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The Impact of Patient-Provider Communication and Language Spoken on Adequacy of Depression Treatment for U.S. Women

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Abstract

Many women with depression are untreated or undertreated for their condition. The quality of patient-provider communication may impact the receipt of depression treatment. We examine the relationship between patient-provider communication and receipt of adequate treatment for depression among women. The study sample consisted of women with depression who visited a provider in the previous 12 months in the 2002-08 Medical Expenditure Panel Survey (N=3,179). Multivariate regression was used to examine the independent contribution of sociodemographic characteristics, healthcare factors, patient-provider communication and respondent language on depression treatment status (none, some, adequate). We found that over one-third of women with depression in the U.S. did not receive adequate treatment. Women reporting that providers usually or always listened carefully were more likely to receive adequate treatment (OR=1.55, 95% CI 1.07, 2.23 and OR=1.59, 95% CI 1.10, 2.30, respectively). Non-English speaking women were 50% less likely to receive adequate treatment (OR=0.49, 95% CI 0.30, 0.80). Having a usual source of care was associated with an increased likelihood of receiving some and adequate treatment (OR=1.84 95% CI 1.24, 2.73 and OR=2.22, 95% CI 1.61, 3.05, respectively). Effective provider listening behaviors may help increase the number of U.S. women with depression who receive adequate treatment. Efforts to improve language access for limited English proficient women are likely critical for improving treatment outcomes in this population. Additionally, ensuring that women with depression have consistent access to healthcare services is important for obtaining adequate depression care.

Keywords

patient-provider communication; depression; Medical Expenditure Panel Survey (MEPS); CAHPS

Introduction

Depression disproportionately affects women (National Institute for Health Care Management (NIHCM) Foundation, 2010) and may adversely impact long-term health and quality of life (Strine et al., 2008). Despite the availability of effective treatments (Work Group on Major Depressive Disorder, 2000), women are often undertreated or even untreated for depression (Young, Klap, Sherbourne, & Wells, 2001). Furthermore, there are racial/ethnic and educational disparities in the receipt of adequate treatment (González et al., 2010; Witt et al., 2011). The quality of depression care may be improved by improving patient-provider communication and ensuring access to culturally and linguistically appropriate care. Problems in patient-provider communication and limited English proficiency (LEP) have been recognized as potential risk factors for disparities in health care quality and outcomes (Jacobs, Agger-Gupta, Chen, Piotrowski, & Hardt, 2003; Smedley, Stith, & Nelson, 2003). Research has shown that providers' interactional style or relational factors can affect depression treatment outcomes as well as a patient's willingness to comply with treatment (Henshaw et al., 2011; Zuroff & Blatt, 2006). Recent qualitative studies have shown that patients utilizing outpatient mental health services value relationships with providers in which they felt listened to and understood (Mulvaney-Day, Earl, Diaz-Linhart, & Alegria, 2011), and that among women with depression, provider communication style may influence the likelihood of depression treatment use (Henshaw et al., 2011). The few quantitative studies that have examined the role of provider communication behaviors in depression care have found positive communication behaviors to be associated with patient satisfaction, adherence to antidepressant medications, and receipt of guideline-concordant care (Bultman & Svarstad, 2000; Clever et al., 2006). Taken together, these previous works suggests that the quality of patient-provider communication in visits involving mental healthcare may be associated with subsequent treatment outcomes. However, given that these studies focused on select geographic areas, the findings from the available research are limited in their generalizability to provider communication behaviors and mental healthcare on a national level. Although improving the relationship between patients and providers by enhancing communication skills and the ability to reach a shared understanding of the diagnosis and treatment options is a commonly recommended intervention for improving depression treatment outcomes (Bollini, Pampallona, Kupelnick, Tibaldi, & Munizza, 2006), to our knowledge, the relationship between provider communication behavior and receipt of depression treatment has not been explored in a national sample of women.

Women with LEP represent an important subgroup for consideration in research related to mental healthcare quality and outcomes. It is estimated that nearly 55 million people in the U.S. speak a language other than English at home (United States Census Bureau, 2010), and the proportion of people with LEP increased by 80% between 1990 and 2010 (Pandya, McHugh, & Batalova, 2011). Among mental health patients, LEP has been associated with negative outcomes including decreased use of mental health services (Bauer, Chen, & Alegria, 2010; Gilmer et al., 2007) and longer duration of untreated illnesses (Bauer et al., 2010). Yet, little is known about the relationship between LEP and quality of mental health treatment. A recent study of U.S. Latino and Asian American adults did not find a statistically significant difference in the receipt of adequate treatment for mental disorders

by language proficiency (Bauer & Alegría, 2010); however, the study sample included individuals with mood disorder, anxiety disorder, or substance use disorder and therefore, the findings cannot fully speak to the quality of depression care for LEP individuals.

This study adds to the literature by assessing the relationship between provider communication behaviors and language and the likelihood of receiving adequate treatment for depression among women using a nationally representative population-based sample. Patient-provider communication and language barriers represent potentially modifiable aspects of the healthcare system; therefore, identifying and addressing deficits in these factors may be a key strategy for improving the long-term mental and overall health of women with depression and reducing disparities.

Methods

Data source and study population

Data are from the 2002-2008 Medical Expenditure Panel Survey (MEPS), a nationally representative sample of the civilian non-institutionalized U.S. population. The study sample includes 3,179 adult women with depression who were interviewed about their health and had at least 1 visit to a doctor's office or clinic.

Identification of women with depression—Women with depression were identified through the MEPS Household Component survey where in the Conditions Enumeration Section household respondents were prompted to disclose physical and mental health conditions with the question “We’re interested in learning about health problems that may have bothered ... Health problems include physical conditions, accidents, or injuries that affect any part of the body as well as mental or emotional health conditions, such as feeling sad, blue, or anxious about something” (Agency for Healthcare Research and Quality, 2002). Truncated 3-digit International Classification of Diseases, Ninth Revision (ICD-9) codes were generated from the respondent interview. Women with ICD-9 code 296 or 311, during any round, were identified as having depression. While the ICD-9 code 296 includes major depressive disorder and other episodic mood disorders, over 94% of women with depression in the sample were identified using ICD-9 code 311 (depression unspecified).

Study Variables

Independent variables

Provider communication behaviors: Four items examining how well providers communicate (How often providers... (1) listened carefully to you; (2) explained things so you understood; (3) showed respect for what you had to say; (4) spent enough time with you) were incorporated into the MEPS from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) (Agency for Healthcare Research and Quality, 2004). Adults age 18 and older who visited a doctor's office or clinic in the previous 12 months (not including emergency room visits) completed the 4 communication items. The reference period for each item was the previous 12 months and responses for each item were rated on a 4-point Likert scale including never, sometimes, usually, or always (Agency for

Healthcare Research and Quality, 2004). Due to small numbers in the “never” category the “never” and “sometimes” categories were combined for the regression analyses.

Language: The question “In which language [does the respondent] prefer to speak at home?” was used to proxy limited English proficiency. Possible responses included English, Spanish, or another language. A dichotomized variable was used in the analyses to compare women reporting a preference for speaking English at home to those reporting any other language.

Control variables: Control variables were included according to the domains of the Andersen Behavioral Model (Andersen, 1995). Predisposing characteristics included: race/ethnicity (Hispanic, white (non-Hispanic), black (non-Hispanic), and other (non-Hispanic)), age (18-24, 25-44, 45-64, 65+), education status (no or some high school, high school graduate, some college, and college graduate or beyond), participation in the paid workforce, marital status (currently married, previously married, and never married), region of the U.S. (West, Northeast, Midwest, and South), and urbanicity (urban versus rural as defined by Metropolitan Statistical Area (MSA) status). MSAs are defined by the U.S. Office of Management and Budget (OMB), and used by federal government agencies for statistical purposes (Nussle, 2008). Health insurance (grouped in the following mutually exclusive categories: no health insurance, only publicly funded health insurance, and any private health insurance coverage (including TRICARE)), the poverty threshold level (percent of poverty threshold: below 100%, 100-199%, 200-399%, and 400% and higher), and having a usual source of care were included as enabling factors. The following need factors were also included in the analyses: comorbid mental health and chronic medical conditions, functional limitation status, SF-12v2 Physical Component and Mental Component Summary Scores, self-rated health status, and use of health services in the previous 12 months. Self-rated health status was assessed with the question, “In general, would you say that your health is excellent, very good, good, fair, or poor?” A dichotomous variable was used to compare women reporting fair or poor health to those reporting excellent, very good, or good health. To determine use of health services respondents were asked the number of times they went to the doctor’s office or clinic to get care in the previous 12 months (0, 1, 2, 3, 4, 5-9, and 10 or more). The analyses use a dichotomized variable comparing high users (three or more visits) to low users based on recommendations for analyzing data from CAHPS surveys (Agency for Healthcare Research and Quality, 2011).

Dependent variable

Treatment of depression: Treatment of depression was defined using information about women’s prescription medications and psychotherapy. The MEPS Prescription file was used to determine whether women received prescriptions for medications indicated for the treatment of depression, as determined by the National Committee for Quality Assurance, Healthcare Effectiveness Data and Information Set list of National Drug Codes for antidepressant medication management (NCQA, 2010). The MEPS Outpatient Department Visits and MEPS Office-Based Medical Provider Visits files were used to identify if women had any visits involving psychotherapy. Prescriptions were assumed to be for a minimum of

30 days, and psychotherapy for a minimum of 30 minutes. An index of the level of “adequacy” of the type and duration of treatment based on evidence-based treatment guidelines (Work Group on Major Depressive Disorder, 2000) was constructed using the 2 types of treatment mentioned, pharmacotherapy and psychotherapy. The following mutually exclusive treatment categories were defined: no treatment, some treatment, and adequate treatment. Women with depression who report no pharmacotherapy or psychotherapy over the course of the year were categorized as receiving no treatment. Those who report any use of the identified medications or who reported using outpatient or office-based services were categorized as receiving some treatment for depression over the year. Adequate treatment was defined as receiving at least 4 prescriptions related to depression treatment, or at least 8 outpatient or office-based psychotherapy or counseling visits. Adequate treatment has been operationalized in a similar fashion in other studies (Witt et al., 2011).

Analytic Approach

SAS 9.3 software (SAS Institute Inc., 2011) was used to construct the analytic files and STATA 12 software (StataCorp, 2011) was used to perform all analyses, accounting for the complex design of the MEPS. The standard errors were corrected due to clustering within strata and the primary sampling unit. Survey weights were applied to produce estimates that account for the complex survey design, unequal probabilities of selection, and survey non-response.

Descriptive analysis—Chi-squared analyses were used to test for differences in categorical independent variables by depression treatment status. If differences were found in the overall chi-square tests, each subgroup was tested for statistical significance. Analysis of variance (ANOVA) was used to test for differences in the means of the continuous variables (SF-12v2 Physical Component and Mental Component Summary Scores) by depression treatment status.

Regression analyses—Four separate regression models were fit to examine the relationship between each of the provider communication behaviors and language spoken with adequacy of treatment of depression. Multivariable multinomial logistic regression models were used to estimate the odds of receiving adequate treatment or some treatment, as compared with no treatment while controlling for sociodemographic and health characteristics.

Missing data strategy—To address the missing data, 5 random, multiple-imputed datasets were imputed using the *mi impute chained* command in STATA 12 software (StataCorp, 2011). All regression analyses were conducted using the *mi estimate* command on the imputed datasets in order to adjust coefficients and standard errors for the variability between imputations according to the combination rules by Rubin (StataCorp, 2011). Sensitivity analyses were also done comparing the results from the imputed data to those obtained from a complete case analysis using only the data from respondents who had non-missing values for all study variables ($N = 2,999$).

Results

Overall, 13.7% of 4,707,255 (unweighted $n = 3,179$) U.S. women reported depression. Table 1 shows descriptive statistics for all study variables. STATA 12 software does not support the combination of results from chi-squared analysis using imputed datasets (StataCorp, 2011) and given that the results did not vary between datasets, the results using imputed dataset number 1 are presented. Among women with depression, 22.7% did not receive any treatment, 20.2% received some treatment, and 57.1% received adequate treatment for depression over the course of the year. More than half of women in this sample reported that providers always listened carefully to them (52.6%), explained things so they could understand (54.6%), and showed respect for what they had to say (55.7%). Less than half of women (43.6%) reported that providers spent enough time with them. Additionally, most of the women in the sample (90.2%) spoke English in the home. No significant differences were found in providers' communication behaviors by depression treatment status but compared with women not receiving adequate treatment, adequately treated women were more likely to be English speakers (Table 1). Table 2 presents the adjusted odds ratios (ORs) and 95% confidence intervals (CI) from the multivariable multinomial logistic regression models for each of the provider communication behavior measures and language spoken. Women who reported that providers usually (OR = 1.55; 95% CI = 1.07-2.23) or always (OR = 1.59; 95% CI = 1.10-2.30) listened carefully were more likely to receive adequate treatment than those reporting providers never listened carefully. While the ORs for the remaining behaviors suggested a positive relationship with the likelihood of receiving adequate treatment, none of these findings were statistically significant. Results also indicated that non-English speaking women were half as likely to receive adequate treatment compared to English speakers. Examination of other covariates of interest revealed that women who reported having a usual source of care were more likely to receive some treatment and were more than twice as likely to receive adequate treatment (OR = 1.84; 95% CI = 1.24-2.73 and OR = 2.22; 95% CI = 1.61-3.05, respectively). Overall, the major conclusions drawn from each of the models were unchanged when a complete case analysis was performed.¹

Discussion

This national study examined the relationship between provider communication behaviors and language and the likelihood of receiving adequate treatment for depression among women in the U.S. and found that patient's language and the quality of provider communication were strongly and independently associated with depression treatment status. Specifically, women who reported that providers always or usually listened carefully to them were one and a half times more likely to receive adequate treatment for their depression than those who reported that providers sometimes or never listened carefully to them. Furthermore, non-English speaking women were 50% less likely to receive adequate treatment compared to their English speaking counterparts. This study also found that women who had a usual source of care were more likely to receive some and adequate treatment.

¹Results from the complete case analyses can be obtained by contacting the corresponding author.

Previous studies have suggested that effective communication may lead to improved depression treatment outcomes (Schwenk, Evans, Laden, & Lewis, 2004). This study provides evidence to further support this idea and provides new evidence to support an association between a specific communication behavior and the receipt of appropriate depression treatment for women. There are several potential mechanisms that could account for the association between providers' listening behaviors and the likelihood of receiving adequate depression treatment. First, women who perceive that providers are listening to them during their healthcare encounters may be more likely to feel that their values, preferences, and health beliefs were taken into consideration when formulating the diagnosis and treatment plan. As a result, these women may have more trust in the diagnosis and treatment plan, which may lead to an increased likelihood of initiating and adhering to treatment. It is also possible that providers who have good interpersonal skills as demonstrated by their ability to listen also have increased knowledge and expertise regarding depression diagnosis and management; therefore, increasing the likelihood of recommending guideline-concordant care. Moreover, perceiving technical competence in a provider has been identified by women with depression as a key factor for seeking and using depression treatment (Henshaw et al., 2011). In addition to facilitating the establishment of a connection with a provider (Bennett, Boon, Romans, & Grootendorst, 2007), women with depression have also indicated that a provider's willingness and ability to listen influences the amount of control they feel over treatment options (Henshaw et al., 2011). Women who feel an increased sense of control over the treatment course may be more encouraged and motivated to accept and adhere to depression treatment. Future research is needed to better elucidate the mechanisms by which providers' listening behaviors affect the receipt of depression treatment. Specifically, qualitative studies among women with depression may be beneficial for generating hypotheses in this area from which clinical interventions can be developed and tested.

Our finding regarding provider's listening behavior may have important implications for medical education and training. The presence of communication skills training and assessment in medical education has been well documented (Berkhof, van Rijssen, Schellart, Anema, & van der Beek, 2011). However, communication skills training curriculum often focuses on styles and techniques for asking questions in the medical interview (Yedidia et al., 2003) with little attention paid to teaching effective listening skills. Providers may be able to demonstrate their commitment to listening to patients by exploring in greater detail patient statements about symptoms, ideas or expectations. In addition, attempts should be made to validate patient concerns by expressing empathy and legitimizing concerns (Stewart, Meredith, Ryan, & Brown, 2004). In fact, research has shown that patients with depression whose concerns were explored and validated during medical encounters were more likely to be prescribed appropriate medication (Epstein et al., 2007).

Given the reciprocal nature of communication, there may also be benefits to programs and interventions that train patients to communicate more effectively with their providers. Research in non-mental healthcare has shown that interventions that focus on patients' question asking skills and their willingness to raise concerns or request clarification can be successful in increasing patient participation in the medical encounter (Harrington, Noble, & Newman, 2004). In mental healthcare, recent work suggests that interactive web-based

programming featuring actors simulating a patient discussing treatment concerns may be an effective method for empowering patients with mental illness to engage more fully in the medical encounter by asking more questions about treatment and disclosing more lifestyle information (Steinwachs et al., 2011). Efforts to improve the communication skills of both patients and providers may represent a balanced approach to improving the quality of the healthcare interaction.

This study found evidence that language is an important factor for the receipt of adequate depression treatment. While previous research has identified LEP as a barrier to mental health service use (Sentell, Shumway, & Snowden, 2007), the findings of this study suggest that even when they are able to interact with the healthcare system, individuals with LEP may be at risk for suboptimal depression treatment. Language has long been recognized as a vital factor in how healthcare services are delivered and received (QI Solutions Inc, 2001). Specifically in mental healthcare services, an evaluation in a patient's non-primary language has been shown to be associated with an increased likelihood of an incomplete or distorted mental status assessment (Bauer & Alegría, 2010). Interpreters are frequently used during medical interactions to overcome potential language barriers, and use of professional medical interpreters has been associated with improved clinical care and outcomes for patients with language barriers (Karliner, Jacobs, Chen, & Mutha, 2007). Increasing access to medical interpreters within mental healthcare settings is a critical component of strategies for addressing disparities in the quality of care for individuals with LEP, but this alone is unlikely to be enough. System-wide interventions to promote culturally and linguistically appropriate services such as providing patient education materials in the languages of the groups represented in the service areas, collecting and updating information about patient spoken and written language preferences, and providing ongoing education and training in culturally and linguistically appropriate service delivery for staff (The Office of Minority Health) are also likely to be necessary for improving outcomes in the LEP population.

There is growing evidence to support the feasibility and effectiveness of collaborative care models involving the integration of behavioral/mental health professionals into the primary care process of treating mental health conditions (Unutzer & Park, 2012; Williams et al., 2007). Key aspects of collaborative care include communication and coordination of care; patient education, activation and support; monitoring of symptoms, adherence, and side effects; as well as provider education (Williams et al., 2007). While the use of an evidence-based collaborative approach to depression treatment may be useful for improving outcomes for all patients, the use of this approach in conjunction with the promotion of culturally and linguistically appropriate services may be extremely beneficial for LEP individuals.

Additionally, LEP may be a proxy for low health literacy or cultural preferences. Research has shown low health literacy to be associated with poorer health outcomes, poorer use of health services, and poorer medication adherence (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). However, these studies have not focused on mental healthcare. The available research on depression literacy has focused on the public's ability to correctly identify the signs and symptoms associated with depression (Wang et al., 2007), as such little is known about the relationship between health literacy and the quality of treatment for depression. People with lower health literacy may have decreased knowledge about the diagnosis of

depression and the importance of adequate treatment. They may also lack the skills and resources necessary to effectively interact with the healthcare system. Health literacy is not assessed in the MEPS, and therefore, this study was unable to examine its effect on depression treatment status. More research is needed to explore the relationship between health literacy and adequacy of treatment for depression.

Our findings also highlight the importance of having a usual source of care for women with depression. Continuity of care is not only important for mental health treatment for these women, but research has also shown that among women with psychological distress, having a usual source of care is associated with improved outcomes such as receipt of timely preventive care (Witt et al., 2009). Policies and practices to facilitate reliable access to a consistent source of care for women with depression are necessary to ensure optimal mental and physical health outcomes for these women.

Several potential limitations of this study should be noted. First, these analyses were cross-sectional so causal associations cannot be inferred. Additionally, it should be noted that it is possible that women who did not receive adequate treatment reported less positive ratings of providers' communication behaviors because of the persistent sadness and difficulty with concentration that are part of the illness of depression having influenced the recall and interpretation of the communication that occurred (Schenker, Stewart, Na, & Whooley, 2009). Second, the available measures of provider communication behaviors are limited in their sensitivity and specificity. Specifically, the communication behavior questions are not specific to the individual provider charged with diagnosing and treating the patient for depression and thus may have limited sensitivity in their ability to assess the relationship between provider communication behaviors and depression treatment status. However, the global nature of the survey items provides a system-wide view of the relationship between the communication experiences of women with depression and the likelihood to receiving adequate depression treatment. Third, the study lacked an objective measure of respondent's language proficiency; however, language preference has been used as a measure of LEP in other research examining the relationship between language and health service use (Gilmer et al., 2007). A concern with using language preference to proxy LEP is that it is possible that language preference serves more as a proxy for other factors and characteristics that were not included in the analysis but may influence treatment such as acculturation or individual and cultural beliefs and preferences. Fourth, determination of the adequacy of pharmacotherapy treatment was based on household reported information; therefore, misclassification of treatment status could have occurred. Additionally, given that information on the prescribed treatment plan was unavailable, this study was unable to determine the specific types (e.g. cognitive behavioral therapy or interpersonal therapy) or quality of psychotherapy method being used. Fifth, women with depression were identified using household informant reports instead of clinical diagnoses, and this may limit the generalizability of the findings. Finally, information about severity of depression was not available in the MEPS public use files, so it could not be controlled for in this study. However, general measures of functional status, health-related quality of life, comorbid mental health, and chronic medical conditions were included to address this issue.

This study has important strengths. First, the results are based on national, population-based data, providing policy makers and practitioners with information on the relationships between provider communication behaviors and language spoken with depression treatment status. Additionally, the large numbers of individuals and the breadth of information included in the MEPS database allowed for the estimation of regression models that controlled for several key predictors of depression treatment.

In conclusion, this study shows that effective provider listening behaviors may help increase the number of U.S. women with depression who receive adequate treatment. Moreover, efforts to improve access to culturally and linguistically appropriate services for non-English speaking women may also be a useful strategy for improving treatment outcomes in this population. Finally, ensuring reliable access to continuous care is important for improving the health and mental health of women with depression.

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Table 1
Characteristics of Women with Depression by Depression Treatment Status, 2002-2008 Medical Expenditure Panel Survey

| | Total | No treatment | Some treatment ^a | Adequate treatment ^b | |
|------------------------------------|------------------|------------------|-----------------------------|---------------------------------|---------------|
| | N | % | N | % | P |
| Unweighted N | 3,179 | 781 | 637 | 1,761 | |
| Weighted N | 4,707,255 | 1,067,940 | 950,569 | 2,688,746 | |
| % | NA | 22.7 | 20.2 | 57.1 | |
| Communication Measures | | | | | |
| Listened Carefully | | | | | |
| Never | 17 | 2.5 | 11 | 1.3 | 25 |
| Sometimes | 97 | 11.4 | 71 | 10.6 | 173 |
| Usually | 251 | 33.7 | 230 | 37.6 | 632 |
| Always | 416 | 52.4 | 325 | 50.5 | 931 |
| | | | | | 0.1823 |
| Explained So You Understood | | | | | |
| Never | 21 | 2.8 | 9 | 1.2 | 26 |
| Sometimes | 86 | 9.4 | 68 | 10.2 | 146 |
| Usually | 249 | 32.5 | 217 | 34.3 | 621 |
| Always | 425 | 55.3 | 343 | 54.3 | 968 |
| | | | | | 0.0597 |
| Showed Respect | | | | | |
| Never | 15 | 1.9 | 10 | 0.9 | 18 |
| Sometimes | 76 | 8.7 | 78 | 12.2 | 154 |
| Usually | 253 | 33.9 | 202 | 33.4 | 602 |
| Always | 437 | 55.5 | 347 | 53.5 | 987 |
| | | | | | 0.0626 |
| Spent Enough Time | | | | | |
| Never | 33 | 3.2 | 22 | 3.2 | 44 |
| Sometimes | 118 | 15.1 | 99 | 15.9 | 224 |
| Usually | 319 | 39.5 | 240 | 38.0 | 695 |
| Always | 311 | 42.2 | 276 | 42.9 | 798 |
| | | | | | 0.5584 |
| Language Spoken | | | | | |
| | | | | | 0.000 |

| | Total | No treatment | Some treatment ^e | Adequate treatment ^b | P |
|--|-----------|--------------|-----------------------------|---------------------------------|---------------|
| | N | % | N | % | N |
| Unweighted N | 3,179 | 781 | 637 | 1,761 | |
| Weighted N | 4,707,255 | 1,067,940 | 950,569 | 2,688,746 | |
| % | NA | 22.7 | 20.2 | 57.1 | |
| English | 638 | 90.3 | 575 | 94.7 | 1653 |
| Predisposing Factors | | | | | |
| Race/Ethnicity | | | | | 0.0000 |
| White (Non-Hispanic) | 415 | 67.5 | 437 | 82.6 | 1316 |
| Black (Non-Hispanic) | 118 | 12.2 | 71 | 6.6 | 172 |
| Other (Non-Hispanic) | 51 | 6.5 | 26 | 2.9 | 75 |
| Hispanic | 197 | 13.8 | 103 | 7.9 | 198 |
| Age group | | | | | 0.0000 |
| 18-24 | 82 | 11.2 | 39 | 5.7 | 65 |
| 25-44 | 293 | 39.1 | 254 | 39.5 | 524 |
| 45-64 | 286 | 33.2 | 240 | 37.1 | 878 |
| 65+ | 120 | 16.5 | 104 | 17.7 | 294 |
| Education status | | | | | 0.0004 |
| No or some high school | 265 | 22.8 | 148 | 16.2 | 387 |
| High school graduate | 250 | 33.9 | 202 | 31.8 | 578 |
| Some college | 159 | 24.6 | 167 | 27.9 | 420 |
| College or beyond | 107 | 18.6 | 120 | 24.2 | 376 |
| Participation in the Paid Workforce | | | | | 0.0044 |
| Unemployed | 333 | 36.5 | 278 | 38.8 | 907 |
| Marital Status | | | | | 0.0012 |
| Currently married | 315 | 41.2 | 288 | 48.5 | 797 |
| Previously married | 305 | 36.9 | 232 | 33.8 | 700 |
| Never married | 161 | 21.9 | 117 | 17.7 | 264 |
| Region of U.S. | | | | | 0.0008 |

| | Total | No treatment | Some treatment ^e | Adequate treatment ^b | |
|---|-----------|--------------|-----------------------------|---------------------------------|------|
| | | N | % | N | % |
| Unweighted N | 3,179 | 781 | 637 | 1,761 | |
| Weighted N | 4,707,255 | 1,067,940 | 950,569 | 2,688,746 | |
| % | NA | 22.7 | 20.2 | 57.1 | |
| | | N | % | N | % |
| Northeast | | 87 | 13.8 | 84 | 15.9 |
| Midwest | | 189 | 26.5 | 145 | 24.5 |
| West | | 241 | 29.0 | 160 | 24.4 |
| South | | 264 | 30.7 | 248 | 35.2 |
| Urbanicity/MSA Status | | | | | |
| MSA | | 634 | 84.4 | 481 | 76.7 |
| Enabling Factors | | | | | |
| Health Insurance Status | | | | | |
| Private | | 408 | 64.3 | 381 | 70.3 |
| Public | | 266 | 25.1 | 191 | 22.1 |
| None | | 107 | 10.6 | 65 | 7.6 |
| Ratio of family income to poverty threshold | | | | | |
| Below 100% (Poor) | | 223 | 20.3 | 149 | 15.4 |
| 100-199% (Near poor/Low) | | 202 | 22.1 | 130 | 18.0 |
| 200-399% (Middle) | | 207 | 30.9 | 184 | 31.0 |
| 400%+ (High) | | 149 | 26.6 | 174 | 35.6 |
| Usual Source of Care | | | | | |
| Yes | | 628 | 82.3 | 569 | 91.6 |
| Need Factors | | | | | |
| Comorbidity Status | | | | | |
| Other mental health conditions | | 156 | 18.6 | 162 | 24.5 |
| Chronic medical conditions | | 452 | 55.3 | 390 | 59.0 |
| Functional Limitation Status | | | | | |
| 0 out of 5 limitations | | 490 | 66.5 | 385 | 66.3 |

| | Total | No treatment | Some treatment ^a | Adequate treatment ^b |
|---------------------------------------|-----------|--------------|-----------------------------|---------------------------------|
| | N | % | N | % |
| Unweighted N | 3,179 | 781 | 637 | 1,761 |
| Weighted N | 4,707,255 | 1,067,940 | 950,569 | 2,688,746 |
| % | NA | 22.7 | 20.2 | 57.1 |
| 1 out of 5 limitations | 85 | 10.6 | 62 | 8.5 |
| 2 or more limitations | 206 | 22.9 | 190 | 25.2 |
| Health Status | | | | |
| Fair/poor Health Status | 396 | 41.8 | 281 | 37.5 |
| Use of Health Services | | | | |
| High (3 or more visits) | 446 | 58.5 | 444 | 71.3 |
| Health-Related Quality of Life | | | | |
| SF-12 Physical Health Summary Score | Mean | SD | Mean | SD |
| SF-12 Mental Health Summary Score | 46.5 | 15.5 | 46.4 | 15.3 |
| | 42.8 | 14.3 | 42.2 | 13.6 |
| | | | 40.5 | 13.5 |
| | | | | 0.0005 |

Notes: Results from imputed dataset #1; MSA = Metropolitan Statistical Area

^aReceived some treatment (but less than adequate treatment)

^bReceived at least 4 prescriptions for antidepressants and/or 8 office-based or outpatient psychotherapy or counseling visits

Table 2
Adjusted Odds of Receiving Treatment among Women with Depression in the USA, 2002-2008 Medical Expenditure Panel Survey

| | Listened Carefully | | Explained | | Showed Respect | | Spent Time | |
|-------------------------------------|-----------------------------|---------------------------------|-----------------------------|---------------------------------|-----------------------------|---------------------------------|-----------------------------|---------------------------------|
| | Some treatment ^a | Adequate treatment ^b | Some treatment ^a | Adequate treatment ^b | Some treatment ^a | Adequate treatment ^b | Some treatment ^a | Adequate treatment ^b |
| Independent variables | OR | OR | OR | OR | OR | OR | OR | OR |
| | 95% CI | 95% CI | 95% CI | 95% CI | 95% CI | 95% CI | 95% CI | 95% CI |
| Listened carefully* | | | | | | | | |
| Always | 1.12 (0.73 - 1.74) | 1.59* (1.10 - 2.30) | | | | | | |
| Usually | 1.22 (0.77 - 1.92) | 1.55* (1.07 - 2.23) | | | | | | |
| Explained so you understood* | | | | | | | | |
| Always | | | 0.85 (0.55 - 1.32) | 1.33 (0.91 - 1.95) | | | | |
| Usually | | | 0.89 (0.57 - 1.39) | 1.33 (0.92 - 1.94) | | | | |
| Showed respect* | | | | | | | | |
| Always | | | | | 0.72 (0.47 - 1.11) | 1.35 (0.92 - 1.99) | | |
| Usually | | | | | 0.71 (0.47 - 1.08) | 1.22 (0.83 - 1.80) | | |
| Spent enough time* | | | | | | | | |
| Always | | | | | | | 0.87 (0.59 - 1.26) | 1.33 (0.95 - 1.86) |
| Usually | | | | | | | 0.82 (0.57 - 1.18) | 1.25 (0.89 - 1.76) |
| Language[†] | | | | | | | | |
| Other | 0.95 (0.52 - 1.73) | 0.49* (0.30 - 0.80) | 0.96 (0.52 - 1.75) | 0.50* (0.31 - 0.82) | 0.97 (0.53 - 1.78) | 0.50* (0.31 - 0.81) | 0.98 (0.53 - 1.79) | 0.49* (0.30 - 0.80) |
| Usual source of care [‡] | | | | | | | | |
| Yes | 1.84* (1.24 - 2.73) | 2.22* (1.61 - 3.05) | 1.87* (1.26 - 2.77) | 2.20* (1.59 - 3.03) | 1.88* (1.27 - 2.78) | 2.21* (1.60 - 3.05) | 1.87* (1.26 - 2.76) | 2.19* (1.59 - 3.03) |

Abbreviations: OR = Odds Ratio, CI = Confidence Interval

Reference Values:

Notes. Results combined over 5 datasets; Analyses are adjusted for the following year 1 patient characteristics: race/ethnicity, age, education status, employment status, marital status, region of U.S., Metropolitan Statistical Area status, health insurance status, income, other mental health conditions, chronic medical conditions, functional limitation status, self-rated health status, HRQoL, and use of health services.

* Never/sometimes

[†] English

[‡] No

^a Received some treatment (but less than adequate treatment)

^b Received at least 4 prescriptions for antidepressants and/or 8 office-based or outpatient psychotherapy or counseling visits; * $p < 0.05$