when treating my medical problems”; “I think my doctor is strongly influenced by health insurance company rules when making decisions about my medical care”; “I sometimes think that my doctor might perform unnecessary tests or procedures” (Chronbach's coefficient alpha = 0.63; scale range 0-20, where higher values indicate more trust). To assess communication, we created a scale based on responses to two questions: “How would you rate how well your doctor listened to you?” and “How would you rate how well the doctor explained things in a way that you could understand?” (Chronbach's coefficient alpha = 0.88; scale range 0-10, where higher values indicate better communication). All statements refer to the doctor the respondent “usually sees when you are sick or need advice about your health

We also assessed the number of physician visits and whether the respondent had a usual source of medical care, as these factors are strongly associated with the strength of the PPR.

2.10. Statistical analysis

We compared patient characteristics across the four CMC health status categories (severe, moderate, mild, no CMCs) using chi-square tests. Kruskal-Wallis and chi-square tests were used to compare patterns of mental health service use across the CMC health status categories.

We used logistic regression models to estimate the associations between CMC health status and (1) depression recognition, (2) receipt of minimally adequate depression treatment, and (3) patient satisfaction. First, we estimated a base model to determine the overall effect of CMCs on these outcomes. Next, we added variables to the model that could confound or mediate the relationship between CMCs and the outcomes of interest. We added variables to the model in the following order: demographic and socioeconomic variables (race, age, education, marital status, rural residence, gender, insurance type, and insurance coverage of mental health care), mental health variables (suicidal ideation, comorbid psychiatric

conditions, and the MHI-5), and finally, patient-provider relationship variables (trust, communication, number of visits, and source of usual care).

We also tested whether: (a) chronic illness is associated with a good patient-provider relationship and (b) a good patient-provider relationship is associated with better depression care, using linear and logistic regression.

All analyses incorporated sampling weights that were developed to produce national estimates for individual level analyses [35] and were conducted using SAS statistical software, version 9.1 (SAS Institute) and SAS-Callable SUDAAN, version 9.0 (RTI International). Missing data were imputed using logical imputation where possible and hot-decking procedures and multiple imputations where this was not possible. Most variables in the dataset had less than a 3% nonresponse rate.

3. Results

The sample consisted of 1,309 people with MDD. The mean age was 41.9 (SD=13.7, range=19-89), 68% were female, and 78% were Caucasian. Sixty-one percent received some treatment for depression; of these, 36% received minimally adequate depression treatment. Seventy percent were satisfied with the mental health care they had received. The majority of respondents (73%) had at least one CMC, while 25% had more than four CMCs. Among those with at least one CMC, 21% had mild CMCs (n=269), 24% had moderate CMCs (n=317), and 27% had severe CMCs (n=356).

Table 1 compares the characteristics of the sample across the CMC health status groups (severe; moderate; mild; no CMCs). Those with severe CMCs were older, less educated, and more likely to live in a rural area than those with less severe CMCs. In addition, those with severe CMCs were more likely to have another mental health diagnosis and those with moderate and severe CMCs were more likely to express suicidal ideation.

Table 2 compares the patterns of mental health care use in the previous 12 months across the CMC health status groups. There was not a significant difference among the CMC health status groups in the number of specialty mental health visits or in the number of primary care mental health consultations. However, those with severe CMCs took more antidepressant medications than those with less severe CMCs. In unadjusted bivariate analyses, there were no significant differences among the CMC health status groups in the percentage of those who had their depression recognized, received minimally adequate depression treatment, or were satisfied with their mental health care.

Table 3 portrays the odds of depression recognition for the CMC health status groups, adjusting for sociodemographic characteristics and mental health status (Model 1). Using no CMC as the reference group, those with severe CMCs were more likely to have their depression recognized (OR=2.10; 95% confidence interval (95% CI)=1.32, 3.35). When patient-provider relationship characteristics were included in the model (Model 2), the association between having a CMC and depression recognition was not significant (OR=1.33; 95% CI=0.78, 2.26). Rather, trust in one's physician, having a usual provider and the number of medical visits were positively associated with depression recognition, controlling for sociodemographic characteristics, insurance status, mental health status and chronic illness.

After adjusting for relevant covariates, we did not find a significant association between the CMC health status groups and receipt of minimally adequate depression treatment or patient satisfaction (Table 4). However, we did find that individuals who expressed suicidal ideation (OR=1.52; 95% CI=1.06 - 2.17) and those with another mental health diagnosis (OR=2.80;

95% CI=2.08 - 3.78) were more likely to receive minimally adequate depression treatment, controlling for CMC status, sociodemographic variables and insurance status

Table 5 displays the odds of depression recognition, receipt of minimally adequate depression treatment, and patient satisfaction across the patient-provider relationship characteristics. Overall, there was a positive association between patient-provider relationship characteristics and depression treatment. Trust, communication, the number of visits with a medical provider, having a usual source of care, and having a usual provider were significantly associated with receiving some treatment and receiving adequate treatment. The odds of having depression recognized increases by 7% for each one unit increase on the trust scale (OR=1.07; 95% CI=1.04-1.11) and by 11% for each one unit increase on the communication scale (OR=1.11; 95% CI=1.06-1.15). The odds of receiving minimally adequate depression treatment increases by 6% for each one unit increase on the trust scale (OR=1.06; 95% CI=1.03-1.10) and by 13% for each one unit increase on the communication scale (OR=1.13; 95% CI=1.07-1.19). Notably, having a usual source of care was associated with a three-fold increase in the odds of having depression recognized (OR=3.57; 95% CI=2.26-5.63) and receiving adequate treatment (OR=2.87; 95% CI=1.44-5.69). Trust, communication and having a usual provider were also significantly associated with satisfaction with mental health care. Since these features of the patient-provider relationship were associated with better depression treatment, we assessed whether having a CMC was associated with these variables. Indeed, having a severe CMC was significantly associated with trust, communication, the number of medical visits, and having a usual provider.

4. Discussion

This study, which was conducted in a large, nationally-representative sample, has two important findings. First, individuals with major depressive disorder and a CMC are more likely than other depressed persons to have their depression recognized by a health care provider, but are no more likely to receive minimally adequate depression treatment or be satisfied with the care they receive. Second, the patient provider relationship mediates the association between CMCs and depression recognition; having a CMC is associated with having a good patient-provider relationship, and having a good patient-provider relationship is associated with increased depression recognition.

The finding that having a CMC is associated with better depression care is not new [16]. However, this is the first study we are aware of to explore the role of the patient-provider relationship in the recognition and treatment of depression in this population. In particular, we found that having a usual source of care significantly increases the likelihood of depression recognition. A physician who has been treating a patient regularly over a number of months or years may come to know what is 'normal' versus 'abnormal' for that particular patient and may recognize or ask about subtle changes in mood or demeanor, leading to the likelihood of detecting and diagnosing depression in that patient. He or she may also come to know the patient's family, who may advise the physician about a patient's depression. Likewise, patients who have good relationships with their providers may trust their providers and feel more comfortable sharing with them private information, such as symptoms of depression [36].

However, recognition of depression is only the first step in the provision of adequate depression care. This study showed that depressed adults with a CMC rarely receive even minimally adequate treatment - a finding which unfortunately supports the results of other recent studies [9,10,37]. Among the chronically ill, the decision to seek depression care [38] and follow through on recommended depression treatments [39] may be compromised by a higher priority on the part of patients or physicians for dealing with physical problems. Providers often have limited time during visits and must balance the "competing demands" of depression treatment

and ongoing problems related to a chronic illness [12,40]. Finally, patients' insurance policies could determine the type and amount of depression treatment received; high deductibles and limitations on patients' ability to see mental health specialists could interfere with appropriate depression care.

This study also found that depressed people with a CMC were no more or less likely to be satisfied with their mental health care; a finding which is not surprising. Patient satisfaction has been used as a measure of quality for a number of years [41]. However, patients in a variety of health care settings often report very high levels of satisfaction -- in our study, 70 percent of respondents reported that they were satisfied or very satisfied with their mental health care -- which may lead to a ceiling effect for these analyses. Recent studies have tried to overcome limitations of patient satisfaction measures by asking questions about processes of care rather than a singular overall question about satisfaction [42]. Future studies exploring satisfaction with mental health care among the chronically ill should take this approach.

There are two important implications from this study. First, there needs to be increased attention to strengthening patient-provider relationships for depressed adults with comorbid medical conditions. Strong patient-provider relationships are unlikely to occur without continuity of care. In this sample, 88 percent of depressed respondents reported that they had a usual source of care and 83 percent reported that they saw the same physician at each visit. These numbers are encouraging, but it is unclear for this population who the "usual physician" is. For people with a CMC, the physician they consider to be their usual physician may be a specialist; for example, someone with diabetes may primarily be treated by an endocrinologist. If this is the case, targeted interventions to increase the training and ability of specialists to detect and treat depression may improve the quality of depression care for this population. There are no studies that we are aware of that explore this possibility.

Second, there needs to be continuing attention to improving the adequacy of depression treatment for this population. This study found that only half of those with a severe CMC whose depression had been recognized by a provider went on to receive minimally adequate depression treatment. Given the significant morbidity and mortality associated with undertreated depression [43,44], especially among the chronically ill, this finding is reason for great concern. Good depression care reduces suicidal ideation and depressive symptoms [45]. Furthermore, since chronic conditions can cause or exacerbate depression, providing quality depression treatment in the presence of chronic illness often means optimizing treatment for the chronic illness itself. Successful interventions that have focused on improving the quality of depression care for medically ill populations have employed a care manager who informs providers about treatment options and guides the coordination of care, resulting in better depression outcomes and improved quality of life for patients [46-49]; expansions of these models could greatly improve the adequacy of depression care for this population.

The findings of this study are subject to some limitations. First, this study relied on a self-reported measure of health care use, which may be subject to recall bias. In particular, people in high distress, such as those with severe depression, may overstate the amount of mental health services they use [50]. Second, this study used cross-sectional data with a one year time frame. We cannot know the order in which events transpired; for example, respondents may have changed their ratings of trust or communication based on the quality of their depression treatment. Third, the finding that people with severe chronic illnesses are more likely to use some mental health services may reflect off-label use of antidepressant medications rather than a higher rate of depression recognition in this group [51,52]. To test this, we conducted a sensitivity analysis under the assumption that 30% of antidepressant use was for off-label purposes. The results did not change under this assumption. Fourth, our definition of depression recognition is imprecise. Since we do not have claims or chart data to validate the survey data,

we are limited in our ability to know whether depression was truly recognized. By defining “depression recognition” as “receipt of some mental health treatment” we may be overestimating the rate of depression recognition. However, it is also possible that we may be underestimating the rate of depression recognition, as a provider may have recognized that a patient has depression and chose watchful waiting (or the patient may refuse treatment) rather than active treatment. Finally, this data is now 10 years old. Recent studies of quality improvement in depression care, especially in relation to comorbid conditions, may have improved overall access to quality depression care [53-56], though it is unlikely to have changed dramatically [57].

In summary, this study shows that depressed people with a CMC are more likely to have their depression recognized than depressed patients without a CMC, though they are no more likely to receive quality depression care or be satisfied with their care. Attention to the patient-provider relationship, and to continuity of care in particular, may help to improve the quality of depression care for this vulnerable population.

ACKNOWLEDGEMENTS

We wish to acknowledge funding support for this research from the National Institute of Mental Health, grants F31 MH073225 and T32 MH19986. This research was presented in part at the AcademyHealth Annual Research Meeting, June 2004. We thank Richard Frank and Bruce Rollman for helpful comments on drafts of this manuscript.

References

1. Kessler RC, Berglund P, Demler O, et al. The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *Jama* 2003;289(23):3095–3105. [PubMed: 12813115]
2. Kessler RC, Frank RG. The impact of psychiatric disorders on work loss days. *Psychol Med* 1997;27(4):861–873. [PubMed: 9234464]
3. Hays RD, Wells KB, Sherbourne CD, Rogers W, Spritzer K. Functioning and well-being outcomes of patients with depression compared with chronic general medical illnesses. *Arch Gen Psychiatry* 1995;52(1):11–19. [PubMed: 7811158]
4. Bair MJ, Robinson RL, Katon W, Kroenke K. Depression and pain comorbidity: a literature review. *Arch Intern Med* 2003;163(20):2433–2445. [PubMed: 14609780]
5. Burg MM, Abrams D. Depression in chronic medical illness: The case of coronary heart disease. *Journal of Clinical Psychology* 2001;57(11):1323–1337. [PubMed: 11590618]
6. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. The prevalence of comorbid depression in adults with diabetes: a meta-analysis. *Diabetes Care* 2001;24(6):1069–1078. [PubMed: 11375373]
7. Himelhoch S, Weller W, Wu A, Anderson G, Cooper LA. Chronic medical illness, depression, and use of acute medical services among Medicare beneficiaries. *Med Care* 2004;42(6):512–521. [PubMed: 15167319]
8. Ciechanowski PS, Katon WJ, Russo JE. Depression and diabetes - Impact of depression symptoms on adherence, function, costs. *Archives of Internal Medicine* 2000;160(21):3278–3285. [PubMed: 11088090]
9. Young AS, Klap R, Sherbourne CD, Wells KB. The quality of care for depressive and anxiety disorders in the United States. *Arch Gen Psychiatry* 2001;58(1):55–61. [PubMed: 11146758]
10. Wang PS, Berglund P, Kessler RC. Recent care of common mental disorders in the United States : prevalence and conformance with evidence-based recommendations. *J Gen Intern Med* 2000;15(5): 284–292. [PubMed: 10840263]
11. Goldman LS, Nielsen NH, Champion HC. Awareness, diagnosis, and treatment of depression. *J Gen Intern Med* 1999;14(9):569–580. [PubMed: 10491249]
12. Rost K, Nutting P, Smith J, et al. The role of competing demands in the treatment provided primary care patients with major depression. *Arch Fam Med* 2000;9(2):150–154. [PubMed: 10693732]

13. Nutting PA, Rost K, Smith J, Werner JJ, Elliot C. Competing demands from physical problems: effect on initiating and completing depression care over 6 months. *Arch Fam Med* 2000;9(10):1059–1064. [PubMed: 11115208]
14. Stockton P, Gonzales JJ, Stem NP, Epstein SA. Treatment patterns and outcomes of depressed medically ill and non-medically ill patients in community psychiatric practice. *General Hospital Psychiatry* 2004;26(1):2–8. [PubMed: 14757295]
15. Bao Y, Sturm R, Croghan TW. A national study of the effect of chronic pain on the use of health care by depressed persons. *Psychiatr Serv* 2003;54(5):693–697. [PubMed: 12719500]
16. Harman JS, Edlund MJ, Fortney JC, Kallas H. The influence of comorbid chronic medical conditions on the adequacy of depression care for older Americans. *J Am Geriatr Soc* 2005;53(12):2178–2183. [PubMed: 16398906]
17. Koike AK, Unutzer J, Wells KB. Improving the care for depression in patients with comorbid medical illness. *American Journal of Psychiatry* 2002;159(10):1738–1745. [PubMed: 12359681]
18. Schein RL, Koenig HG. The Center for Epidemiological Studies-Depression (CES-D) Scale: Assessment of depression in the medically ill elderly. *International Journal of Geriatric Psychiatry* 1997;12(4):436–446. [PubMed: 9178047]
19. Sturm R, Gresenz C, Sherbourne C, et al. The design of Healthcare for Communities: a study of health care delivery for alcohol, drug abuse, and mental health conditions. *Inquiry* 1999;36(2):221–233. [PubMed: 10459376]
20. AHCPR. Treatment of Major Depression, Volume 2. Treatment of Major Depression. Apr. 1993 AHCPR Publication No. 93-0551:
21. Kessler RC, Andrews G, Mroczek D, Ustun TB, Wittchen H-U. The World Health Organization Composite International Diagnostic Interview Short Form (CIDI-SF). *International Journal of Methods in Psychiatric Research* 1998;7(4):171–185.
22. World Health Organization (WHO). Composite International Diagnostic Interview, Core (Version 2.1). Computer Manual. World Health Organization; Geneva, Switzerland: 1997.
23. Wells KB. The design of Partners in Care: evaluating the cost-effectiveness of improving care for depression in primary care. *Soc Psychiatry Psychiatr Epidemiol* 1999;34(1):20–29. [PubMed: 10073117]
24. Burnam, MA.; Young, AS. Development of Healthcare for Communities Household Survey Instrument. UCLA/RAND Research Center on Managed Care for Psychiatric Disorders; 1996.
25. Rumpf HJ, Meyer C, Hapke U, John U. Screening for mental health: validity of the MHI-5 using DSM-IV Axis I psychiatric disorders as gold standard. *Psychiatry Res* 2001;105(3):243–253. [PubMed: 11814543]
26. Bailis DS, Segall A, Chipperfield JG. Two views of self-rated general health status. *Soc Sci Med* 2003;56(2):203–217. [PubMed: 12473308]
27. Manor O, Matthews S, Power C. Self-rated health and limiting longstanding illness: interrelationships with morbidity in early adulthood. *Int J Epidemiol* 2001;30(3):600–607. [PubMed: 11416091]
28. Miilunpalo S, Vuori I, Oja P, Pasanen M, Urponen H. Self-rated health status as a health measure: the predictive value of self-reported health status on the use of physician services and on mortality in the working-age population. *J Clin Epidemiol* 1997;50(5):517–528. [PubMed: 9180644]
29. Schoenbaum M, Unutzer J, McCaffrey D, et al. The effects of primary care depression treatment on patients' clinical status and employment. *Health Serv Res* 2002;37(5):1145–1158. [PubMed: 12479490]
30. Cleary PD, McNeil BJ. Patient satisfaction as an indicator of quality care. *Inquiry* 1988;25(1):25–36. [PubMed: 2966123]
31. Fiscella K, Meldrum S, Franks P, et al. Patient trust: is it related to patient-centered behavior of primary care physicians? *Med Care* 2004;42(11):1049–1055. [PubMed: 15586831]
32. Murphy J, Chang H, Montgomery JE, Rogers WH, Safran DG. The quality of physician-patient relationships. Patients' experiences 1996-1999. *J Fam Pract* 2001;50(2):123–129. [PubMed: 11219559]
33. Haugli L, Strand E, Finset A. How do patients with rheumatic disease experience their relationship with their doctors? A qualitative study of experiences of stress and support in the doctor-patient relationship. *Patient Educ Couns* 2004;52(2):169–174. [PubMed: 15132522]

34. Wright EB, Holcombe C, Salmon P. Doctors' communication of trust, care, and respect in breast cancer: qualitative study. *Bmj* 2004;328(7444):864. [PubMed: 15054034]
35. Tang, L.; Zhang, L.; Kung, F., et al. Report on the survey method for the household survey of Healthcare for Communities, 1997-1998. UCLA Health Services Research Center; May. 2001
36. Goold SD. Trust, distrust and trustworthiness. *J Gen Intern Med* 2002;17(1):79–81. [PubMed: 11903779]
37. Unutzer J, Katon W, Callahan CM, et al. Depression treatment in a sample of 1,801 depressed older adults in primary care. *Journal of the American Geriatrics Society* 2003;51(4):505–514. [PubMed: 12657070]
38. Fortney J, Rost K, Zhang M. A joint choice model of the decision to seek depression treatment and choice of provider sector. *Med Care* 1998;36(3):307–320. [PubMed: 9520956]
39. Nutting PA, Rose K, Dickinson M, et al. Barriers to initiating depression treatment in primary care practice. *Journal of General Internal Medicine* 2002;17(2):103–111. [PubMed: 11841525]
40. Nutting PA, Rost K, Smith J, Werner JJ, Elliot C. Competing demands from physical problems - Effect on initiating and completing depression care over 6 months. *Archives of Family Medicine* 2000;9(10):1059–1064. [PubMed: 11115208]
41. Williams B, Coyle J, Healy D. The meaning of patient satisfaction: an explanation of high reported levels. *Soc Sci Med* 1998;47(9):1351–1359. [PubMed: 9783878]
42. Saultz JW, Albedaiwi W. Interpersonal continuity of care and patient satisfaction: a critical review. *Ann Fam Med* 2004;2(5):445–451. [PubMed: 15506579]
43. Undertreatment of depression and comorbid anxiety translates into costly mismanagement of resources and poor patient outcomes. *Manag Care* 2005;14(7 Suppl):1–12. [PubMed: 16116838]
44. Hirschfeld RM, Keller MB, Panico S, et al. The National Depressive and Manic-Depressive Association consensus statement on the undertreatment of depression. *Jama* 1997;277(4):333–340. [PubMed: 9002497]
45. Bruce ML, Ten Have TR, Reynolds CF 3rd, et al. Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: a randomized controlled trial. *Jama* 2004;291(9):1081–1091. [PubMed: 14996777]
46. Lin EH, Katon W, Von Korff M, et al. Effect of improving depression care on pain and functional outcomes among older adults with arthritis: a randomized controlled trial. *Jama* 2003;290(18):2428–2429. [PubMed: 14612479]
47. Katon WJ, Von Korff M, Lin EH, et al. The Pathways Study: a randomized trial of collaborative care in patients with diabetes and depression. *Arch Gen Psychiatry* 2004;61(10):1042–1049. [PubMed: 15466678]
48. Lin EH, Katon W, Rutter C, et al. Effects of enhanced depression treatment on diabetes self-care. *Ann Fam Med* 2006;4(1):46–53. [PubMed: 16449396]
49. Williams B. Patient satisfaction: a valid concept? *Soc Sci Med* 1994;38(4):509–516. [PubMed: 8184314]
50. Rhodes AE, Fung K. Self-reported use of mental health services versus administrative records: care to recall? *Int J Methods Psychiatr Res* 2004;13(3):165–175. [PubMed: 15297900]
51. Fishbain DA. Analgesic effects of antidepressants. *Journal of Clinical Psychiatry* 2003;64(1):96. [PubMed: 12590632]
52. Staiger TO, Gaster B, Sullivan MD, Deyo RA. Systematic review of antidepressants in the treatment of chronic low back pain. *Spine* 2003;28(22):2540–2545. [PubMed: 14624092]
53. Rost KM, Duan N, Rubenstein LV, et al. The Quality Improvement for Depression collaboration: general analytic strategies for a coordinated study of quality improvement in depression care. *General Hospital Psychiatry* 2001;23(5):239–253. [PubMed: 11600165]
54. Wells K, Sherbourne C, Schoenbaum M, et al. Five-year impact of quality improvement for depression: results of a group-level randomized controlled trial. *Arch Gen Psychiatry* 2004;61(4):378–386. [PubMed: 15066896]
55. Meredith LS, Mendel P, Pearson M, et al. Implementation and maintenance of quality improvement for treating depression in primary care. *Psychiatr Serv* 2006;57(1):48–55. [PubMed: 16399962]

56. Unutzer J, Rubenstein L, Katon WJ, et al. Two-year effects of quality improvement programs on medication management for depression. *Arch Gen Psychiatry* 2001;58(10):935–942. [PubMed: 11576031]
57. Reynolds CF, Cruz M, Teh CF, Rollman BL. Improving evidence-based depression management for older Americans in primary care: If not now, when? [Editorial]. *Journal of the American Geriatrics Society*. in press

Table 1
 Characteristics of individuals with MDD (N=1,309) across CMC categories

	All (N=1309)	No CMC (N=371)	Mild (N=269)	Moderate (N=317)	Severe (N=352)	P
Age (years), mean (SD)	41.9 (13.7)	35.4 (11.1)	39.2 (13.2)	43.2 (13.1)	49.2 (13.4)	<0.001
Gender, % female	68.1	61.5	60.5	65.9	66.6	0.57
Race(%)						0.97
White	78.3	74.1	72.9	72.8	69.1	
Black	11.8	31.2	16.2	15.0	17.7	
Other	4.4	4.5	3.9	4.2	3.6	
Hispanic	5.6	8.1	7.0	7.9	9.6	
Married, %	52.7	49.8	53.3	49.9	53.6	0.79
Rural, %	14.4	11.5	25.4	25.3	30.5	<0.001
Education (years), mean (SD)	13.1 (2.5)	13.8 (2.3)	13.6 (2.3)	13.0 (2.3)	12.1 (2.7)	<0.001
Insurance type (%)						<0.001
Uninsured	16.1	15.7	15.5	17.3	16.6	
Private, employer	54.6	65.5	66.1	57.2	34.4	
Private, individual	5.9	9.2	6.6	4.1	3.7	
Medicare	12.3	3.1	4.4	11.6	28.9	
Medicaid	6.1	3.4	3.3	5.7	11.8	
Other public	2.2	1.1	1.8	3.1	2.9	
Other insurance	1.7	2.0	2.2	0.9	1.7	
Suicidal, %	26.9	22.5	16.0	31.4	28.5	0.001
Have another mental health diagnosis, %	37.9	22.8	26.3	42.3	51.6	<0.001

*Percentages may not sum to 100% due to rounding.

Table 2
Mental health care utilization and quality, by CMC health status (in last 12 months)

	No CMC	Mild	Moderate	Severe	P
Median number of mental health specialist visits ^a	10.0	9.5	12.0	12.0	0.42
Median number of primary care provider mental health consultations ^a	1.0	1.0	1.0	1.0	0.28
Number of antidepressant medications taken (%)					0.02
None	81.5	81.3	74.5	67.7	
One or More	16.7	15.1	21.8	27.7	
Two	1.7	2.7	3.7	4.2	
Three or more	0.1	0.9	0.0	0.4	
Had depression recognized (%)	48.6	53.3	55.2	60.9	0.06
Received minimally adequate depression treatment (%) ^b	58.1	42.9	59.2	52.1	0.05
Satisfied with mental health care (%)	69.6	71.8	74.0	75.2	0.62

^a Among those with at least one visit.

^b Among those who had their depression recognized.

Table 3
Effect of chronic illness on depression recognition

	Model 1 ^a (Odds ratio, 95% CI)	Model 2 ^b (Odds ratio, 95% CI)
Chronic Illness		
None	--	--
Mild	1.14 (0.78 - 1.66)	1.06 (0.67 - 1.66)
Moderate	1.25 (0.83 - 1.87) [‡]	0.90 (0.58 - 1.40)
Severe	2.10 (1.32 - 3.35) [‡]	1.33 (0.78 - 2.26) [*]
Trust		1.05 (1.00 - 1.09) [*]
Communication		0.98 (0.92 - 1.04) [‡]
Number of medical visits		1.11 (1.08 - 1.14) [‡]
Have usual provider		1.61 (1.05 - 2.47)

^aControlling for sociodemographic variables and mental health.

^bControlling for sociodemographic variables, mental health, and patient-provider relationship variables

* P<0.05

[‡] P<0.01

[‡] P<0.001

Table 4Effect of chronic illness on receipt of minimally adequate depression treatment and patient satisfaction^a

	Minimally adequate treatment ^b (Odds ratio, 95% CI)	Patient satisfaction (Odds ratio, 95% CI)
Chronic Illness		
None	--	--
Mild	0.71 (0.45 - 1.14)	0.59 (0.32 - 1.09)
Moderate	1.17 (0.72 - 1.90)	0.62 (0.35 - 1.11)
Severe	1.34 (0.75 - 2.39)*	0.62 (0.28 - 1.34)
Suicidal ideation	1.52 (1.06 - 2.17)*	0.86 (0.53 - 1.41)
Have other mental health diagnosis	2.80 (2.08 - 3.78) [†]	1.71 (0.97 - 3.03) [†]
MHI-5	1.00 (0.00 - 1.00)	1.03 (1.02 - 1.05) [†]

^aControlling for sociodemographic variables and mental health^bAmong those who had their depression recognized

* P<0.05

[†] P<0.001

Table 5
Effect of patient provider relationship on depression treatment

	Depression Recognition (OR, 95% CI)	Adequate Depression Treatment (OR, 95% CI)	Satisfaction (OR, 95% CI)
Trust	1.07 (1.04 - 1.11) [‡]	1.06 (1.03 - 1.10) [‡]	1.04 (1.01 - 1.07) [*]
Communication	1.11 (1.06 - 1.15) [‡]	1.13 (1.07 - 1.19) [‡]	1.08 (1.01 - 1.15) [*]
Number of medical visits	1.12 (1.09 - 1.15) [‡]	1.10 (1.07 - 1.13) [‡]	1.00 (0.97 - 1.04)
Having a usual source of care	3.57 (2.26 - 5.63) [‡]	2.87 (1.44 - 5.69) [‡]	1.33(0.71-2.50)
Having a usual provider	1.97 (1.62 - 2.39) [‡]	1.95 (1.46 - 2.61) [‡]	1.33 (1.02 - 1.74) [*]

* P<0.05

[‡] P<0.01

[‡] P<0.001